

## Directions for customizing the S&H Manual

1. Open as a Word Document and SAVE AS with “draft” added to the end of the file name.
2. Left click VIEW tab at top of screen.
3. Left click on NAVIGATION PANE.
4. In the NAVIGATION PANE right click on CHAPTER 1.
5. Left click COLLAPSE ALL
6. Review the chapters in the manual, if your company does not have any liability related to a chapter you may delete that chapter, but please consider carefully before doing so. (To delete left click on the chapter and then right click on DELETE)
7. Using the Find/Replace feature replace the following keywords
  - a. COMPANYNAME with the name of your company.
  - b. COMPANYADDRESS with the street address of your company
  - c. CITYSTATEZIP with the city name, state and zip code of your company
  - d. SAFETYCOORDINATOR with the name of the designated safety coordinator of your company.
  - e. SIGNATURE# with the name of the responsible person authorizing the manual
  - f. TITLE# with the title/position of the responsible person authorizing the manual
  - g. (XXX) XXX-XXXX with the company phone number
  - h. (YYY) YYY-YYYY with the company fax number (if the company does not have a fax number replace (YYY) YYY-YYYY (fax) with an empty field in the Replace with: field
  - i. WPVRESPONSIBLEPERSON with the name of the person responsible for addressing violence in the workplace
  - j. FIRSTAIDKITLOCATION with the location of first-aid kits
  - k. PPERESPONSIBLEPERSON with the name of the person from whom employees can obtain PPE
  - l. RPPRESPONSIBLEPERSON with the name of the person responsible for administering the Respiratory Protection Program
  - m. SDSLOCATION with the location where workers can find SDS information
8. Go through the document and update each section that is high-lighted yellow. For some sections a decision may need to be made to keep or delete the information. Pages with large yellow boxes on them need information specific to your organization.
9. Go through the document and review all high-lighted blue sections that have been updated since the last update
10. Insert your own Substance Abuse Policy in the placeholder in the Substance Abuse Chapter.
11. Insert your logo where appropriate. (Disciplinary Policy, Powered Industrial Trucks, and Driver Safety Program)
12. If you have moved or removed any chapters, make sure that you update the table of contents. (Right click on any line in the Table of Contents, then left click UPDATE FIELD)
13. Set aside time each day to read the manual one chapter at a time. The procedures and work practices provided can help make your employees safer and more productive.
14. Delete this page and save your new Safety and Health Manual.

Insert Company  
Logo Here

# Safety & Health Manual

Implemented: (Date this Manual was Implemented by your Company)

Last Revised: N/A or (Date of Last Revision)

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# Policy Statement

COMPANYNAME

COMPANYADDRESS

CITYSTATEZIP

The designated safety coordinator for COMPANYNAME is SAFETYCOORDINATOR

## **Policy**

COMPANYNAME is vitally interested in the safety and well-being of its employees. We understand that there are no winners when an employee is injured on the job. The employee, his or her family, and the company all suffer as a result.

We value all of our employees. Whether you work in our offices, in the plant or in the field, you are our most valuable asset. We consider your safety and health our top priority.

Therefore, we have implemented this Safety & Health Program to guide us. We view the effective implementation of this Program as a partnership with our work force. Only with management support and cooperation from the work force at every level will such an effort be successful.

We welcome you as an employee and we also welcome your cooperation in assuring the Safety & Health of all those who are employed at COMPANYNAME.

This company will govern itself in accordance with all federal, state, and local agency rules and regulations. We will not undertake any task, whether directly or indirectly, which would knowingly violate company policy, or the law, or endanger the safety and health of our employees.

*SIGNATURE#*

TITLE#



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## Revision Log

### Purpose

The documentation of revisions is an essential part of updating the Safety and Health Manual as it will show what parts of a program were changed, what new programs were added, if programs were removed and changes in key personnel spelled out in the program. These revision changes will be reviewed with employees to update them of the changes to the Safety and Health Program. These revision changes will also be of importance if it is requested upon by various interested parties.

### Roles & Responsibilities

**Management** - COMPANYNAME is responsible for continually reviewing, maintaining, and updating this manual as necessary to maintain relevancy and ensure it reflects current standards and interpretations applicable to the company's operations. Employees will be trained on any new policies or procedures implemented or changed within this Safety and Health Manual.

**Safety Representative** - The Safety Representative must ensure that the Revision Log is updated when any change to the Safety & Health Manual is made.

**Supervisors** - Supervisors are responsible for ensuring that the policies and procedures effected by the Safety and Health Manual changes are understood and implemented by employees.

**Employees** - Each employee has the responsibility to follow any new policy or procedure implemented due to changes made to the Safety and Health Manual.

Rev. Date	Description	Rev. Made By
05/06/20	Added Infectious Disease Control Program	RM
07/13/20	Updated COVID-19 Exposure Control Plan	RM
07/31/20	Removed COVID-19 Exposure Control Plan	RM
12/31/20	Updated the Reception Responsibilities and Procedures for OSHA Inspections page in the OSHA Inspection Plan	RM
01/01/21	Minor updates to: <ul style="list-style-type: none"><li>• Respirable Crystalline Silica Program</li><li>• Personal Protective Equipment (PPE) Program</li><li>• OSHA penalty amounts in OSHA Inspection Plan</li></ul>	RM
08/20/21	Update the Mobile Elevating Work Platforms (MEWP) Program	RM
5/15/22	Updated: <ul style="list-style-type: none"><li>• OSHA Incident Reporting Policy to provide clarification</li><li>• OSHA Recordkeeping Policy</li><li>• OSHA Inspection Plan (Penalties)</li><li>• Subcontractor Safety Policy</li><li>• Emergency Action Program</li><li>• Fire Prevention Program</li><li>• Medical/First-Aid Program</li><li>• Bloodborne Pathogens Program</li></ul>	RM

5/15/22 (continued)	<ul style="list-style-type: none"><li>• Infectious Disease Control Program</li><li>• Hearing Conservation Program</li><li>• Respiratory Protection Program</li><li>• Hazard Communication Program</li><li>• Fall Protection Program</li><li>• Material Handling and Storage Program</li><li>• Hand and Power Tools (powder-actuated fastening tools)</li><li>• Electrical Safety Program</li><li>• Control of Hazardous Energy (Lockout/Tagout) Program</li><li>• Driver Safety Program</li></ul> <p>Complete revision of Scaffolding Program</p> <p>Added:</p> <ul style="list-style-type: none"><li>• Cold Stress Program</li><li>• Respiratory Protection Program: Voluntary Use Only</li><li>• Lighting Program</li><li>• General Housekeeping Program</li></ul>	
9/20/23	<ul style="list-style-type: none"><li>• Updated OSHA Inspection Plan (OSHA Penalty amounts)</li><li>• First-aid/CPR Program to add AED and inspection forms for AED</li><li>• Updated Fall Protection Program (calculating fall distances, suspension trauma, rescue)</li><li>• Hand and Power Tools Program (added portable generators)</li><li>• Electrical Safety Program (added portable generators)</li></ul>	

## **Chapter 1 Roles and Responsibilities**

### **1.1 Purpose, Scope & Policy**

#### **1.1.1 Purpose**

This section lists the responsibilities of COMPANYNAME and its' employees. These responsibilities are taken seriously at all times.

#### **1.1.2 Scope**

Every employee has a role and specific responsibilities to insure a safe, healthful, and productive work environment.

#### **1.1.3 Policy**

This policy and the COMPANYNAME Safety Management System emphasizes a shared responsibility for safety fostering a "culture of safety" reliant upon responsible leadership while encouraging individual ownership of personal behaviors and active associate engagement.

### **1.2 Roles & Responsibilities**

#### **1.2.1 Employer Responsibilities**

COMPANYNAME obligation is to provide a safe and healthy work environment. This is accomplished through training and information provided to all levels of employees regarding safe operating practices. Accomplishment of this objective is monitored through regular inspections of facilities and equipment. It is the policy of COMPANYNAME to provide a place of employment free from recognized hazards which may cause illness, injury, or death to any employee. It is also this company's policy to establish an effective and on-going safety program incorporating educational and monitoring procedures maintained to teach safety, correct deficiencies, and provide a safe, clean working environment. All company supervisors, managers, directors, and officers are responsible for the enforcement of safety policies and practices. They must ensure that their staff members are trained in appropriate safety procedures.

#### **1.2.2 Employee Responsibilities**

It is COMPANYNAME employee's responsibility to follow all safety rules and policies and work safely at all times. It is the employee's responsibility to report or correct unsafe equipment, practices, and events. Safety is everybody's business, all the time. All employees have a responsibility to themselves and to the company for their personal safety and the safety of their coworkers. All employees are required to:

- Comply with all federal, state, and local rules and regulations relevant to their work.
- Observe all company rules, regulations, and policies related to efficient and safe work performance.
- Incorporate safety into each job function in the performance of job duties.
- Report or correct unsafe equipment and practices.
- Report any accidents that occur while on the job.

Employees will not face disciplinary action for the reporting of unsafe acts or conditions.

### **1.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>i</sup>

### **1.4 Training**

#### **1.4.1 Initial**

Topics required to comply with industry standards and regulations and to perform selected work.

### **1.4.2 Refresher**

Repeated training required to maintain or re-establish individual performance at a high level of competency.

## Chapter 2 General Safety Rules

### 2.1 General Safety Rules

1. Proper personal protective equipment is required at all times on project sites. This includes, but is not limited to, the following:
  - a. **at all times!**
  - b. Work boots must be of the lace up type. Pull on boots will not be allowed.
  - c. Face shields, in addition to safety glasses, when grinding or cutting any material which can fly toward the face.
  - d. Face shields tinted with a #3 or #5 shade, in addition to safety glasses, when cutting steel with a torch.
  - e. Welding hoods with a #10 or #12 shade, in addition to safety glasses, when performing any welding operations.

**Specify the Minimum  
Required PPE  
(and delete this box)**

- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
9. Walking and working surfaces should be kept clear of objects such as materials, tools, cord, etc. in an effort to minimize slip, trip, and fall hazards.
10. Report all incidents, injuries, or illness to supervisor immediately. Delay in receiving medical or first aid care can further complicate the effects of an injury. Additionally, unreported incidents can promote reoccurrence of the incident with possibility of further worker injury. This policy mandates that a report be filed with the office the same day in all instances.
11. Perform your assigned tasks safely. When in doubt of how to do so, ask for additional help or training. Workers should not perform any task or operate any equipment unless trained in the specific operation of and made aware of the hazards associated with the task/equipment and the controls of such hazards.
12. Do not lift objects which are too heavy. Request help or use a lift.
13. Bend with the legs when lifting. Do not use the back.
14. Do not smoke near flammable materials.
15. Make sure all guards are in place when operating equipment. Do not remove guards unless you are authorized to do so as part of a lockout/tagout process.
16. Machinery shall not be re-fueled, oiled, serviced, or repaired while in operation.
17. Fall protection must be utilized at fall heights as follows:  
When over 6' in a construction setting.  
When over 10' working on a scaffold.
18. Fall protection equipment such as a full body harness and lanyard shall be worn when operating any articulating boom platform or lift. Additionally, occupants of the basket shall remain on the floor of the lift and not use the rails, toe boards or materials to elevate themselves off the floor of the lift.
19. Check each ladder before use to ensure that the ladder has no defects.

20. Extension ladders shall be inspected prior to use, used at the proper 4:1 ratio, properly secured, and extended 3' above the landing surface. The user shall always face the ladder, use 3 points of contact, and maintain good balance by keeping their belt buckle within the rails of the ladder. Materials, tools, and other items shall not be carried up the ladder. Materials and tools shall be hoisted to upper levels with the use of a hoist rope.
21. Workers shall not handle, repair, or tamper with electrical equipment unless authorized.
22. Ensure that electrical equipment such as power tools, electrical cords, or portable lighting is all in good repair with no broken or missing parts or insulation.
23. Ensure that GFCI receptacles are utilized at all times with any cords or corded equipment.
24. Safe work practices will be employed while working in or around trenches and excavations including:
  - a. Ladders or ramps will be provided in excavations deeper than 4'
  - b. Travel distances shall be kept to less than 25' to the ladder or ramp
  - c. Protective measures such as shoring, sloping, benching or trench shields shall be utilized in all trenches deeper than 5'

### **Hazardous Materials**

1. All employees shall be aware of any hazardous material on the job or that they have potential exposure to.
2. Employees should be trained in the safe handling and potential hazards of the material.
3. All aspects of the employee Hazard Communication Act including awareness, protection, and proper handling shall be observed and practiced.
4. Each employee has a right to read the Safety Data Sheets on any chemical that they have the potential to be exposed to. Employees shall wash hands after the use of any Hazardous Substance.

### **Office Safety**

1. Each employee shall at all times observe safe working methods and procedures and assist in acquainting new employees with our concern for safety.
2. Familiarize yourselves with emergency procedures and rules for evacuation.
3. Office equipment shall be arranged to provide safe working conditions.
4. When lifting, loading, or unloading anything heavy or awkward ask for help or use appropriate carts or dollies.
5. Use chemicals carefully and be sure to read the labels and SDS. Examples of Hazardous Chemicals that may be found in our office include cleaning fluids, correction fluids, and rubber cement.
6. Falls are the most common office injury (Pay attention to slip, trip, and fall hazards).
7. Pick up or clean up anything dropped on the floor. Please do not wait for someone else to clean up.
8. Aisles, exits, and exit routes shall be kept clear of all obstruction at all times.
9. Do not attempt to operate or make repairs to our office or office equipment and furniture unless you have been trained to do so. Please call the appropriate service technician or our maintenance department.
10. Unjamming and servicing photocopy machines involve electrical hazards and exposure to hot surfaces. Only specifically trained employees shall open or service the copy machine.
11. Do not overload electrical circuits with double or triple plugs. If there is a need for more electrical service, please ask management to add a circuit and outlets.
12. Report any frayed or damaged electrical cords. Use industrial strength extension cords.
13. Office machines and their cords shall be guarded as needed and required by law. Telephone cords and electrical cords to typewriters or other equipment shall be maintained in such a manner as will present no tripping hazard. Frayed or badly worn cords shall be replaced. Cords should not be allowed to come in contact with heat producing equipment, such as portable heaters.
14. Machines shall never be cleaned or adjusted while in operation.
15. Equipment or machines in need of repair are to be removed from service immediately and not returned to use until properly repaired.
16. Hand paper cutters shall have the blade in the down position at all times when not in use.
17. Filing cabinets and bookcases shall be firmly based or attached to wall fittings to prevent tipping.



18. When not in actual physical use, all desk and file drawers shall be kept closed so as to avoid limiting safe use of aisles. Not more than one file drawer shall be opened at one time. Opening additional drawers could over balance the file, causing all of the drawers to roll out onto the employee. Employees shall not stand on or in an open file drawer as a means of reaching a higher object.
19. Ladders or step stools of adequate design to support the employee's weight and the material to be obtained shall be provided and readily available as a means of reaching high files and/or storeroom shelves. No employee shall stand on a swivel or folding chair for any such purpose.
20. All hazards, such as sharp file cabinet edges or any other conditions likely to do bodily harm, damage clothing, or constitute a fire hazard shall be reported to the manager.
21. All accidents and near misses are to be reported to the manager the same day.

*Safety suggestions are welcomed and encouraged.*

## Chapter 3 Safety Training Policy

### 3.1 Purpose, Scope and Policy

#### 3.1.1 Purpose

COMPANYNAME considers training and education as a means for our employees to learn a safe and healthful approach to their assignments. Knowledge of the safety rules and how and when to function under the rules, supplemented by compliance, is essential to establishing a safe work environment. Therefore, the following procedures are established.

#### 3.1.2 Scope

The safety training policy relates to all employees.

#### 3.1.3 Policy

The safety training policy is an important aspect of the safety management system and will be followed by all employees.

### 3.2 Roles & Responsibilities

#### 3.2.1 Management

It is the responsibility of management to determine when specific employees must receive specialized training in order to ensure competency in particular job assignments.

#### 3.2.2 Supervisors

It is the responsibility of supervisors to ensure their employees are scheduled and provided training as required.

#### 3.2.3 Employees

It is the responsibility of employees scheduled for any safety and health training to attend and actively participate in such training.

### 3.3 Definitions

**Training** - Skills, knowledge or experience transmitted to employees.

### 3.4 Training

Individual job/task training will be provided to all employees. Included in this training is: the applicable regulations/standards for their job; the recognition, avoidance, and prevention of unsafe conditions; areas and activities that require personal protection equipment; and how to use protective equipment (such as respirators, etc.) that applies to the job assignment.

Examples of specified training include (but are not limited to):

Fire Prevention Safety	Welding/Cutting Safety
Walking & Working Surfaces	Crane Safety
OSHA 10/30 Hour Course	First-Aid/CPR Machine Guarding
Ladder Safety	Emergency Response Procedures
Accident/Incident Investigation	Personal Protective Equipment
Hazard Communication	Driver/Vehicle Safety
Scaffold & Aerial Lift Safety	Respirator Care and Use
Confined Space Entry	Forklift Operation
Lockout/Tagout	Electrical Work

Rigging/Hoisting Safety

And others as required

Training addressed above will be documented in the employees' personnel records and/or in a master training record.

#### **3.4.1 Initial**

New employees will be provided orientation training and will be furnished information and literature covering the company health and safety policies, rules, and procedures. This orientation training will be provided prior to the employee's exposure to the work environment.

#### **3.4.2 Refresher**

On-going safety training sessions will be conducted to provide information and training on new equipment, new procedures, new chemicals, refresher/remedial training in specific areas, or meet annual requirements. Such training may be held in conjunction with the safety briefings/meetings addressed elsewhere in this program. Employees observed not performing to standards may be required to attend additional training sessions.

#### **3.4.3 Recertification**

Training conducted on an established frequency according to regulation or policies.

### **3.5 Appendix**

- Safety Meeting Sign in Sheet

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**Safety Meeting Sign-In Sheet**

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**Date:** \_\_\_\_\_**Agenda:**

1.	
2.	
3.	
4.	

**Attendees:**

Employee/Empleado	Signed/Firma

**Facilitator:**

## **Chapter 4 Post Offer Screening Policy**

### **4.1 Purpose, Scope & Policy**

#### **4.1.1 Purpose**

Management is committed to providing a safe and healthful workplace for its employees, both existing and new. As such, the company recognizes that hiring workers who are unable to perform the essential job functions required for the position, consistent with business necessity, will put the worker at undue risk of physical injury. Additionally, co-workers may be negatively impacted.

In an effort to prevent this situation, the company has implemented a post offer screening policy.

#### **4.1.2 Scope**

Each new applicant, upon acceptance, will be offered employment contingent upon successful completion of a screening for the ability to perform essential job functions.

#### **4.1.3 Policy**

Hiring Practice:

- Make employment offer contingent
- Preliminary paperwork issued
  - Payroll such as I-9 & W-4, etc.
  - Informed Consent Form for Post Offer Screening
  - Acknowledgement of Receipt of Substance Abuse Policy
  - Consent for Drug Test
  - Map to testing facility
  - Screening sheet for appropriate position
- Call the testing facility to notify of worker en-route
- Worker screened at testing facility
- Completed screening sheet faxed to COMPANYNAME indicating pass/fail
- If pass, continue hiring process
- If fail, dismiss

### **4.2 Roles & Responsibilities**

#### **4.2.1 Employer Responsibilities**

Human Resource Manager - It is the responsibility of the Human Resource Manager to assure conformance of the hiring policy is properly followed.

### **4.3 Appendix**

- Informed Consent for Post Job Offer Screening

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**Informed Consent for Post Job Offer Screening**

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I hereby acknowledge my informed consent to participate in a post job offer screening. I understand that my participation in the screening is vital to my employment. I am aware that I will be completing physical activities that may include lifting, carrying, climbing, kneeling, standing, squatting, digging, pushing, and pulling. I am aware that I will be shown a list of activities to be completed, which are consistent with the essential job functions for the job for which I have been offered. I am aware that I choose whether or not to complete any activities that I have been given restriction on by a physician or other licensed health care professional (PLHCP).

Pending completion of screening, results will be faxed to COMPANYNAME. A representative from COMPANYNAME will contact me at the screening location to inform me of my employment status.

---

Signature of Employee

---

Signature of Employer Representative

---

Date

## **Chapter 5 New Hire Orientation Policy**

### **5.1 Purpose, Scope, and Policy**

#### **5.1.1 Purpose**

The purpose of this program is to provide a safe and healthful workplace for its employees. This is done only through building a positive culture of safe work practices.

#### **5.1.2 Scope**

This culture must be visible from the beginning of an employee's experience with the company. Therefore, COMPANYNAME engages its new employees in a new hire orientation program.

#### **5.1.3 Policy**

This program serves to orient the employee to the company, its culture, and its programs and procedures as it relates to safety.

### **5.2 Roles & Responsibilities**

#### **5.2.1 Employer Responsibilities**

It is the responsibility of the employee's supervisor to train or ensure training has been completed by all new employees for proper safe work practices on the job.

#### **5.2.2 Employee Responsibilities**

New Employees - It is the responsibility of new employees to understand and comply with the following:

- Safety policy, roles and responsibilities, and general safety rules
- Proper attitude toward safety and other workers
- Accident and incident reporting policies
- Hazard communication program
- Personal protective equipment care and use
- Specific topics relevant to the employee's work
- Other topics as required

### **5.3 Definitions**

**Incident** - An incident is any event that results in property damage or could have caused property damage or personal injury.

**Injury** - An injury is any incident that results to bodily harm to an employee or other person.

### **5.4 Training**

#### **5.4.1 Initial**

Orientation training will be conducted and documented utilizing the New Hire Orientation Training Checklist form.

#### **5.4.2 Refresher**

All employees will be trained on any new or revised company policies.

### **5.5 Appendix**

- New Hire Orientation Training Checklist
- New Hire Orientation / Annual Safety Training Sign-in Sheet

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**New Hire Orientation Training Checklist**

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Employee Name: \_\_\_\_\_ Date: \_\_\_\_\_

This checklist is to certify that I have reviewed or had the following items discussed with me.

**Topic****Yes No**

- |    |   |                          |
|----|---|--------------------------|
| 1  | Safety Culture and Safe Work Practices .....                      | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 2  | Roles and Responsibilities .....                                  | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 3  | Disciplinary Policy .....   | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 4  | Incident/Injury reporting policy – MUST Report the Same Day ..... | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 5  | Workplace Violence & Harassment Policy – Zero Tolerance .....     | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 6  | Emergency Action Plan .....                                       | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 7  | Fire Prevention .....   | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 8  | Medical Emergencies .....   | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 9  | Job Hazard Analysis and Competent Person .....                    | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 10 | General Safety Rules* .....                                       | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 11 | PPE Overview .....  | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 12 | Eye and Face Protection .....                                     | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 13 | Head Protection .....   | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |
| 14 | Hearing Protection .....  | <input type="checkbox"/> |
|    | .....   | <input type="checkbox"/> |



- 15 Respirators ..... ☐  
..... ☐  
..... ☐
- 16 Dust Masks ..... ☐  
..... ☐  
..... ☐
- 17 HAZCOM Overview ..... ☐  
..... ☐  
..... ☐
- 18 Safety Data Sheet ..... ☐  
..... ☐  
..... ☐
- 19 Labels ..... ☐  
..... ☐  
..... ☐
- 20 Silica Awareness ..... ☐  
..... ☐  
..... ☐
- 21 Fall Protection..... ☐  
..... ☐  
..... ☐
- 22 Ladders ..... ☐  
..... ☐  
..... ☐
- 23 Scaffolding ..... ☐  
..... ☐  
..... ☐
- 24 Aerial Work Platforms ..... ☐  
..... ☐  
..... ☐
- 25 Confined Space Awareness ..... ☐  
..... ☐  
..... ☐
- 26 Electrical Safety ..... ☐  
..... ☐  
..... ☐
- 27 Lockout/Tagout ..... ☐  
..... ☐  
..... ☐
- 28 Other: \_\_\_\_\_ ☐ \_\_\_\_\_ ☐

\* See Training Supplement Sheet(s) for further information on this topic

Employee Signature: \_\_\_\_\_

Trainer Signature: \_\_\_\_\_

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**New Hire Orientation / Annual Safety Training Sign-in Sheet**

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**COMPANYNAME**

Date: \_\_\_\_\_

Location: \_\_\_\_\_

Time: \_\_\_\_\_ AM/PM - \_\_\_\_\_ AM / PM

Trainer/Facilitator: \_\_\_\_\_  
(name) (signature)

Employee/Empleado	Signed/Firma

[illegible]

**Chapter 6    Substance Abuse Policy**

**Insert Your  
Company's Substance  
Abuse Policy Here  
(and delete this box)**

**NOTE:**

Substance abuse policies MUST be developed by the member in conjunction with the terms of their collective bargaining agreements (if applicable). Additionally, it is highly recommended that this is reviewed by their attorney prior to implementing.

Please also note that OSHA WILL CITE companies who have an automatic post-accident drug testing policy. Drug testing must be based off of reasonable suspicion after an injury occurs. Training is required for managers and supervisors to understand reasonable suspicion and properly document.

Once this is printed, manually remove this page, and manually insert the Company's written Substance Abuse Policy with their Consent for Drug Test Form and Acknowledgement of Notice Form.

## **Chapter 7    Workplace Violence and Harassment Policy**

### **7.1    Purpose, Scope & Policy**

#### **7.1.1    Purpose**

COMPANYNAME has established this policy to address any violence or harassment that may occur on the premises and to ensure the safety of our employees.

#### **7.1.2    Scope**

COMPANYNAME will provide a safe environment for all personnel, including visitors, customers, and Sub-Contractors.

#### **7.1.3    Policy**

Acts and/or threats of violence by employees on this company's property including carrying weapons in other than an official capacity will not be tolerated. These acts and/or threats will be grounds for appropriate remedial action, including but not limited to, discipline up to and including termination of employment and criminal prosecution. Similarly, acts and/or threats or violence by visitors against employees will not be tolerated and will be grounds for appropriate remedial action, including but not limited to criminal prosecution.

### **7.2    Roles & Responsibilities**

#### **7.2.1    Employer Responsibilities**

WPVRESPONSIBLEPERSON is responsible for the implementation and enforcement of the workplace violence and harassment program. In the event this policy is violated disciplinary procedures will be enforced.

#### **7.2.2    Employee Responsibilities**

Report all threats or acts of violence, both direct and indirect, as soon as possible. Report all harassment as soon as possible. If your manager cannot be reached contact any other manager. Be specific when reporting the facts of the incident.

### **7.3    Definitions**

See Definitions Chapter at the end of the Safety and Health Manual.<sup>ii</sup>

### **7.4    Reporting & Investigation Procedures**

In keeping with a policy of zero tolerance of workplace violence, all reported incidents will be investigated in the interest of a safe and productive workplace. An employee who engages in prohibited conduct will be subject to appropriate disciplinary action, as determined by the findings of an objective and impartial investigation. Discipline for inappropriate conduct may include warnings, reprimand, suspension, or immediate termination. In addition, certain actions may cause the employee to be subject to criminal prosecution or held legally liable under state and/or federal law.

### **7.5    Training**

#### **7.5.1    Initial**

New hire orientation

#### **7.5.2    Refresher**

As needed

## **Chapter 8    Return to Work Policy**

### **8.1    Purpose, Scope & Policy**

#### **8.1.1    Purpose**

COMPANYNAME has implemented a Return to Work/Transitional Duty Work Program for employees injured at work. The purpose of this program is to return any injured employees to work as soon as possible following an injury.

#### **8.1.2    Scope**

Transitional duty job tasks are determined by the restrictions placed on an employee by their physician. To avoid re-injury, the injured employee must only perform tasks within their limitations.

#### **8.1.3    Policy**

This program keeps the employee in their normal routine of working and allows the employee to be productive in some manner. Ideally an injured employee can gradually progress back to their regular position and schedule.

Our occupational clinic physicians are aware of our programs and are encouraged to cooperate with this return to work program for a prompt and safe return to work. Other physicians treating employees with work related injuries will be notified of this Return to Work/Transitional Duty Policy.

Upon returning to work a conference will be held with the Safety Coordinator, the employee's immediate supervisor, and the injured employee. The purpose of this conference is to ensure all parties involved are aware and understand the duties to be performed and any limitations. A "Transitional Duty Job Description" form will be signed by all attending the conference and kept on file.

### **8.2    Roles & Responsibilities**

#### **8.2.1    Employer Responsibilities**

##### **8.2.1.1    Human Resource Manager**

It is responsibility of Human Resource Manager or designated person to maintain communication with the injured employee. Coordinate the return of the employee through review of physician's instructions and understanding work available in the employee's job classification.

##### **8.2.1.2    Supervisor**

It is the responsibility of the injured employee's supervisor to understand conditions and limitations of employee's ability to work.

#### **8.2.2    Employee Responsibilities**

It is ultimately the employee's responsibility to follow management's safety policies and be responsible for their own safety as well as that of their coworkers. Employees must comply with their company's safety requirements as well as those of the Occupational Safety and Health Administration. Employees must report any hazardous conditions seen to management. Employees have the right to refuse unsafe work. Violations of these roles and responsibilities may be grounds for disciplinary action to the employee.

### **8.3    Definitions**

**Return to Work** - Returning to work is the process or strategy of safely returning injured employees to the workplace on a timely basis.

## **8.4 Training**

### **8.4.1 Initial**

New hire orientation

## **8.5 Appendix**

- Transitional Duty Job Description



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### Transitional Duty Job Description

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Position: Transitional Duty

Location: \_\_\_\_\_

Supervisor: \_\_\_\_\_

#### General Description

Perform assignments within the weight and/or physical limitations prescribed by a physician, for a limited period of time after a work-related injury or illness. Employee must have a medical release describing any restrictions and the next follow-up date.

#### Responsibility/Examples of Special Work Limitations

The Physician's Return to Work Evaluation, attached, is made a part of this transitional duty job description, and must be strictly followed. Failure to follow any portion of this transitional duty job description will be considered a violation of work rules and may result in disciplinary action.

#### Special Restrictions

- 1) \_\_\_\_\_ Lb. Lifting Restriction
- 2)
- 3)
- 4)
- 5)

#### Time Limit:

This Transitional Duty job description is effective until the employee's next visit to the physician. It may be extended based on the physician's report. Any extensions beyond ninety (90) days, however, may require additional medical evaluations and review by the Safety Coordinator and HR Manager.

The employee, the employer, and the physicians are all encouraged to return the employee to regular duty as soon as medically possible. If the employee feels ready to return to regular duty before a full release has been issued, the employee should discuss the case with the safety coordinator who may send the employee back to the doctor ahead of time in hopes of a full release or less restrictions. Similarly, employees should inform the Safety Coordinator and HR Manager if he or she feels unable to perform to the duties prescribed.

Note: Under no circumstances should the employee or the supervisor ever violate the restrictions and perform work activities which override the physician's restrictions.

I understand the limitations of my physician's return to work instructions. I will work within these limitations and notify my supervisor in the event of any physical problems I encounter while doing so.

_____ Injured Worker	_____ Print Name	_____ Date
_____ Supervisor	_____ Print Name	_____ Date
_____ The Safety Coordinator	_____ Print Name	_____ Date

*Insert COMPANYNAME Transitional Duty Job Descriptions Here for Future Reference*

## **Chapter 9    Disciplinary Policy**

### **9.1    Purpose, Scope and Policy**

#### **9.1.1    Purpose**

The purpose of this Disciplinary Policy is to inform the violating employee of their error and to correct the type of behavior which could result in an injury to either this employee or their coworkers or damage to property.

#### **9.1.2    Scope**

This program outlines responsibilities for management and all employees.

#### **9.1.3    Policy**

All safety rules, procedures, and plans are to be followed. The form titled "Corrective Action Notice" will be utilized. In the event of early warnings, they will also be notified of the action to be taken to correct their behavior.

### **9.2    Roles & Responsibilities**

#### **9.2.1    Management**

It is the supervisor's responsibility to observe and monitor employee's activities.

#### **9.2.2    Employee**

It is the employee's responsibility to perform his or her assignment in a safe manner.

### **9.3    Definitions**

**Misconduct** - Misconduct is unacceptable or improper behavior by an employee.

### **9.4    Corrective Action**

Upon violation of any company safety rule, the company will utilize the following progressive steps:

#### **9.4.1    Verbal Reprimand (Documented)**

An informal discussion of the inappropriate behavior that should take place as soon as possible after the supervisor has knowledge of the employee misconduct. This reprimand will also be documented and filed in the employee's personnel record.

#### **9.4.2    Written Reprimand**

A written form which documents the employee misconduct. This form is to be presented to the employee and placed in the employee's personnel file. This level of reprimand indicates a status of probation for the employee. The employee must understand the changes necessary for restoration and also that not meeting these expectations may be grounds for termination.

#### **9.4.3    Suspension**

A written and formal elevated form of disciplinary action. This action requires unpaid time away from work activities, typically 3 days. The employee must understand that any further disciplinary action brought against him/her may result in immediate termination of employment.

#### **9.4.4 Dismissal/Termination of Employment**

The permanent separation of an employee from the company, initiated for disciplinary reasons or safety misconduct.

COMPANYNAME reserves the right to discipline any employee by initiating appropriate levels of reprimand up-to and including termination.

### **9.5 Training**

#### **9.5.1 Initial**

Employees will receive initial training through new hire orientation.

#### **9.5.2 Refresher**

Any changes to original or current disciplinary policy.

### **9.6 Appendix**

- Corrective Action Notice

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**Corrective Action Notice**

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**COMPANYNAME**  
COMPANYADDRESS  
CITYSTATEZIP  
(XXX) XXX-XXXX (phone)  
(YYY) YYY-YYYY (fax)

Employee: \_\_\_\_\_ Employee ID#: \_\_\_\_\_ Date: \_\_\_\_\_

Department: \_\_\_\_\_ Position: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Date of Incident: \_\_\_\_\_ Time of Incident: \_\_\_\_\_ AM / PM

Description of Incident or Behavior: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Witnesses (if any): \_\_\_\_\_

Supporting Evidence (if any; attach copies of any documentation): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Employee Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective Action Plan: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Stage of Progressive Disciplinary Action**

- ☐ Verbal Warning (department file only)  
☐ Written Reprimand  
☐ Suspension: Begins: \_\_\_\_\_ Ends: \_\_\_\_\_  
☐ Termination: Effective: \_\_\_\_\_

**Follow up**

☐ Two Weeks ☐ One Month ☐ Three Months ☐ Six Months

I acknowledge receipt of this disciplinary action and that its contents have been discussed with me. I understand that my signature does not necessarily indicate agreement and that refusal to sign will not invalidate the disciplinary action. I understand that this form will be placed in my personnel file. I further have been informed that I may submit a written response to the information in this form, and that my written response will also be kept in my personnel file.

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*Copies of this form shall be provided to the employee and supervisors. The original document shall be submitted to Human Resources and placed in the employee's personnel file*

## **Chapter 10 OSHA Incident Reporting**

### **10.1 Purpose, Scope, and Policy**

#### **10.1.1 Purpose**

The purpose of this program is to identify the causative factors of incidents, determine corrective action and action to prevent recurrence.

#### **10.1.2 Scope**

This policy relates to all employees of COMPANYNAME.

#### **10.1.3 Policy**

Investigations will be reviewed to ensure proper determinations are made and any necessary changes to COMPANYNAME policies and procedures are completed. The company will never discharge or in any manner discriminate against any employee for reporting a work-related injury or illness. In addition to these internal needs it is also intended to fulfill the requirement that OSHA be notified of incidents if they include specific qualifiers. Each employee will be informed that they have the right to report work-related injuries and illnesses and they will not be discharged or in any manner discriminated against for reporting work-related injuries or illnesses.

### **10.2 Roles & Responsibilities**

#### **10.2.1 Employer Responsibilities**

It is management's responsibility to record and document incidents and determine causation. Management will interview the affected employee and witnesses to determine the facts of the incident. Management will conduct the investigation as soon as possible after the incident.

#### **10.2.2 Employee Responsibilities**

It is the employee's responsibility to report all incidents to management. Employees who witness or were involved with the incident will participate in the incident investigation and provide management all details known about the incident.

### **10.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>iii</sup>

### **10.4 Incident Reporting Procedure**

When an incident occurs, we will take specific steps to ensure they are properly reported to the appropriate responsible party. Incidents to be reported include; near-miss, injury/illness, property damage, utility hits, equipment damage, and vehicle damage.

Immediate reporting will ensure that the information gathered is accurate and properly documented. Accurate information is necessary to determine the causative factors of the incident in order to develop an informed corrective action plan to prevent future occurrences.

#### **10.4.1 Determining Work-Relatedness**

If an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness, you must consider the injury or illness to be work-related. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment unless an exception specifically applies.

#### 10.4.1.1 Exceptions:

You are not required to record injuries and illnesses if the following apply:

- At the time of the injury or illness, the employee was present in the work environment as a member of the general public rather than as an employee.
- The injury or illness involves signs or symptoms that surface at work but result solely from a non-work-related event or exposure that occurs outside the work environment.
- The injury or illness results solely from voluntary participation in a wellness program or in a medical, fitness, or recreational activity such as blood donation, physical examination, flu shot, exercise class, racquetball, or baseball.
- The injury or illness is solely the result of an employee eating, drinking, or preparing food or drink for personal consumption (whether bought on the employer's premises or brought in). For example, if the employee is injured by choking on a sandwich while in the employer's establishment, the case would not be considered work-related.

**NOTE:** If the employee is made ill by ingesting food contaminated by workplace contaminants (such as lead), or gets food poisoning from food supplied by the employer, the case would be considered work-related.

- The injury or illness is solely the result of an employee doing personal tasks (unrelated to their employment) at the establishment outside of the employee's assigned working hours.
- The injury or illness is solely the result of personal grooming, self-medication for a non-work-related condition, or is intentionally self-inflicted.
- The injury or illness is caused by a motor vehicle accident and occurs on a company parking lot or company access road while the employee is commuting to or from work.
- The illness is the common cold or flu (Note: contagious diseases such as tuberculosis, brucellosis, hepatitis A, or plague are considered work-related if the employee is infected at work).
- The illness is a mental illness. Mental illness will not be considered work-related unless the employee voluntarily provides the employer with an opinion from a physician or other licensed health care professional with appropriate training and experience (psychiatrist, psychologist, psychiatric nurse practitioner, etc.) stating that the employee has a mental illness that is work-related.

#### 10.4.1.2 Clarifications

- When it is not obvious whether the precipitating event or exposure occurred in the work environment you must evaluate the employee's work duties and environment to decide whether or not one or more events or exposures in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing condition.
- A preexisting injury or illness has been significantly aggravated, for purposes of OSHA injury and illness recordkeeping, when an event or exposure in the work environment results in any of the following:
  - Death, provided that the preexisting injury or illness would likely not have resulted in death but for the occupational event or exposure.
  - Loss of consciousness, provided that the preexisting injury or illness would likely not have resulted in loss of consciousness but for the occupational event or exposure.
  - One or more days away from work, or days of restricted work, or days of job transfer that otherwise would not have occurred but for the occupational event or exposure.
  - Medical treatment in a case where no medical treatment was needed for the injury or illness before the workplace event or exposure, or a change in medical treatment was necessitated by the workplace event or exposure.
- An injury or illness is a preexisting condition if it resulted solely from a non-work-related event or exposure that occurred outside the work environment.
- Injuries and illnesses that occur while an employee is on travel status are work-related if, at the time of the injury or illness, the employee was engaged in work activities "in the interest of the employer." Examples of such activities include:
  - Travel to and from customer contacts

- Conducting job tasks, and
- Entertaining or being entertained to transact, discuss, or promote business (work-related entertainment includes only entertainment activities being engaged in at the direction of the employer).
- Injuries or illnesses that occur when the employee is on travel status do not have to be recorded if they meet one of the exceptions listed below.
  - When a traveling employee checks into a hotel, motel, or into another temporary residence, he or she establishes a "home away from home." You must evaluate the employee's activities after he or she checks into the hotel, motel, or other temporary residence for their work-relatedness in the same manner as you evaluate the activities of a non-traveling employee. When the employee checks into the temporary residence, he or she is considered to have left the work environment. When the employee begins work each day, he or she re-enters the work environment. If the employee has established a "home away from home" and is reporting to a fixed worksite each day, you also do not consider injuries or illnesses work-related if they occur while the employee is commuting between the temporary residence and the job location.
  - Injuries or illnesses are not considered work-related if they occur while the employee is on a personal detour from a reasonably direct route of travel (e.g., has taken a side trip for personal reasons).
- Injuries and illnesses that occur while an employee is working at home, including work in a home office, will be considered work-related if the injury or illness occurs while the employee is performing work for pay or compensation in the home, and the injury or illness is directly related to the performance of work rather than to the general home environment or setting.

For example:

  - If an employee drops a box of work documents and injures his or her foot, the case is considered work-related.
  - If an employee's fingernail is punctured by a needle from a sewing machine used to perform garment work at home, becomes infected and requires medical treatment, the injury is considered work-related.
  - If an employee is injured because he or she trips on the family dog while rushing to answer a work phone call, the case is not considered work-related.
  - If an employee working at home is electrocuted because of faulty home wiring, the injury is not considered work-related.

#### 10.4.2 The Steps to Follow

1. It is the worker's responsibility to verbally report any incident as soon as possible on the same day to Front Line Supervision.
2. As soon as safely practical after an incident has occurred, the Front-Line Supervisor will place a call to the main office or Safety Coordinator.
3. Concurrently the Front-Line Supervisor will begin the incident investigation by gathering factual information and completing the Incident Reports.
4. The Safety Coordinator will determine if management or a third party will assist in the incident investigation.
5. The initial Incident Reports will be completed within 24 hours of notification from the employee and submitted to management.
6. Management may complete a causative analysis and assign corrective actions.

### 10.5 OSHA Incident Reporting Requirements

Only the Safety Coordinator or their designated appointee will report incidents to OSHA to ensure accurate reporting.

#### 10.5.1 Fatalities

If an employee is killed on the job, you must report this to OSHA within eight (8) hours after being notified of the death, and you determine that the fatality was work-related. If an employee dies due to a work-

related issue within thirty (30) days of the incident that caused the fatality, you will need to report that, as well.

The Safety Coordinator or their designated appointee will report all work-related fatalities to OSHA within 8-hours of finding out. Only fatalities occurring within 30 days of the work-related incident must be reported to OSHA

### **10.5.2 Inpatient Hospitalizations**

If an employee is **admitted** to the hospital due to a job-related illness or injury, as opposed to making an emergency room or urgent care visit, you must report the incident to OSHA within 24 hours of being notified. You also need to report to OSHA if, within 24 hours after a work-related incident, an employee is hospitalized for care or treatment.

#### **Exceptions:**

- If the employee is admitted to the hospital for observation or testing ONLY and does not require treatment, you do not have to report the incident.
- Any CARE provided during the hospitalization, even if it is listed on OSHA's "First Aid List", such as administering an OTC medication like Tylenol, makes the visit reportable.
- If there is an injury incident on the job, and the employee requires hospitalization 36 hours later (more than 24 hours) due to the injury, you do not have to report to OSHA.

If you are uncertain whether or not his hospital visit falls under required reporting, you should seek additional advice.

The Safety Coordinator or their designated appointee will report all work-related hospitalizations, where the employee is admitted for care and/or treatment, to OSHA within 24 hours of finding out, but only if they happen within 24 hours of the work-related incident.

### **10.5.3 Amputations**

OSHA defines amputation as including the partial or complete severing of a limb or appendage, a fingertip amputation with or without bone loss, or medical amputation resulting from irreparable damage or failed re-attachment. Their definition does not include tissue torn from the body (avulsions) for example, the tearing off of a fingernail or toenail); de-gloving (traumatic injury that results in the top layers of skin and tissue being torn away from the underlying muscle, connective tissue, or bone); scalping; severed ears; broken or chipped teeth; or removal of an eyeball (enucleation).

Whenever possible, use the medical diagnosis to determine whether or not you need to report an incident. Did the doctor call it an avulsion or an amputation? If the medical diagnosis is not available to you, you can refer to the definitions and examples on OSHA's website. In the case of amputation, you have to report the incident within 24 hours of being notified of the incident and determining that the amputation was the result of a work-related incident. If the employee requires amputation in 24 hours after the work-related incident, you have to report that as well.

The Safety Coordinator or their designated appointee will report all work-related amputations to OSHA within 24 hours of finding out, but only if they happen within 24 hours of the work-related incident.

### **10.5.4 Loss of an Eye or Eyes**

OSHA does not define enucleation (removal of an eyeball) as an amputation, but it still requires reporting, as does loss of an eye due to evisceration. If a work-related incident results in the physical removal or an eye you are required to report it within 24 hours of being notified of the incident. Loss of vision does not fall under this requirement but will still need to be reported if it requires in-patient hospitalization.



The Safety Coordinator or their designated appointee will report all work-related losses of eye to OSHA within 24 hours of finding out, but only if they happen within 24 hours of the work-related incident.

### 10.5.5 Options for reporting

Reportable incidents can be reported to OSHA via the following methods:

- The OSHA electronic reporting option at [www.OSHA.gov](http://www.OSHA.gov) (preferred); or
- By telephone to the nearest OSHA office during regular business hours (1-847-803-4800); or
- By telephone to the 24-hour OSHA hotline (1-800-321-OSHA or 1-800-321-6742)

### 10.5.6 What to report

- Establishment name
- Location of the work-related incident
- Time of the work-related incident
- Type of reportable event (i.e. fatality, loss of eye)
- Number of employees who suffered the event
- Names of the employees who suffered the event
- Contact person and their phone number
- Brief description of the work-related event

### 10.5.7 Employers do not have to report the event if it:

- Resulted from a motor vehicle accident on a public street or highway, except in a construction work zone; employers must report the event if it happened in a construction work zone
- Occurred on a commercial or public transportation system
- In-patient hospitalization for diagnostic testing or observation only

## 10.6 Training

### 10.6.1 Initial

Employees will receive initial training at time of hire and prior to their working assignment and will include review of this policy. Orientation training will be conducted and documented utilizing the New Hire Orientation Training Checklist form.

### 10.6.2 Refresher

Refresher training will be administered when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## 10.7 Reference

OSHA Standard 29 CFR 1904.39

## 10.8 Appendix

- Injury and Illness Incident Report
- Illinois Form 45 - Employer's First Report of Injury

**INJURY AND ILLNESS INCIDENT REPORT**

(Use to complete OSHA FORM 301)

PLEASE ANSWER ALL QUESTIONS AS COMPLETELY AS POSSIBLE.  
OSHA REQUIRES EXPLANATION OF ALL ACCIDENTS AND HOW THEY HAPPENED.

**Employee Information:**

Employee Full Name: \_\_\_\_\_

Address: \_\_\_\_\_  
(street)\_\_\_\_\_  
(city, state, zip code)

Date of Birth: \_\_\_\_\_ Date of Hire: \_\_\_\_\_

Sex: ☐ Male ☐ Female**Information about the physician or other health care professional:**

Name of physician or health care professional who treated you (if known): \_\_\_\_\_

If treatment was given away from the worksite, where was it given?

Facility: \_\_\_\_\_

Address: \_\_\_\_\_  
(street)\_\_\_\_\_  
(city, state, zip code)Was employee treated in an emergency room? ☐ YES ☐ NOWas employee hospitalized overnight as an in-patient: ☐ YES ☐ NO**Information about the Incident:**

Date of Injury or Illness: \_\_\_\_\_

Time Employee began work: \_\_\_\_\_ AM / PM

Time of Incident: \_\_\_\_\_ AM / PM ☐ Time Cannot be Determined

If the employee died, when did death occur? Date of Death: \_\_\_\_\_

**What was the employee doing just before the incident occurred?** *Describe the activity, as well as the tools, equipment, or material the employee was using.*

*Examples: "Climbing a ladder while carrying roofing materials"; "Spraying chlorine from hand sprayer"; "daily computer key-entry."*

**What happened?** *Tell us how the injury occurred.*

*Example: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time; etc."*

**What was the injury or illness?** *Tell us the part of the body that was affected. Be more specific than "hurt, pain, or sore".*

*Examples: "Strained Back"; "Chemical burn to hand"; "Carpal Tunnel".*

**What object or substance directly harmed the employee?**

*Examples: "Concrete floor"; "Chlorine"; "radial arm saw". If this question does not apply to the accident, leave it blank.*

**ILLINOIS FORM 45: EMPLOYER'S FIRST REPORT OF INJURY***Please type or print.*

Employer's FEIN	Date of report	Case or File #	Is this a lost workday case? Yes      No
Employer's name		Doing business as	
Employer's mailing address			Employer's email address
Nature of business or service			SIC code
Name of workers' compensation carrier/admin.		Policy/Contract #	Self-insured? Yes      No
Employee's full name			Birthdate
Employee's mailing address			Employee's e-mail address
Gender Male      Female	Marital status Married      Single	# Dependents	Employee's average weekly wage
Job title or occupation			Date hired
Time employee began work	Date and time of accident		Last day employee worked
If the employee died as a result of the accident, give the date of death.		Did the accident occur on the employer's premises? Yes      No	
Address of accident			
What was the employee doing when the accident occurred?			
How did the accident occur?			
What was the injury or illness? List the part of body affected and explain how it was affected.			
What object or substance, if any, directly harmed the employee?			
Name and address of physician/health care professional			
If treatment was given away from the worksite, list the name and address of the place it was given.			
Was the employee treated in an emergency room? Yes      No		Was the employee hospitalized overnight as an inpatient? Yes      No	
Report prepared by	Signature	Title and telephone #	Email address

Please send this form to: **ILLINOIS WORKERS' COMPENSATION COMMISSION 4500 S. SIXTH ST. FRONTAGE RD SPRINGFIELD, IL 62703**

By law, employers must keep accurate records of all work-related injuries and illness (except for certain minor injuries). Employers shall report to the Commission all injuries resulting in the loss of more than three scheduled workdays. Filing this form does not affect liability under the Workers' Compensation Act and is not incriminatory in any way. This information is confidential. IC45 8/12

## Chapter 11 OSHA Recordkeeping Policy

### 11.1 Purpose, Scope, and Policy

#### 11.1.1 Purpose

The purpose of this program is to ensure compliance with OSHA recordkeeping requirements.

#### 11.1.2 Scope

This policy relates to the recordkeeping requirements defined by OSHA.

#### 11.1.3 Policy

COMPANYNAME will maintain the appropriate recordkeeping per OSHA requirements at the point where the number of employees exceeds 10, and for the rest of any calendar year where this threshold is surpassed. Additionally, the company will also electronically submit OSHA Logs per the requirements outlined in 1904.41.

### 11.2 Roles & Responsibilities

#### 11.2.1 Employer Responsibilities

It is the responsibility of management to keep accurate and up to date records regarding workplace injuries that must be documented according to OSHA guidelines.

### 11.3 Definitions

**Compliance Officer** - A federal compliance officer.

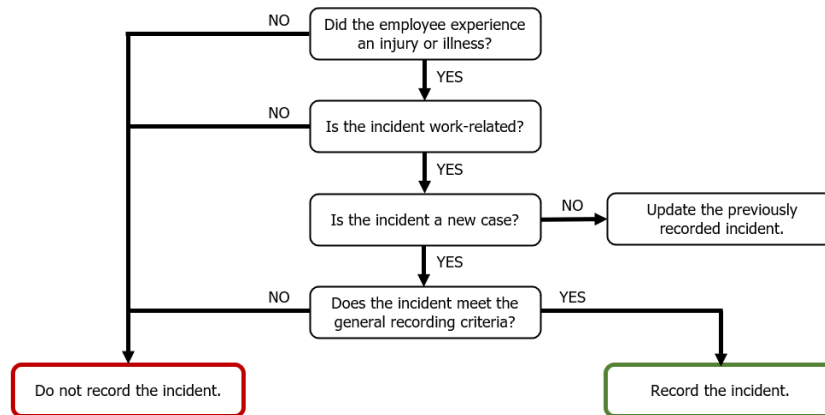
**Recordable Injury or Illness** - A work-related injury or illness that requires medical treatment beyond first aid, as well as one that causes death, days away from work, restricted work or transfer to another job, or loss of consciousness

### 11.4 Recordable Incident Determination

OSHA identifies the following as recordable injuries:

- Any work-related injury or illness requiring medical treatment beyond first aid. (stitches, splints, prescription medications, prescribed follow-up care such as therapy, etc.)  
**NOTE:** Tetanus shots are classified as first aid and the administration of a tetanus shot by itself does not make the injury recordable. (OSHA 29 CFR 1904.9(b)(5)(ii)(B).
- Any work-related injury or illness that results in loss of consciousness, days away from work, restricted work, or transfer to another job.
- Any work-related fatality.
- Any work-related diagnosed case of cancer, chronic irreversible diseases, fractured or cracked bones or teeth, and punctured eardrums.
- There are also special recording criteria for work-related cases involving: needlesticks and sharps injuries; medical removal; hearing loss; and tuberculosis.

OSHA has established a decision tree to assist in determining whether an injury or illness is recordable.



## 11.5 OSHA Recordkeeping Documents and Forms

The OSHA injury and illness recordkeeping forms are:

- Log of Work-Related Injuries and Illnesses (OSHA Form 300)
  - The OSHA Form 300 is a form for employers to record all reportable injuries and illnesses that occur in the workplace.
- Summary of Work-Related Injuries and Illnesses (OSHA Form 300A)
  - Form 300-A, which is to be posted in the workplace annually. At the end of each calendar year, must be completed and certified by a company executive as correct and complete.
- Injury and Illness Incident Report (OSHA Form 301)
  - OSHA Form 301, which is used to record information on how each injury or illness case occurred.

### 11.5.1 OSHA 300 Log Categories

#### 11.5.1.1 First-Aid

First-aid means the following:

- Using a non-prescription medication at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes)
- Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);
- Cleaning, flushing or soaking wounds on the surface of the skin;
- Using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment).
- Using hot or cold therapy;
- Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes);
- Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.).
- Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;
- Using eye patches;

- Removing foreign bodies from the eye using only irrigation or a cotton swab;
- Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;
- Using finger guards;
- Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or
- Drinking fluids for relief of heat stress.

#### **11.5.1.2 Lost Workday**

A lost work day occurs when an injury or illness involves one or more days away from work. In the event of a lost work day you must record the injury or illness on the OSHA 300 Log with a check mark in the space for cases involving days away and an entry of the number of calendar days away from work in the number of days column.

##### **11.5.1.2.1 Counting Days**

When counting lost work days you begin counting days away from work the day after the injury/illness occurred.

If the employee is out for an extended period of time, you must enter an estimate of the days that the employee will be away and update the day count when the actual number of days is known. If the employee has not returned to work by the end of the reporting year you must estimate the number of anticipated lost work days based on projections from the occupational health physician or the employee. Once the total number of days is known you can update the log entry at that time.

Employers are allowed to cap the number of days away from work, and/or restricted work/job transfer at 180 days. So, when a worker is away from work due to a work-related injury/illness, once their total time off is greater than 180 days away from their primary occupation you may report 180 days as the total days lost.

If a worker is off work for a number of days and then returns to work in a different capacity due to the work-related injury or illness, you report the time under the applicable column. For example, due to a work-related injury/illness a worker is off work for seven days and comes back in a restricted capacity for thirty days. The total time off is recorded as 37 days under the lost work day column. If or when the total of those days exceeds 180 days, you are permitted to stop accumulating days and may report 180 as the total. If the worker is off for 100 days and returns to work in a restricted capacity for 80 days, the cap total of 180 days has been reached and you may stop counting days and report 180 regardless of how long it takes for the employee to return to regular duties.

#### **11.5.1.3 Medical Treatment**

"Medical treatment" means the management and care of a patient to combat disease or disorder. Medical treatment does not include:

- Visits to a physician or other licensed health care professional solely for observation or counseling;
- The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (e.g., eye drops to dilate pupils).
- Tetanus shots (OSHA 29 CFR 1904.9(b)(5)(ii)(B)).

#### **11.5.1.4 Restricted Work**

Restricted work occurs when, as the result of a work-related injury or illness:

- You keep the employee from performing one or more of the routine functions of their job, or from working the full workday that they would otherwise have been scheduled to work; or

- A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of their job, or not work the full workday that they would otherwise have been scheduled to work; or
- The employee was assigned to another job on a temporary basis; or
- the employee worked at their permanently assigned job but could not perform all the duties normally connected with it.

### 11.5.2 Recordkeeping Procedure

Management will within seven (7) calendar days of receiving information that the recordable injury or illness occurred:

- Use the completed OSHA 301 Incident Report.
- Enter the recordable injury or illness on the OSHA 300 Log.

At conclusion of each year the Management will:

- Ensure an OSHA 301 Incident Report form has been generated for all recordable incidents
- Ensure each 301 Incident Report has been logged on the OSHA 300 Log
- Ensure each entry on the 300 Log has a corresponding 301 form
- Review that year's OSHA 300 Log for accuracy

#### 11.5.2.1 OSHA 300A Annual Summary

Using the information recorded on the OSHA 300 log create an annual summary using the OSHA 300A Summary of Work-Related Injuries and Illnesses form. Note that each column in the 300 log corresponds to an entry in the 300A summary. Translate those values over to the 300A log.

##### 11.5.2.1.1 Establishment Information Section

Note in the upper right corner of the OSHA 300A form there is a dateline. This is to associate the form with the proper period. Complete the dateline by filling in the blank. The date is for the previous calendar year. If you are completing this form in January, complete the line with last year's date.

Fill out the information requested in the establishment information section. For the Industry Description line use the industry description associated with your North American Industry Classification System (NAICS) code. The NAICS has classified industry types for the collection, analysis, and publication of statistical data.

###### 11.5.2.1.1.1 NAICS Code

Note that the updated PDF fillable forms provided by OSHA at <https://www.osha.gov/sites/default/files/OSHA-RK-Forms-Package.pdf> no longer provide an option for the Standard Industrial Classification (SIC) code and instead now request your organization's NAICS code. The code for your organization can be identified using the NAICS search tool located at <https://www.naics.com/search/>.

##### 11.5.2.1.2 Employment Information Section

Under the Employment Information section you are asked for the annual average number of employees and the total number of hours worked by ALL workers employed at your entity or organization.

###### 11.5.2.1.2.1 Calculating Average Number of Employees

The annual number of employees can be determined by adding up the number of paychecks issued each month divided by the number of pay periods in the month for the entire year. **Example:** If in January you issued one hundred paychecks and there were two pay periods in January, you would divide one hundred by two to get the average number of employees in January (fifty).



Do this for each month and add the monthly averages. Then divide the total by twelve. This will give you the average number of employees for the year.

#### **11.5.2.1.2.2 Total Hours Worked**

The total hours worked is typically obtained from payroll records. Add all hours worked by all employees directly employed by the organization. Include all hours worked by all salaried, hourly, part-time, temporary, and seasonal workers including overtime hours. Vacation and other time-off hours should not be counted.

For salaried workers where actual hours are not counted, add the total number of salaried workers and multiply by 2,000.

#### **11.5.2.1.2.3 Certification**

The form must be reviewed by the company executive assigned responsibility for managing OSHA recordkeeping. This is usually a Safety Manager/Director or another Company Executive. Fill out the Title, Contact Number, and Date. The Summary is now ready for posting and submission to OSHA.

#### **11.5.2.1.3 Posting and Submission to OSHA**

Post the OSHA 300A from February 1 through April 30 in an area where employees have access. Posting must be done at all facilities managed by the entity/organization. The summary should be prominently posted where employees would expect to find bulletins, information, or announcements such as the company bulletin board in the break/lunchroom.

Management will electronically submit OSHA Logs annually per the requirements outlined in 1904.41.

Using the completed OSHA 300A form as a reference, submit it using the online app OSHA provides for this purpose at <https://www.osha.gov/injuryreporting/ita>

### **11.6 Training**

#### **11.6.1 Initial**

Management or a designated employee(s) will be properly trained on the requirements of recordkeeping as they pertain to work-related injuries.

Employees will receive initial training at time of hire and prior to their working assignment and will include review of this policy. Orientation training will be conducted and documented utilizing the New Hire Orientation Training Checklist form.

#### **11.6.2 Refresher**

Refresher training will be administered when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

### **11.7 Reference**

OSHA Standard 29 CFR 1904

### **11.8 Appendix**

- OSHA Recordkeeping Booklet

## OSHA RECORDKEEPING BOOKLET

## OSHA Forms for Recording Work-Related Injuries and Illnesses

### Dear Employer:

This booklet includes the forms needed for maintaining occupational injury and illness records. Many but not all employers must complete the OSHA injury and illness recordkeeping forms on an ongoing basis. Employers in State Plan States should check with their State Plan to see if the exemptions below apply.

Employers with 10 or fewer employees throughout the previous calendar year do not need to complete these forms. In addition to the small employer exemption, there is an exemption for establishments classified in certain industries. A complete list of exempt industries can be found on the OSHA web page at <https://www.osha.gov/recordkeeping>.

Establishments normally exempt from keeping the OSHA forms must complete the forms if they are informed in writing to do so by the Bureau of Labor Statistics or OSHA.

All employers, including those partially exempted by reason of company size or industry classification, must report to OSHA any workplace incident that results in a fatality, in-patient hospitalization, amputation, or loss of an eye. You can report to OSHA by calling OSHA's free and confidential number at 1-800-321-OSHA (6742); calling your closest Area Office during normal business hours; or by using the online reporting form at <https://www.osha.gov/pls/ser/serform.html>.

Starting in 2017, many employers will be required to electronically submit their injuries and illnesses records to OSHA. To see if your establishment is required to submit the information, visit <https://www.osha.gov/recordkeeping/finalrule/>.

The Occupational Safety and Health Administration shares with you the goal of preventing injuries and illnesses in our nation's workplaces. Accurate injury and illness records will help us achieve that goal.

Occupational Safety and Health Administration  
U.S. Department of Labor

### What's Inside...

In this package, you'll find everything you need to complete OSHA's *Log* and the *Summary of Work-Related Injuries and Illnesses* for the next several years. On the following pages, you'll find:

▼ **An Overview: Recording Work-Related Injuries and Illnesses** — General instructions for filling out the forms in this package and definitions of terms you should use when you classify your cases as injuries or illnesses.

▼ **How to Fill Out the Log** — An example to guide you in filling out the *Log* properly.

▼ **Log of Work-Related Injuries and Illnesses** — A copy of the *Log* (but you may make as many copies of the *Log* as you need.) Notice that the *Log* is separate from the *Summary*.



▼ **Summary of Work-Related Injuries and Illnesses** — Removable *Summary* pages for easy posting at the end of the year. Note that you post the *Summary* only, not the *Log*.



▼ **Worksheet to Help You Fill Out the Summary** — A worksheet for figuring the average number of employees who worked for your establishment and the total number of hours worked.

▼ **OSHA's 301: Injury and Illness Incident Report** — A copy of the OSHA 301 to provide details about the incident. You may make as many copies as you need or use an equivalent form.



Take a few minutes to review this package. If you have any questions, visit us online at [www.osha.gov](https://www.osha.gov) or call your local OSHA office. We'll be happy to help you.



## An Overview: Recording Work-Related Injuries and Illnesses

The Occupational Safety and Health (OSH) Act of 1970 requires certain employers to prepare and maintain records of work-related injuries and illnesses. Use these definitions when you classify cases on the Log. OSHA's recordkeeping regulation (see 29 CFR Part 1904) provides more information about the definitions below.

The *Log of Work-Related Injuries and Illnesses* (Form 300) is used to classify work-related injuries and illnesses and to note the extent and severity of each case. When an incident occurs, use the *Log* to record specific details about what happened and how it happened. The *Summary* — a separate form (Form 300A) — shows the totals for the year in each category. At the end of the year, post the *Summary* in a visible location so that your employees are aware of the injuries and illnesses occurring in their workplace.

Employers must keep a *Log* for each establishment or site. If you have more than one establishment, you must keep a separate *Log* and *Summary* for each physical location that is expected to be in operation for one year or longer.

Note that your employees have the right to review your injury and illness records. For more information, see 29 Code of Federal Regulations Part 1904.35, *Employee Involvement*.

Cases listed on the *Log of Work-Related Injuries and Illnesses* are not necessarily eligible for workers' compensation or other insurance benefits. Listing a case on the *Log* does not mean that the employer or worker was at fault or that an OSHA standard was violated.

### When is an injury or illness considered work-related?

An injury or illness is considered work-related if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a preexisting condition. Work-relatedness is

presumed for injuries and illnesses resulting from events or exposures occurring in the workplace, unless an exception specifically applies. See 29 CFR Part 1904.5(b)(2) for the exceptions. The work environment includes the establishment and other locations where one or more employees are working or are present as a condition of their employment. See 29 CFR Part 1904.5(b)(1).

### Which work-related injuries and illnesses should you record?

Record those work-related injuries and illnesses that result in:

- ▼ death,
- ▼ loss of consciousness,
- ▼ days away from work,
- ▼ restricted work activity or job transfer, or
- ▼ medical treatment beyond first aid.

You must also record work-related injuries and illnesses that are significant (as defined below) or meet any of the additional criteria listed below.

You must record any significant work-related injury or illness that is diagnosed by a physician or other licensed health care professional. You must record any work-related case involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum. See 29 CFR 1904.7.

### What are the additional criteria?

You must record the following conditions when they are work-related:

- ▼ any needlestick injury or cut from a sharp object that is contaminated with another person's blood or other potentially infectious material;
- ▼ any case requiring an employee to be medically removed under the requirements of an OSHA health standard;
- ▼ tuberculosis infection as evidenced by a positive skin test or diagnosis by a physician or other licensed health care professional after exposure to a known case of active tuberculosis;
- ▼ an employee's hearing test (audiogram) reveals 1) that the employee has experienced a Standard Threshold Shift (STS) in hearing in one or both ears (averaged at 2000, 3000, and 4000 Hz) and 2) the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (also averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS.

### What is medical treatment?

Medical treatment includes managing and caring for a patient for the purpose of combating disease or disorder. The following are not considered medical treatments and are NOT recordable:

- ▼ visits to a doctor or health care professional solely for observation or counseling;

### What do you need to do?

1. Within 7 calendar days after you receive information about a case, decide if the case is recordable under the OSHA recordkeeping requirements.
2. Determine whether the incident is a new case or a recurrence of an existing one.
3. Establish whether the case was work-related.
4. If the case is recordable, decide which form you will fill out as the injury and illness incident report.  
You may use OSHA's 301: *Injury and Illness Incident Report* or an equivalent form. Some state workers compensation, insurance, or other reports may be acceptable substitutes, as long as they provide the same information as the OSHA 301.

### How to work with the Log

1. Identify the employee involved unless it is a privacy concern case as described below.
2. Identify when and where the case occurred. Also describe the case, as specifically as you can.
3. Classify the seriousness of the case by recording the **most serious outcome** associated with the case, with column G (Death) being the most serious and column J (Other recordable cases) being the least serious.
4. Enter the number of days the injured or ill worker was away from work or was on job transfer or restricted work activity.
5. Identify whether the case is an injury or illness. If the case is an injury, check the injury category. If the case is an illness, check the appropriate illness category.





- ▼ diagnostic procedures, including administering prescription medications that are used solely for diagnostic purposes; and
- ▼ any procedure that can be labeled first aid. (See below for more information about first aid.)

#### **What is first aid?**

If the incident required only the following types of treatment, consider it first aid. Do NOT record the case if it involves only:

- ▼ using non-prescription medications at non-prescription strength;
- ▼ administering tetanus immunizations;
- ▼ cleaning, flushing, or soaking wounds on the skin surface;
- ▼ using wound coverings, such as bandages, BandAids™, gauze pads, etc., or using SteriStrips™ or butterfly bandages;
- ▼ using hot or cold therapy;
- ▼ using any totally non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc.;
- ▼ using temporary immobilization devices while transporting an accident victim (splints, slings, neck collars, or back boards);
- ▼ drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters;
- ▼ using eye patches;
- ▼ using simple irrigation or a cotton swab to remove foreign bodies not embedded in or adhered to the eye;
- ▼ using irrigation, tweezers, cotton swab or other simple means to remove splinters or foreign material from areas other than the eye;

- ▼ using finger guards,
- ▼ using massages;
- ▼ drinking fluids to relieve heat stress.

#### **How do you decide if the case involved restricted work?**

Restricted work activity occurs when, as the result of a work-related injury or illness, an employer or health care professional keeps, or recommends keeping, an employee from doing the routine functions of his or her job or from working the full workday that the employee would have been scheduled to work before the injury or illness occurred.

#### **How do you count the number of days of restricted work activity or the number of days away from work?**

Count the number of calendar days the employee was on restricted work activity or was away from work as a result of the recordable injury or illness. Do not count the day on which the injury or illness occurred in this number. Begin counting days from the day **after** the incident occurs. If a single injury or illness involved both days away from work and days of restricted work activity, enter the total number of days for each. You may stop counting days of restricted work activity or days away from work once the total of either or the combination of both reaches 180 days.

#### **Under what circumstances should you NOT enter the employee's name on the OSHA Form 300?**

You must consider the following types of injuries or illnesses to be privacy concern cases:

- ▼ an injury or illness to an intimate body part or to the reproductive system,
- ▼ an injury or illness resulting from a sexual assault,
- ▼ a mental illness,
- ▼ a case of HIV infection, hepatitis, or tuberculosis,
- ▼ a needlestick injury or cut from a sharp object that is contaminated with blood or other potentially infectious material (see 29 CFR Part 1904.8 for definition), and
- ▼ other illnesses, if the employee independently and voluntarily requests that his or her name not be entered on the log.

You must not enter the employee's name on the OSHA 300 Log for these cases. Instead, enter "privacy case" in the space normally used for the employee's name. You must keep a separate, confidential list of the case numbers and employee names for the establishment's privacy concern cases so that you can update the cases and provide information to the government if asked to do so.

If you have a reasonable basis to believe that information describing the privacy concern case may be personally identifiable even though the employee's name has been omitted, you may use discretion in describing the injury or illness on both the OSHA 300 and 301 forms. You must enter enough information to identify the cause of the incident and the general severity of the

injury or illness, but you do not need to include details of an intimate or private nature.

#### **What if the outcome changes after you record the case?**

If the outcome or extent of an injury or illness changes after you have recorded the case, simply draw a line through the original entry or, if you wish, delete or white-out the original entry. Then write the new entry where it belongs. Remember, you need to record the most serious outcome for each case.

#### **Classifying injuries**

An injury is any wound or damage to the body resulting from an event in the work environment.

**Examples:** Cut, puncture, laceration, abrasion, fracture, bruise, contusion, chipped tooth, amputation, insect bite, electrocution, or a thermal, chemical, electrical, or radiation burn. Sprain and strain injuries to muscles, joints, and connective tissues are classified as injuries when they result from a slip, trip, fall or other similar accidents.





## Classifying illnesses

### Skin diseases or disorders

Skin diseases or disorders are illnesses involving the worker's skin that are caused by work exposure to chemicals, plants, or other substances.

**Examples:** Contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil acne; friction blisters, chrome ulcers; inflammation of the skin.

### Respiratory conditions

Respiratory conditions are illnesses associated with breathing hazardous biological agents, chemicals, dust, gases, vapors, or fumes at work.

**Examples:** Silicosis, asbestosis, pneumonitis, pharyngitis, rhinitis or acute congestion, farmer's lung, beryllium disease, tuberculosis, occupational asthma, reactive airways dysfunction syndrome (RADS), chronic obstructive pulmonary disease (COPD), hypersensitivity pneumonitis, toxic inhalation injury, such as metal fume fever, chronic obstructive bronchitis, and other pneumoconioses.

### Poisoning

Poisoning includes disorders evidenced by abnormal concentrations of toxic substances in blood, other tissues, other bodily fluids, or the breath that are caused by the ingestion or absorption of toxic substances into the body.

**Examples:** Poisoning by lead, mercury, cadmium, arsenic, or other metals; poisoning by carbon monoxide, hydrogen sulfide, or other gases; poisoning by benzene, benzol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays, such as parathion or lead arsenate; poisoning by other chemicals, such as formaldehyde.

### Hearing Loss

Noise-induced hearing loss is defined for recordkeeping purposes as a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more in either ear at 2000, 3000 and 4000 hertz, and the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (also averaged at 2000, 3000, and 4000 hertz) in the same ear(s).

### All other illnesses

All other occupational illnesses.

**Examples:** Heatstroke, sunstroke, heat exhaustion, heat stress and other effects of environmental heat; freezing, frostbite, and other effects of exposure to low temperatures; decompression sickness; effects of ionizing radiation (isotopes, x-rays, radium); effects of nonionizing radiation (welding flash, ultra-violet rays, lasers); anthrax; bloodborne pathogenic diseases, such as AIDS, HIV, hepatitis B or hepatitis C; brucellosis; malignant or benign tumors; histoplasmosis; coccidioidomycosis.

## When must you post the Summary?

You must post the *Summary* only — not the *Log* — by February 1 of the year following the year covered by the form and keep it posted until April 30 of that year.

## How long must you keep the Log and Summary on file?

You must keep the *Log* and *Summary* for 5 years following the year to which they pertain.

## Do you have to send these forms to OSHA at the end of the year?

Starting in 2017, many employers will be required to electronically submit their injuries and illnesses records to OSHA. To see if your establishment is required to submit the information, visit <https://www.osha.gov/recordkeeping/finalrule/>.

## How can we help you?

If you have a question about how to fill out the *Log*,

▼ visit us online at [www.osha.gov](http://www.osha.gov) or

▼ call your local OSHA office.

**Optional****Calculating Injury and Illness Incidence Rates**

**Note: You can type input into this form and save it.** Because the forms in this recordkeeping package are "fillable/writable" PDF documents, you can type into the input form fields and then save your inputs using the [free Adobe PDF Reader](#). In addition, the forms are programmed to auto-calculate as appropriate.

**What is an incidence rate?**

An incidence rate is the number of recordable injuries and illnesses occurring among a given number of full-time workers (usually 100 full-time workers) over a given period of time (usually one year). To evaluate your firm's injury and illness experience over time or to compare your firm's experience with that of your industry as a whole, you need to compute your incidence rate. Because a specific number of workers and a specific period of time are involved, these rates can help you identify problems in your workplace and/or progress you may have made in preventing work-related injuries and illnesses.

**How do you calculate an incidence rate?**

You can compute an occupational injury and illness incidence rate for all recordable cases or for cases that involved days away from work for your firm quickly and easily. The formula requires that you follow instructions in paragraph (a) below for the total recordable cases or those in paragraph (b) for cases that involved days away from work, *and* for both rates the instructions in paragraph (c).

(a) *To find out the total number of recordable injuries and illnesses that occurred during the year*, count the number of line entries on your OSHA Form 300, or refer to the OSHA Form 300A and sum the entries for columns (G), (H), (I), and (J).

(b) *To find out the number of injuries and illnesses that involved days away from work*, count the number of line entries on your OSHA Form 300 that received a check mark in column (H), or refer to the entry for column (H) on the OSHA Form 300A.

(c) *The number of hours all employees actually worked during the year*. Refer to OSHA Form 300A and optional worksheet to calculate this number.

You can compute the incidence rate for all recordable cases of injuries and illnesses using the following formula:

*Total number of injuries and illnesses X 200,000 ÷ Number of hours worked by all employees = Total recordable case rate*

(The 200,000 figure in the formula represents the number of hours 100 employees working 40 hours per week, 50 weeks per year would work, and provides the standard base for calculating incidence rates.)

You can compute the incidence rate for recordable cases involving days away from work, days of restricted work activity or job transfer (DART) using the following formula:

*(Number of entries in column H + Number of entries in column I) X 200,000 ÷ Number of hours worked by all employees = DART incidence rate*

You can use the same formula to calculate incidence rates for other variables such as cases involving restricted work activity (column (I) on Form 300A), cases involving skin disorders (column (M-2) on Form 300A), etc. Just substitute the appropriate total for these cases, from Form 300A, into the formula in place of the total number of injuries and illnesses.

**What can I compare my incidence rate to?**

The Bureau of Labor Statistics (BLS) conducts a survey of occupational injuries and illnesses each year and publishes incidence rate data by

various classifications (e.g., by industry, by employer size, etc.). You can obtain these published data at [www.bls.gov/iif](http://www.bls.gov/iif) or by calling a BLS Regional Office.

**Worksheet**

Total number of injuries and illnesses			Number of hours worked by all employees		Total recordable case rate
<input type="text"/>	X 200,000	÷	<input type="text"/>	=	<input type="text"/>

Number of entries in Column H + Column I			Number of hours worked by all employees		DART incidence rate
<input type="text"/>	X 200,000	÷	<input type="text"/>	=	<input type="text"/>

Save Input

Reset





## How to Fill Out the Log

The *Log of Work-Related Injuries and Illnesses* is used to classify work-related injuries and illnesses and to note the extent and severity of each case. When an incident occurs, use the *Log* to record specific details about what happened and how it happened.

If your company has more than one establishment or site, you must keep separate records for each physical location that is expected to remain in operation for one year or longer.

If you need additional copies of the *Log*, you may photocopy the printout or insert additional form pages in the PDF, and then use as many as you need.

The *Summary*—a separate form—shows the work-related injury and illness totals for the year in each category. At the end of the year, count the number of incidents in each category and transfer the totals from the *Log* to the *Summary*. Then post the *Summary* in a visible location so that your employees are aware of injuries and illnesses occurring in their workplace.

**You don't post the Log. You post only the Summary at the end of the year.**

**Note:** Because the forms in this recordkeeping package are "fillable/writable" PDF documents, you can type into the input form fields and then save your inputs using the [free Adobe PDF Reader](#). In addition, the forms are programmed to auto-calculate as appropriate.

**OSHA's Form 300**  
**Log of Work-Related Injuries and Illnesses**

**Note:** You can type input into this form and save it. Because the forms in this recordkeeping package are "fillable/writable" PDF documents, you can type into the input form fields and then save your inputs using the [free Adobe PDF Reader](#). In addition, the forms are programmed to auto-calculate as appropriate.

**Attention:** This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

**Year 20**  
U.S. Department of Labor  
(Occupational Safety and Health Administration)

**Please Record:**

- Information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid.
- Significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional.
- Work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12.

**Reminders:**

- Complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you are not sure whether a case is recordable, call your local OSHA office for help.
- Feel free to use two lines for a simple case if you need to.
- Complete the 5 steps for each case.

**Step 1: Identify the person**

(A) Case no.	(B) Employee's name	(C) Job title (e.g. Worker)	(D) Date of injury or onset of illness (e.g. 3/1/00)	(E) Where the event occurred (e.g. Loading dock, bathroom)	(F) Describe injury or illness, parts of body affected, and object/instrument that directly injured or made person ill (e.g. Second degree burn on right forearm from defective saw)
RESET 1	Alvin Raylin	Worker	3/23/00 month/day	bathroom	fracture, left arm and left leg, fell from ladder
RESET 2	Shana Alexander	Assembly man	3/12/00 month/day	painting dock	poisoning from lead fumes
RESET 3	Sean Sander	Electrician	5/18/00 month/day	2nd floor stairway	broken leg, fell over bar
RESET 4	Ralph Rosillo	Labaner	9/1/00 month/day	portaging equipment	back strain lifting a box
RESET 5	Jarrod Daniels	Machine op	10/23/00 month/day	production floor	dust in left eye
RESET			month/day		
RESET			month/day		
RESET			month/day		

**Step 2: Describe the case**

**Step 3: Classify the case**  
Select one or check all that apply on the next page

**Step 4: Enter the number**  
Using the injured or ill worker's case

**Step 5: Select a column**

**Be as specific as possible. You can use two lines if you need more room.**

**Revise the log if the injury or illness progresses and the outcome is more serious than you originally recorded for the case. Cross out, erase, or white-out the original entry if hard copy. (If using the PDF's fillable form feature, simply change your selections. You can also clear the entire case entry from the log using the Reset button.)**

**Choose ONLY ONE of these categories. Classify the case by recording the most serious outcome of the case, with column G (Death) being the most serious and column J (Other recordable cases) being the least serious.**

**Note whether the case involves an injury or an illness.**



OSHA's Form 300 (Rev. 04/2004)

Log of Work-Related Injuries and Illnesses

**Note:** You can type input into this form and save it. Because the forms in this recordkeeping package are "fillable/writable" PDF documents, you can type into the input form fields and then save your inputs using the [free Adobe PDF Reader](#). In addition, the forms are programmed to auto-calculate as appropriate.

**Attention:** This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20

U.S. Department of Labor  
Occupational Safety and Health Administration

**Please Record:**

- Information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid.
- Significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional.
- Work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12.

**Reminders:**

- Complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.
- Feel free to use two lines for a single case if you need to.
- Complete the 5 steps for each case.

Form approved OMB no. 1218-0176

Establishment name

CityState

Step 1. Identify the person		Step 2. Describe the case		Step 3. Classify the case				Step 4.		Step 5.										
(A) Case no.	(B) Employee's name	(C) Job title (e.g., Welder)	(D) Date of injury or onset of illness (e.g., 2/10)	(E) Where the event occurred (e.g., Loading dock north end)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g., Second degree burns on right forearm from acetylene torch)				SELECT ONLY ONE circle based on the most serious outcome:				Enter the number of days the injured or ill worker was:		Select one column:					
						Remained at Work						Illness								
						Death (G)	Days away from work (H)	Job transfer or restriction (I)	Other recordable cases (J)	Away from work (K)	On job transfer or restriction (L)	(M)	Injury	Skin disorder	Respiratory condition	Loss of consciousness	Hearing loss	All other illnesses		
						(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)			
Reset			/ / month / day							days	days									
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## OSHA's Form 300A (Rev. 04/2004)

## Summary of Work-Related Injuries and Illnesses

**Note: You can type input into this form and save it.**  
Because the forms in this recordkeeping package are "fillable/writable" PDF documents, you can type into the input form fields and then save your inputs using the free [Adobe PDF Reader](#).

Year 20 U.S. Department of Labor  
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no work-related injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this summary.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases, write "0."

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR Part 1904.35, in OSHA's recordkeeping rule, for further details on the access provisions for these forms.

## Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
(G)	(H)	(I)	(J)

## Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
<input type="text" value="0"/>	<input type="text" value="0"/>
(K)	(L)

## Injury and Illness Types

Total number of . . .			
(M)			
(1) Injuries	<input type="text" value="0"/>	(4) Poisonings	<input type="text" value="0"/>
(2) Skin disorders	<input type="text" value="0"/>	(5) Hearing loss	<input type="text" value="0"/>
(3) Respiratory conditions	<input type="text" value="0"/>	(6) All other illnesses	<input type="text" value="0"/>

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: U.S. Department of Labor, OSHA Office of Statistical Analysis, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

## Establishment information

Your establishment name: Street City  State  Zip Industry description (e.g., *Manufacture of motor truck trailers*)  
North American Industrial Classification (NAICS), if known (e.g., 336212)  
**Employment information** (If you don't have these figures, see the Worksheet on the next page to estimate.)Annual average number of employees Total hours worked by all employees last year 

## Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

Company executive  Title Phone  -  -  Date  /  / 

Save Input

**Optional****Worksheet to Help You Fill Out the Summary**

**Note: You can type input into this form and save it.**  
Because the forms in this recordkeeping package are "fillable/writable" PDF documents, you can type into the input form fields and then save your inputs using the free [Adobe PDF Reader](#). In addition, the forms are programmed to auto-calculate as appropriate.

At the end of the year, OSHA requires you to enter the average number of employees and the total hours worked by your employees on the summary. If you don't have these figures, you can use the information on this page to estimate the numbers you will need to enter on the Summary page at the end of the year.

**How to figure the average number of employees who worked for your establishment during the year:**

- 1** Add the total number of employees your establishment paid in all pay periods during the year. Include all employees: full-time, part-time, temporary, seasonal, salaried, and hourly.

The number of employees paid in all pay periods = **1**

- 2** Count the number of pay periods your establishment had during the year. Be sure to include any pay periods when you had no employees.

The number of pay periods during the year = **2**

- 3** Divide the number of employees by the number of pay periods.

**1**  
**2** = **3**

- 4** Round the answer to the next highest whole number. Write the rounded number in the blank marked *Annual average number of employees*.

The number rounded = **4**

For example, Acme Construction figured its average employment this way:

In this pay period . . . Acme paid this many employees . . .

1	10
2	0
3	15
4	30
5	40
▼	▼
24	20
25	15
26	+10
	830

Number of employees paid = 830 **1**

Number of pay periods = 26 **2**

$830 \div 26 = 31.92$  **3**

26

31.92 rounds to 32 **4**

32 is the annual average number of employees

**How to figure the total hours worked by all employees:**

Include hours worked by salaried, hourly, part-time and seasonal workers, as well as hours worked by other workers subject to day to day supervision by your establishment (e.g., temporary help services workers).

Do not include vacation, sick leave, holidays, or any other non-work time, even if employees were paid for it. If your establishment keeps records of only the hours paid or if you have employees who are not paid by the hour, please estimate the hours that the employees actually worked.

If this number isn't available, you can use this optional worksheet to estimate it.

**Optional Worksheet**

**Find** the number of full-time employees in your establishment for the year.

**X**

**Multiply** by the number of work hours for a full-time employee in a year.

**+**

This is the number of full-time hours worked.

**Add** the number of any overtime hours as well as the hours worked by other employees (part-time, temporary, seasonal)

**Round** the answer to the next highest whole number. Write the rounded number in the blank marked *Total hours worked by all employees last year*.

Save Input

Reset



# If You Need Help...

If you need help deciding whether a case is recordable, or if you have questions about the information in this package, feel free to contact us. We'll gladly answer any questions you have.

▼ Visit us online at [www.osha.gov](http://www.osha.gov)

▼ Call your OSHA Regional office and ask for the recordkeeping coordinator

or

▼ Call your State Plan office

## Federal Jurisdiction

Region 1 - 617 / 565-9860  
Connecticut; Massachusetts; Maine;  
New Hampshire; Rhode Island

Region 2 - 212 / 337-2378  
New York; New Jersey

Region 3 - 215 / 861-4900  
DC; Delaware; Pennsylvania; West Virginia

Region 4 - 678 / 237-0400  
Alabama; Florida; Georgia; Mississippi

Region 5 - 312 / 353-2220  
Illinois; Ohio; Wisconsin

Region 6 - 972 / 850-4145  
Arkansas; Louisiana; Oklahoma; Texas

Region 7 - 816 / 283-8745  
Kansas; Missouri; Nebraska

Region 8 - 720 / 264-6550  
Colorado; Montana; North Dakota; South  
Dakota

Region 9 - 415 / 625-2547

Region 10 - 206 / 553-5930  
Idaho

## State Plan States

Alaska - 907 / 269-4957

Arizona - 602 / 542-5795

California - 415 / 703-5100

\*Connecticut - 860 / 566-4380

Hawaii - 808 / 586-9100

\*Illinois - 217 / 782-6206

Indiana - 317 / 232-2688

Iowa - 515 / 281-3661

Kentucky - 502 / 564-3070

\*Maine - 207 / 623-7900

Maryland - 410 / 527-4465

Michigan - 517 / 322-1848

Minnesota - 651 / 284-5050

Nevada - 702 / 486-9020

\*New Jersey - 609 / 984-1389

New Mexico - 505 / 827-4230

\*New York - 518 / 457-2574

North Carolina - 919 / 807-2875

Oregon - 503 / 378-3272

Puerto Rico - 787 / 754-2172

South Carolina - 803 / 734-9669

Tennessee - 615 / 741-2793

Utah - 801 / 530-6901

Vermont - 802 / 828-2765

Virginia - 804 / 786-6613

\*Virgin Islands - 340 / 772-1315

Washington - 360 / 902-5554

Wyoming - 307 / 777-7786

\*Public Sector only



***Have questions?***

If you need help in filling out the *Log* or *Summary*, or if you have questions about whether a case is recordable, contact us. We'll be happy to help you. You can:

- ▼ Visit us online at: [www.osha.gov](http://www.osha.gov)
- ▼ Call your regional or state plan office. You'll find the phone number listed on the previous page.



## Chapter 12 OSHA Inspection Plan

### 12.1 Purpose, Scope, and Policy

#### 12.1.1 Purpose

This section is designed to communicate a management plan outlining the steps COMPANYNAME will take to manage imminent or pending inspections or inquiries from OSHA compliance officials.

#### 12.1.2 Scope

Certain significant events may trigger an OSHA inquiry or inspection and include situations such as:

- An incident occurs, such as an amputation or hospitalization that will likely result in a contact from the area or local OSHA office;
- A notice is received from OSHA advising of an employee complaint;
- A phone call or letter from OSHA advising of an intent to inspect the operations or to follow up on a previous inspection at another location;
- A compliance safety and health officer (CSHO) arrives at the facility, unannounced, and advises a plan to inspect the facility.

#### 12.1.3 Policy

The following policy establishes the corporate procedure for the universal management of planned and unplanned OSHA inquiries and inspections.

### 12.2 Roles & Responsibilities

#### 12.2.1 Employer Responsibilities

It is management's responsibility to follow the corporate procedure established for the universal management of planned and unplanned OSHA inquiries and inspections. Establishing a protocol so that phone calls, letters, emails, and other forms of contact are submitted directly to the Safety Coordinator (or to their designate in their absence) in a timely way.

### 12.3 Background

Under the Occupational Safety and Health Act of 1970 (the Act), the Occupational Safety and Health Administration (OSHA) is authorized to conduct workplace inspections and investigations to determine whether employers are complying with standards issued by the agency for safe and healthful workplaces. OSHA also enforces Section 5(a)(1) of the Act, known as the "General Duty Clause," which requires that every worker must be provided with a safe and healthful workplace. Workplace inspections and investigations are conducted by OSHA compliance safety and health officers who are safety and health professionals trained in the disciplines of safety and industrial hygiene.

Inspections are usually conducted without advance notice. There are, however, special circumstances under which OSHA may give notice to the employer, but such a notice will normally be less than 24 hours. These circumstances include the following:

- Imminent danger situations that require correction as soon as possible;
- Accident investigations where the employer has notified the agency of a fatality or catastrophe;
- Inspections that must take place after regular business hours or that require special preparation;
- Cases where notice is required to ensure that the employer and employee representative or other personnel will be present;
- Cases where an inspection must be delayed for more than 5 working days when there is good cause; and
- Situations in which the OSHA Area Director determines that advance notice would produce a more thorough or effective inspection.

Employers who receive advance notice of an inspection must inform their employees' representative or arrange for OSHA to do so. If an employer refuses to admit an OSHA compliance officer or if an employer attempts to interfere with the inspection, the Act permits appropriate legal action, such as obtaining a warrant to inspect.

## 12.4 What are OSHA Inspection Priorities?

Not all 111 million workplaces covered by the Act can be inspected immediately. The worst situations need attention first. OSHA, therefore, has established a system of inspection priorities.

- **Imminent Danger** - Imminent danger situations receive top priority. An imminent danger is any condition where there is reasonable certainty that a danger exists that can be expected to cause death or serious physical harm immediately or before the danger can be eliminated through normal enforcement procedures. If a compliance officer finds an imminent danger situation, they will ask the employer to voluntarily abate the hazard and remove endangered employees from exposure. Should the employer fail to do this, OSHA, through the regional solicitor, may apply to the Federal District Court for an injunction prohibiting further work as long as unsafe conditions exist.
- **Catastrophes and Fatal Accidents** - Second priority goes to the investigation of fatalities and accidents resulting in a death or hospitalization of three or more employees. The employer must report such catastrophes to OSHA within 8-hours. OSHA investigates to determine the cause of these accidents and whether existing OSHA standards were violated.
- **Complaints and Referrals** - Third priority goes to formal employee complaints of unsafe or unhealthful working conditions and to referrals from any source about a workplace hazard. The Act gives each employee the right to request an OSHA inspection when the employee believes they are in imminent danger from a hazard or when they think that there is a violation of an OSHA standard that threatens physical harm. OSHA will maintain confidentiality if requested, inform the employee of any action it takes regarding complaints, and, if requested, hold an informal review of any decision not to inspect.
- **Programmed Inspections** - Next in priority are programmed inspections aimed at specific high-hazard industries, workplaces, occupations, or health substances, or other industries identified in OSHA's current inspection procedures. OSHA selects industries for inspection on the basis of factors such as the injury incidence rates, previous citation history, employee exposure to toxic substances, or random selection. OSHA also may develop special emphasis programs that are local, regional, or national in scope, depending on the distribution of the workplaces involved. OSHA normally will conduct comprehensive safety inspections in manufacturing in those establishments with lost workday injury rates at or above the Bureau of Labor Statistics' (BLS) national rate for manufacturing currently in use by OSHA. States with their own occupational safety and health programs may use somewhat different systems to identify industries for inspection.
- **Follow-Up Inspections** - A follow up inspection determines if the employer has corrected previously cited violations. If an employer has failed to abate a violation, the compliance officer informs the employer that they are subject to "Failure to Abate" alleged violations. This involves proposed additional daily penalties until the employer corrects the violation.

## 12.5 What Does the Inspection Process Involve?

### 12.5.1 Inspector's Credentials

When the OSHA compliance officer arrives at the establishment, they will display official credentials and ask to meet an appropriate employer representative. Employers should always ask to see the compliance officer's credentials. Employers may verify the OSHA federal or state compliance officer credentials by calling the nearest federal or state OSHA office. Compliance officers may not collect a penalty at the time of the inspection or promote the sale of a product or service at any time; anyone who attempts to do so is impersonating a government inspector and the employer should contact the FBI or local law enforcement officials immediately.

### 12.5.2 Opening Conference

In the opening conference, the compliance officer explains how the establishment was selected and what the likely scope of the inspection will be. The compliance officer also will ascertain whether an OSHA-funded consultation visit is in progress or whether the facility is pursuing or has received an inspection exemption through the consultation program; if so, the inspection may be limited or terminated. The compliance officer explains the purpose of the visit, the scope of the inspection, and the standards that apply. The compliance officer gives the employer information on how to get a copy of applicable safety and health standards as well as a copy of any employee complaint that may be involved (with the employee's name deleted, if the employee requests anonymity). The compliance officer asks the employer to select an employer representative to accompany the compliance officer during the inspection.

The compliance officer also gives an authorized employee representative the opportunity to attend the opening conference and accompany the compliance officer during the inspection. If a recognized bargaining agent represents the employees, the agent ordinarily will designate the employee representative to accompany the compliance officer. Similarly, if there is a plant safety committee, the employee members of that committee will designate the employee representative (in the absence of a recognized bargaining agent). Where neither employee group exists, the employees themselves may select an employee representative, or the compliance officer may determine if any employee suitably represents the interest of other employees. The OSHA Act does not require an employee representative for each inspection. Where there is no authorized employee representative, however, the compliance officer must consult with a reasonable number of employees concerning safety and health matters in the workplace.

### 12.5.3 Walkthrough

After the opening conference, the compliance officer and accompanying representatives proceed through the establishment to inspect work areas for safety and health hazards. The compliance officer determines the route and duration of the inspection. While talking with employees, the compliance officer makes every effort to minimize any work interruptions. The compliance officer observes safety and health conditions and practices; consults with employees privately, if necessary; takes photos, videotapes, and instrument readings; examines records; collects air samples; measures noise levels; surveys existing engineering controls; and may monitor employee exposure to toxic fumes, gases, and dusts.

An inspection tour may cover part or all of an establishment, even if the inspection resulted from a specific complaint, fatality, or catastrophe. If the compliance officer finds a violation in open view, they may ask permission to expand the inspection. The compliance officer keeps all trade secrets observed confidential. The compliance officer consults employees during the inspection tour and may stop and question workers, in private, about safety and health conditions and practices in their workplaces. Each employee is protected under the Act from discrimination by the employer for exercising their safety and health rights. OSHA places special importance on posting and recordkeeping requirements. The compliance officer will inspect records of deaths, injuries, and illnesses that the employer is required to keep and will check to see that a copy of the totals from the last page of OSHA Form Number 300 are posted as required and that the OSHA workplace poster (OSHA 3165), which explains employees' safety and health rights, is prominently displayed. Where records of employee exposure to toxic substances and harmful physical agents are required, the compliance officer will examine them for compliance with the recordkeeping requirements. The compliance officer also requests a copy of the employer's Hazard Communication Program. Under OSHA's Hazard Communication Standard, employers must establish a written, comprehensive communication program that includes provisions for container labeling, material safety data sheets, and an employee training program. The program must contain a list of the hazardous chemicals in each work area and the means the employer will use to inform employees of the hazards associated with these chemicals.

During the course of the inspection, the compliance officer will point out to the employer any unsafe or unhealthful working conditions observed. At the same time, the compliance officer will discuss possible corrective action if the employer so desires. Apparent violations detected by the compliance officer should be corrected immediately if possible. When the employer corrects them on the spot, the compliance officer

records such corrections to help in judging the employer's good faith in compliance. Although corrected, the apparent violations will serve as the basis for a citation and, if appropriate, a notice of proposed penalty. OSHA may reduce the penalties for some types of violations if they are corrected immediately.

#### 12.5.4 Closing Conference

At the conclusion of the inspection, the compliance officer conducts a closing conference with the employer, employees, and/or the employees' representative. The compliance officer gives the employer and all other parties involved a copy of Employer Rights and Responsibilities Following an OSHA Inspection (OSHA 3000) for their review and discussion. The compliance officer discusses with the employer all unsafe or unhealthful conditions observed during the inspection and indicates all apparent violations for which they may issue or recommend a citation and a proposed penalty. The compliance officer will not indicate any specific proposed penalties but will inform the employer of appeal rights.

During the closing conference, the employer may wish to produce records to show compliance efforts and provide information that can help OSHA determine how much time may be needed to abate an alleged violation. When appropriate, the compliance officer may hold more than one closing conference. This is usually necessary when the inspection includes an evaluation of health hazards, after a review of additional laboratory reports, or after the compliance officer obtains additional factual evidence while concluding an accident investigation. The compliance officer explains that OSHA area offices are full-service resource centers that inform the public of OSHA activities and programs. This includes information on new or revised standards, the status of proposed standards, comment periods, or public hearings. Additionally, area offices provide technical experts and materials and refer callers to other agencies and professional organizations as appropriate. The area offices promote effective safety and health programs through Voluntary Protection Programs (VPP) and provide information about study courses offered at the OSHA Training Institute or its satellite locations nationwide. If an employee representative does not participate in either the opening or the closing conference held with the employer, the compliance officer holds a separate discussion with the employee representative, if requested, to discuss matters of direct interest to employees.

### 12.6 What are the Results of an Inspection?

After the compliance officer reports findings, the Area Director determines whether they will issue citations and/or propose penalties.

#### 12.6.1 Citations

Citations inform the employer and employees of the regulations and standards alleged to have been violated and of the proposed length of time set to correct alleged hazards. The employer will receive citations and notices of proposed penalties by certified mail. The employer must post a copy of each citation at or near the place a violation occurred for 3 days or until the violation is abated, whichever is longer.

#### 12.6.2 Penalties

These are the types of violations that may be cited and the penalties that may be proposed:

**Other-Than-Serious Violation**—A violation that has a direct relationship to job safety and health, but probably would not cause death or serious physical harm. OSHA may assess a penalty up to **\$15,625 (As of January 17, 2023)**, annually adjusted for inflation) for each violation. The agency may adjust a penalty for an "Other-than-serious" violation downward by as much as 95 percent, depending on the employer's good faith (demonstrated efforts to comply with the Act), history of previous violations, and size of business.

**Serious Violation**—a violation where there is a substantial probability that death or serious physical harm could result. OSHA assesses the penalty for a serious violation up to **\$15,625 (As of January 17, 2023)**, annually adjusted for inflation) for each violation. OSHA may adjust a penalty for a serious violation downward based on the employer's good faith, history of previous violations, and size of business.

**Repeated Violation**—A violation of any standard, regulation, rule, or order where, upon re-inspection, a substantially similar violation is found, and the original citation has become a final order. Violations can bring a fine or up to **\$156,259 (As of January 17, 2023)**, annually adjusted for inflation) for each such violation within the



previous three (3) years. To calculate repeated violations, OSHA adjusts the initial penalty for the size and then multiplies by a factor of 2, 5, or 10 depending on the size of the business.

**Willful Violation**—A violation that the employer intentionally and knowingly commits. The employer is aware that a hazardous condition exists, knows that the condition violates a standard or other obligation of the Act, and makes no reasonable effort to eliminate it. OSHA may propose penalties of up to **\$156,259 (As of January 17, 2023)**, annually adjusted for inflation) for each willful violation. An employer who is convicted in a criminal proceeding of a willful violation of a standard that has resulted in the death of an employee may be fined up to \$250,000 (or \$500,000 if the employer is a corporation) or imprisoned up to 6 months, or both. A second conviction doubles the possible term of imprisonment.

**Failure-to-Abate**—Failure to correct a prior violation may bring a civil penalty of up to **\$15,625 (As of January 17, 2023)**, annually adjusted for inflation) for each day that the violation continues beyond the prescribed abatement date.

Additional violations for which OSHA may issue citations and proposed penalties are as follows:

- Falsifying records, reports, or applications can, upon conviction, bring a criminal fine of \$10,000 or up to 6 months in jail, or both.
- Violating posting requirements may bring a civil penalty of \$7,000.
- Assaulting a compliance officer or otherwise resisting, opposing, intimidating, or interfering with a compliance officer in the performance of their duties is a criminal offense and is subject to a fine of not more than \$5,000 and imprisonment for not more than 3 years. Citations and penalty procedures may differ somewhat in states with their own occupational safety and health programs.

## 12.7 Training

### 12.7.1 Initial

All supervisors and management will be trained in this and other procedures dealing with OSHA and compliance issues.

### 12.7.2 Refresher

Refresher training will be administered when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## 12.8 Reference

OSHA 3000-04R 2018

## 12.9 Appendix

- Reception Responsibilities and Procedures for OSHA Inspections
- Management and Employee Interviews

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**Reception Responsibilities and Procedures for OSHA Inspections**

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Any OSHA inspector or other governmental official must check in at the office upon arrival. If the inspector arrives at another door or building, direct them to the main office.

**Upon their arrival, immediately notify the highest-ranking management representative.**

In the event of an inspection, personnel will follow these guidelines.

- Be polite and respectful!
- Ask to see the compliance officer's credentials. Copy down all pertinent information.
- Ask the inspector to please wait for a moment while you contact a company representative.
- Provide a seat in a waiting area; do not escort the official to a production area or company office.
- Contact the management representative and inform them of the agency's arrival on site.
- Prior to meeting with the inspector the management representative should contact the company's attorney. It is also advisable to seek the assistance of an Optimum Safety Management Safety Professional by calling the FCA Safety Helpline at (844) 414-7233.
- Before the inspection begins an opening conference will be conducted. The compliance officer will explain the nature, purpose, and scope of the inspection. Make notes of all pertinent information.
- A responsible company representative must accompany the compliance officer throughout the entire inspection. If the officer appears to be focusing on a particular area, item, or task make a note of what they are looking at. If they take photos take one also. Use the same vantage point when taking the photos. If they collect a sample of material, do so also.
- Take good notes of any conversation, questions, or comments made by the officer or anyone they speak with.
- Do not volunteer any information you are not asked, and do not offer any speculation or judgmental comments.
- If asked questions all personnel shall answer truthfully and factually with accurate information. If you don't know, or unsure of the facts say so.
- Do not provide any documents. These must be requested, in writing, through the company's attorney.
- Upon conclusion of the inspection the officer will conduct a closing conference and outline any unsafe or unhealthy conditions observed. Again, take good notes and be prepared to immediately transmit those notes to management.

**Do not leave the inspector alone.**

**Escort them 100 percent of the time while they are at the facility.**

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## Management and Employee Interviews

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### Management Interviews

During management interviews, the employer and its designated representative(s) are entitled to sit in and take notes.

### Employee Interviews

During non-management employee interviews OSHA will typically not allow management to sit in as the employee has the right to a private interview without the employer and its designated representative(s) present.

### Interview Process

For both management and employee interviews, employees should be notified of their rights prior to being interviewed. The following bullet list should be used to inform employees of their rights.

Please ensure that the delivery of this information is not construed as pressure being applied to the employee for any particular outcome in the interview. More than anything, the employee should simply be aware of their rights and to provide truthful responses to the questions asked by the inspector.

#### It is important to keep in mind:

- The OSHA inspector is here to ask you a few questions about your job;
- You are not in trouble and should answer questions truthfully and factually;
- If you are not comfortable being interviewed by the inspector, you are not required to submit to the interview;
- If you would like your union steward or a translator in your interview, you are entitled to have one or both attend;
- Please answer the inspector's questions directly — when a question calls for a YES or NO answer, answer YES or NO — do not feel the need to explain or elaborate unless the inspector asks you to do so;
- The shorter you keep your answers, the shorter the interview will be;
- If you do not understand the question, please tell the inspector that you do not understand;
- If you do not know an answer to a question, please tell the inspector you do not know the answer, please do not guess as to the answer.
- If you cannot recall an answer to a question, please tell the inspector that you don't recall;
- If at any point during the interview you become uncomfortable, you may stop and leave the interview;
- You have the right NOT to be recorded during your interview;
- You have the right NOT to sign a statement prepared for your signature by the inspector;
- Prior to signing any statements, read them first and make sure the information is accurate;
- The inspector may ask you for your home address and phone number. You do not have to give that to them. You can request that they contact you here at work.

*For clarification on any of the above information please see your manager.*

## **Chapter 13 Sub-Contractor Policy**

### **13.1 Purpose, Scope & Policy**

#### **13.1.1 Purpose**

COMPANYNAME has developed this policy in the interest of promoting good communication and continuing to provide a safe and healthful work place for its employees, and sub-contractors alike.

#### **13.1.2 Scope**

COMPANYNAME engages the services of sub-contractors and values its relationships with these essential service providers.

#### **13.1.3 Policy**

COMPANYNAME will conduct its business with sub-contractors under the following guidelines. Based on the measures of this policy, we anticipate an incident and injury free project.

### **13.2 Roles & Responsibilities**

#### **13.2.1 Employer Responsibilities**

##### **13.2.1.1 Management**

It is management's responsibility to select and manage sub-contractors and ensure the following steps are taken:

- Submit the Sub-Contractor Safety Policy to all sub-contractors during the bidding process.
- Ensure the Sub-Contractor Pre-Qualification Form under Appendix A of this policy is submitted with all bids.
- Evaluate each Sub-Contractor Pre-Qualification Form for fitness.
- Ensure each sub-contractor submits their SSSP and SDS for the work to be performed on the project at a minimum 30 days prior to the scheduled start of work.
- Ensure the "Operations and Work Site Safety Regulations" under Appendix B of this policy are signed and submitted at a minimum of 30 days prior to the scheduled start of work.
- Ensure a Pre-Construction Safety Meeting to review the SSSP, SDS and other site-specific safety related topics is scheduled and conducted at a minimum of 15 days prior to the scheduled start of work.

##### **13.2.1.2 Front Line Supervision**

It is Front Line Supervision's responsibility to issue Sub-Contractor Safety Violation Notice forms when sub-contractors are not complying to:

- Federal, State, Local and Municipal guidelines, and regulations,
- "Operations and Work Site Safety Regulations", or
- the sub-contractors SSSP and SDS

##### **13.2.2 Sub-Contractors**

Complete the Sub-Contractor Pre-Qualification Form under Appendix A of this policy and submit it to the office of the Safety Coordinator during the bidding process.

Submit a Site-Specific Safety Plan (SSSP) and Safety Data Sheets (SDS) for the work to be performed on the project at a minimum 30 days prior to the scheduled start of work.

The lead Project Manager and Site Supervisor shall review, sign, and submit the "Operations and Work Site Safety Regulations" under Appendix B of this policy at a minimum of 30 days prior to the scheduled start of work.

The lead Project Manager and Site Supervisor shall meet with the COMPANYNAME Project Team for a Pre-Construction Safety Meeting to review the SSSP, SDS and other site-specific safety related topics at a minimum of 15 days prior to the scheduled start of work.

It is the sub-contractor's responsibility to review with each of its employees the following information prior to the start of work:

- Federal, State, Local and Municipal guidelines, and regulations,
- "Operations and Work Site Safety Regulations", and
- the sub-contractors SSSP and SDS

Report all injuries or incidents to COMPANYNAME immediately. A completed report must be submitted by the close of business of the day following the accident or incident.

Submit documentation of weekly safety meetings, to include a "Tool Box Talk" safety topic, with crews.

Participate in scheduled coordination and safety meetings.

Fully cooperate in the event of an OSHA inspection on the work site.

### **13.3 Definitions**

**Sub-Contractor** - Anyone providing goods or services to the company.

### **13.4 Vender Selection Criteria**

Venders will be evaluated on the following criteria.

#### **13.4.1 Certificate of Insurance.**

- The Sub-Contractor will submit a certificate of insurance.
- The certificate shall provide verification of the insurance; limits of coverage; insurance company; policy number; named insured; and the policies' effective periods.

#### **13.4.2 Evaluation Criteria**

Sub-Contractors may be evaluated for fitness for use based upon industry recognized criteria:

- E.M.R.,
- OSHA TRR and Lost Day Injury Rates,
- Pre-Qualification Form

COMPANYNAME understands the importance of the development and implementation of a complete Safety and Health Program in providing for the safety and health of a company's work force. Recognition will be given to Sub-Contractors who have undertaken this task and show the results of this in their injury rates, etc. However, COMPANYNAME will not place itself in the role of evaluating the Sub-Contractors Safety Program for compliance with government or agency regulations. Neither will COMPANYNAME monitor Sub-Contractor performance on the work site for compliance with its own manual.

Sub-contractors will provide documentation of any requested safety programs, trainings, certifications, and other information deemed relevant for consideration.

### **13.5 Sub-Contractor Requirements**

In order for a sub-contractor to be allowed to perform work for COMPANYNAME the sub-contractor will participate in a Site Orientation that communicates all known site hazards, the control measures established

to eliminate or reduce exposure to those hazards and allows for feedback to ensure all concerns are addressed.

### **13.5.1 Site Orientation**

Site Supervision will ensure that all sub-contractors have been provided a thorough site orientation prior to beginning work at the site.

All sub-contractor employees will be oriented to the following:

- Site layout and identified hazards
- Control measures established to control those hazards
- Safety policy, roles and responsibilities, and general safety rules
- Proper attitude toward safety and other workers
- Accident and incident reporting policies
- Hazard communication program
- Personal protective equipment requirements
- Specific topics relevant to the employee's work
- Other topics as required

### **13.5.2 General Requirements**

The subcontractor will fulfill the following requirements:

- Sub-Contractors will abide by all Federal, State, Local and Municipal guidelines, and regulations.
- Sub-Contractors will perform work in a manner consistent with a high level of care for other workers & the public who may come in contact with the jobsite during or after working hours. All open pits, shafts, holes will be covered, identified, and properly barricaded to prevent accidental entry. Any other hazards such as slip, trip, or fall hazards will be treated in the same manner.
- Sub-Contractor will abide by all items contained in the attached "Operations and Work Site Safety Regulations".
- Sub-Contractors must report all injuries or incidents to COMPANYNAME immediately. Sub-Contractor must cooperate with our personnel or designated representative in all accident or incident investigations. Sub-Contractor will file a completed incident report by the close of business of the day following the incident.
- Sub-Contractors will hold a minimum of a weekly safety meeting, to include a "Tool Box Talk" safety topic, with its crews on our site. This will be a mandatory meeting which ALL crew members will attend. Documentation of the meeting will include; a copy of the agenda, topic sheet and signatures of the attendees. Documentation will be provided to the Site Supervisor each week.
- Sub-Contractor's employees will fully cooperate in the event of an OSHA inspection on the work site.
- The entirety of the COMPANYNAME Safety & Health Manual is to govern the performance of its own employees. It will in no way be construed as applicable to the employees of the Sub-Contractor with the exception of this Sub-Contractor Policy section.

### **13.5.3 Sub-Contractor Hazard Communication Requirements**

- Chemical inventory list of all hazardous chemicals they will use while on the work site.
- A Safety Data Sheet (SDS) must be provided for each of these chemicals.
- This package consisting of the inventory list and SDS sheets must be site specific.
- NOTE: Do not have Sub-Contractors send their entire SDS book with hundreds of non-related sheets. Inform them to only send those SDS that are applicable to work being performed.

## **13.6 Inspections and Corrective Action**

Management will, as part of its Hazard Assessment Plan, frequently and regularly inspect its work sites. During these inspections, Sub-Contractor crews who are found to be performing in an unsafe manner or in a manner not in compliance with regulatory agency specifications will be informed of the deficiency and given an opportunity to correct the conditions.

A lack of response or timely correction will subject the Sub-Contractor to any or all of the following actions at the discretion of the Site Supervisor:

- Written documentation of the deficiency utilizing the Sub-Contractor Safety Violation Notice form
- Removal and/or permanent ban of the individual causing the deficiency from the work site
- Correction of the condition with costs to be back-charged to the Sub-Contractor
- Removal of Sub-Contractor and its crew(s) from the site and termination of the contract for default

### **13.7 Working as Sub-contractor**

This PPE program will be followed at all times. This program is to be considered a minimum requirement. The goal and purpose of this program is to protect the worker from harm and from exposure to hazards in the workplace.

When working as a sub-contractor the General Contractor may have additional or more stringent requirements as they pertain to personal safety and personal protective equipment. In the event the General Contractor has additional requirements, those requirements will be met in addition to this program. In the event the requirements are more stringent, the more stringent requirements will be met.

### **13.8 Post Job Performance Review**

At the completion of contracted services a post-job performance review will be conducted to evaluate job performance, safety performance, and quality of work. The results of the review will be communicated with the sub-contractor representative for continual improvement and relationship development.

### **13.9 Training**

#### **13.9.1 Initial**

Upon arrival at the work site initially, the Sub-Contractor's foreman or on-site supervisor will be required to review and sign the "Operations and Work Site Safety Regulations", indicating acceptance of these policies. This step is taken to ensure that the responsible party on-site has been briefed on the policies and procedures to which they will adhere.

#### **13.9.2 Refresher**

Refresher training will be administered when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

### **13.10 Appendix**

- Operations and Site Safety Regulations
- Sub-Contractor Pre-Qualification Form
- Sub-Contractor Safety Requirements Acknowledgement
- Sub-Contractor Safety Violation Notice Form

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**Operations and Site Safety Regulations**

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1. Proper personal protective equipment is required at all times on this site. This includes, but is not limited to, the following:
  - a. **at all times!**
  - b. Face shields, in addition to safety glasses, when grinding or cutting.
  - c. Face shields which are tinted with a #3 or #5 shade, in addition to safety glasses, when cutting steel with a torch.
  - d. Welding hoods with a #10 or #12 shade, in addition to safety glasses, when performing any welding operations.
  - e. NIOSH approved respiratory protective equipment when required.
2. Personal protective equipment must be worn at all times.
3. Running machinery or equipment without proper training is prohibited.
4. Intoxicated workers are not allowed to perform any duties.
5. Obey all safety signs and instructions.
6. Leave all tools and equipment in proper storage.
7. Stop work immediately if you observe a safety hazard.
8. Keep all walkways clear of obstructions.
9. Walk carefully to minimize slip, trip and fall hazards.
10. Report all incidents, injuries, or illnesses to the supervisor immediately. Delay in receiving medical or first aid care can further complicate the effects of an injury. Additionally, unreported incidents can promote reoccurrence of the incident with possibility of further worker injury. This policy mandates that a report be filed with the office the same day in all instances.
11. Perform your assigned tasks safely. When in doubt of how to do so, ask for additional help or training. Workers should not perform any task or operate any equipment unless trained in the specific operation of and made aware of the hazards associated with the task/equipment and the controls of such hazards.
12. Do not lift objects which are too heavy. Request help or use a lift. Bend with the legs when lifting. Do not use the back.
13. Do not smoke near flammable materials.
14. Make sure all guards are in place when operating equipment. Also, do not remove guards unless you are authorized to do so as part of a lockout/tagout process.
15. Machinery will not be re-fueled, oiled, serviced, or repaired while in operation.
16. Fall protection must be utilized at fall heights as follows: When over 6' in a construction setting, when over 4' in a maintenance setting and over 10' from a scaffold.
17. Machinery shall not be re-fueled, oiled, serviced, or repaired while in operation.
18. Fall protection equipment such as a full body harness and lanyard will be worn when operating any articulating boom platform or lift. Additionally, occupants of the basket will remain on the floor of the lift and not use the rails, toe boards or materials to elevate themselves off the floor of the lift.
19. Check each ladder before use to ensure that the ladder has no defects.
20. When utilizing extension ladders, they will be inspected prior to use, used at the proper 4:1 ratio, properly secured, extended 3' above the landing surface, and, the user will always face the ladder, use 3 points of contact and maintain good balance by keeping their belt buckle within the rails of the ladder. No materials, tools, or anything else will be carried up the ladder. These types of materials will be hoisted to upper levels with the use of a hoist rope.
21. Workers will not handle, repair, or tamper with electrical equipment unless authorized.



22. Ensure that electrical equipment such as power tools, electrical cords, or portable lighting is all in good repair with no broken or missing parts or insulation damage.
23. Ensure that GFCI receptacles are utilized when working outdoors or under wet conditions.
24. Safe work practices will be employed while working in or around trenches and excavations including:
  - a. Ladders or ramps will be provided in excavations deeper than 4'
  - b. Travel distances will be kept to less than 25' to the ladder or ramp
  - c. Protective measures such as shoring, sloping, benching or trench shields will be utilized in trenches deeper than 5'
25. Hazardous Materials
  - a. All employees shall be aware of any hazardous material on the job or that they have potential exposure to.
  - b. Employees should be trained in the safe handling and potential hazards of the material.
  - c. All aspects of the employee Hazard Communication Act including awareness, protection, and proper handling shall be observed and practiced.

## Sub-Contractor Pre-Qualification Form

## GENERAL INFORMATION

Company Name:				Today's Date:	
Street Address:				Telephone Number:	
Mailing Address:				Fax Number:	
Contact Person:				Website:	
Telephone:				E-Mail:	
President:				Years with company?	
Vice President:				Years with company?	
Secretary:				Years with company?	
How many years has your organization been in business under your present firm name?					
Form of Business:	<input type="checkbox"/> Sole Owner	<input type="checkbox"/> Partnership	<input type="checkbox"/> Corporation (State Incorporated):		
State License #:		Tax ID#:		Dun's#:	
Under Current Manager Since (Date):					
SIC/NAICS Code(s):			Specialty Trade(s) Performed:		
Parent Company Name:					
City:		State:		Zip:	
Subsidiaries:					

## SAFETY

Does your Company have a written Safety & Health Program: (If yes, please attach a copy of the Table of Contents.)			<input type="checkbox"/> Yes	<input type="checkbox"/> No
Who is responsible for coordinating your Company's Safety Program:				
Name:		Title:		Telephone:
Describe your safety training for your employees:				
- Employee Orientation Training	<input type="checkbox"/> Yes <input type="checkbox"/> No	Frequency:		By Whom:
- Supervisors, Managers	<input type="checkbox"/> Yes <input type="checkbox"/> No	Frequency:		By Whom:
- Jobsite "ToolBox Meetings"	<input type="checkbox"/> Yes <input type="checkbox"/> No	Frequency:		By Whom:
Does your Company have a Site Specific Safety Program: (If yes, please attach an example copy.)			<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does your Company perform Jobsite Inspections? (If yes, please attach an example.)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Frequency:		By Whom:
If your Company does not perform Jobsite Inspections, why?				
Does you use an outside agency for Site Inspections? (If yes, please attach an example.)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Frequency:		By Whom:

Insurance Carrier(s): (Please attach a copy of current insurance certificate)		
<b>Name</b>	<b>Type of Coverage</b>	<b>Insurance Broker's Contact &amp; Telephone</b>
What is your Company's OSHA Recordable Incident Rate over the last three years?		
Year:		
Rate:		
What is your Company's OSHA severity or lost workday rate over the last three years?		
Year:		
Rate:		
Please attach copies of your OSHA 300 logs for years listed above. If you do not complete OSHA 300 forms, explain why:		
What is your Company's Experience Modification Rate (E.M.R.) over the last three years?		
Year:		
Rate:		
(Please attach a letter from your insurance carrier or state fund (on their letterhead) verifying the E.M.R. data provided.)		
How many OSHA Citations/Violations has your Company received in the last three years? (Please provide the details of each citation/violation on a separate sheet of paper and attach.)		

## INDUSTRY MEMBERSHIP AFFILIATIONS

What Industry Organizations/Associations in your Company a member of?
What Awards/Special Recognition has your Company received?

## Signature Block

As a condition of pre-qualification, the said Company agrees that it:

- A. Will notify the Owner within five business days of any material changes to the information contained in this form.
- B. Authorizes the local broker(s) listed in Item 16 to provide any and all information regarding said Company to the Owner, as a condition of said Company's pre-qualification.

Signature – FORM MUST BE SIGNED BY SAID COMPANY'S PRESIDENT, VICE PRESIDENT, OR CEO (If Corporation), PARTNER (If Partnership), OR SOLE OWNER (If Sole Owner). I hereby certify that all the information contained in this pre-qualification statement is true and complete, and that I have the authority to execute this document on behalf of this firm.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Name: \_\_\_\_\_ Title: \_\_\_\_\_

## COMPANYNAME

**Sub-Contractor Safety Requirements Acknowledgement**

- ☐ I have reviewed the above "***Sub-Contractor Safety Policy***" and agree that I will insure my crew's compliance with these regulations. Additionally, I will ensure that my crew adheres to the following:
- Abide by all Federal, State, Local and Municipal guidelines, and regulations.
  - Perform work in a manner consistent with a high level of care for other workers & the public who may come in contact with the jobsite during or after working hours. All open pits, shafts, holes shall be covered, identified, and properly barricaded to prevent accidental entry. Any other hazards such as slip, trip, or fall hazards shall be treated in the same manner.
  - Hold a minimum of a weekly safety meeting, to include a "Tool Box Talk" safety topic, with the crew members on our site. This will be a mandatory meeting which ALL crew members will attend. Documentation of the meeting to include a copy of the agenda, topic sheet and signatures of the attendees will be turned in to the superintendent weekly.
  - Cooperate fully in the event of an OSHA inspection, site inspection or accident investigation by our personnel or designated representative on the work site.
- ☐ Prior to start of work a Site-Specific Safety Plan and Site-Specific Chemical Inventory with Safety Data Sheets will be provided.

Sub-Contractor: \_\_\_\_\_

Date: \_\_\_\_\_

**Project Manager**

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

**Foreman/Crew Leader**

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

## COMPANYNAME

## Sub-Contractor Safety Violation Notice Form

Job Number: \_\_\_\_\_ Job Name: \_\_\_\_\_  
Date: \_\_\_\_\_ Superintendent: \_\_\_\_\_  
Sub- Contractor: \_\_\_\_\_ Supervisor: \_\_\_\_\_

Your company has been observed to have violated one or more of our "Operations and Site Safety Regulations". A detail of the violations can be found below. Please correct these violations immediately and return this notice to our office for our records.

Rule #	Description of Violation (Describe Corrective Action Taken on Lines below Each Violation)
_____	Corrective Action: _____ _____
_____	Corrective Action: _____ _____
_____	Corrective Action: _____ _____
_____	Corrective Action: _____ _____
_____	Corrective Action: _____ _____
_____	Corrective Action: _____ _____
_____	Corrective Action: _____ _____
_____	Corrective Action: _____ _____
_____	Corrective Action: _____ _____
_____	Corrective Action: _____ _____

## Chapter 14 Hazard Assessment Plan

### 14.1 Purpose, Scope & Policy

#### 14.1.1 Purpose

This company has a procedure for conducting inspections of workplaces/jobsites for compliance with health and safety rules. The purpose of the inspection is to identify hazards and unsafe practices before they cause an injury or accident.

#### 14.1.2 Scope

Hazard assessments include inspection of the area as well as work practices.

#### 14.1.3 Policy

COMPANYNAME is committed to providing a safe and hazard free workplace, therefore SAFETYCOORDINATOR or their assignees will frequently inspect the facilities for hazards. Inspections of the job-sites and or facilities are performed at least (Daily, Weekly, Monthly). Reporting hazards is a protected activity and no action will be taken against anyone for identifying unsafe conditions.

### 14.2 Roles & Responsibilities

#### 14.2.1 Employer Responsibilities

##### 14.2.1.1 Safety Coordinator or His/her Assignee(s)

It is the responsibility of the safety coordinator or his/her assignee(s) to conduct site inspections using the form provided in this chapter's appendix or any other means necessary. The safety coordinator or his/her assignee(s) will be able to identify, report, and correct all possible hazards in the workplace.

##### 14.2.1.2 Supervisors

It is the responsibility of supervisors to identify, report, and correct all possible hazards in the workplace.

#### 14.2.2 Employee Responsibilities

It is the responsibility of all employees to identify, report, and correct if feasible, all possible hazards in the workplace.

### 14.3 Definitions

**Hazard** - A hazard is the potential for harm. In practical terms, a hazard often is associated with a condition or activity that, if left uncontrolled, can result in an injury or illness. Identifying hazards and eliminating or controlling them as early as possible will help prevent injuries and illnesses.

**Hazard Assessment** - An evaluation of a work place, or work situation, as to the potential for hazards that an employee may encounter while performing the job.

### 14.4 Hazard Assessment

Hazard identification and elimination is not only an inherent responsibility of supervision in providing a safe workplace for employees, but also requires employee involvement. As such, hazard evaluation and control will all be an on-going concern for all. It is the responsibility of everyone (management, supervisors, and all employees) to identify, report, and correct, all possible hazards. Employees are particularly important in this process as they are in the best position to identify hazards in the workplace and day-to-day operations. Reporting hazards is a protected activity and no action will be taken against anyone for identifying unsafe conditions. Reports should be made to the safety coordinator or supervisor for appropriate action.

During the course of inspection if a hazard is identified it is immediately corrected. If the hazard is not immediately correctable, all appropriate personnel are notified, and the hazard is clearly identified by signs, barricades, or other warnings.

## **14.5 Training**

### **14.5.1 Initial**

Initial training will be completed during the New Hire Orientation process.

### **14.5.2 Refresher**

As needed

## **14.6 Appendix**

- Appendix A Safety Inspection Checklist

Safety Inspection Checklist				
Job Site Address				
Superintendent				
Date / Time				
Inspector(s)				
<b>Check Items Inspected</b>				
Job Site - General	Yes	No	N/A	Date Corrected
First aid, posters, emergency numbers, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Housekeeping and Sanitation	Yes	No	N/A	Date Corrected
Clean, disposal, lighting, toilets clean, water, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Construction Area - Secured Access/After Hours	Yes	No	N/A	Date Corrected
Signs, perimeter, ditches & equip. secured, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Fire Prevention	Yes	No	N/A	Date Corrected
Fire extinguishers available/charged, flammable storage, cans(flash screens, self-closing lids, labels), cylinders secured/upright, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Hazard Communication	Yes	No	N/A	Date Corrected
SDS available, properly stored/labeled, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Electrical	Yes	No	N/A	Date Corrected
GFCI's, properly covered, warning signs, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Personal Protective Equipment (PPE)	Yes	No	N/A	Date Corrected
Appropriate eye, face, hand, hearing, head, foot, respiratory protective equipment in use, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Hand & Power Tools	Yes	No	N/A	Date Corrected
Proper tool, good condition, guards in place, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Scaffolds	Yes	No	N/A	Date Corrected
Condition good, guard rails, on stable footing, base plates in place, trip hazards, falling object protection, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Ladders	Yes	No	N/A	Date Corrected
Good condition, secured, 36" above landing, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Excavation and Shoring	Yes	No	N/A	Date Corrected
Protection > 5' deep, ladder > 4' deep, 25' travel max, competent person, inspected daily, utilities located, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				



Safety Inspection Checklist Continued				
<b>Hoists, Cranes, and Derricks</b>	Yes	No	N/A	Date Corrected
Inspected daily & annually, outriggers extended, swing radius barricaded, 10' min. clearance to power lines, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Heavy Equipment</b>	Yes	No	N/A	Date Corrected
Regular inspection, seatbelts used if ROPS, backup alarms, no riders, lights & warning signals working, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Fall Protection</b>	Yes	No	N/A	Date Corrected
Floor openings covered/guarded, guard rails adequate height and strength, toe boards as needed, wall openings, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Handling and Storage of Materials</b>	Yes	No	N/A	Date Corrected
Proper storage for stability/loading, lifting techniques, rigging, clear passageways, sufficient employees, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Demolition</b>	Yes	No	N/A	Date Corrected
Pre-planned, utilities off, HazMat, chutes > 20', etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Steel Erection</b>	Yes	No	N/A	Date Corrected
PPE worn, taglines, fire hazards protected, floor openings, rigging/crane checked and used correctly, fall protection, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Welding and Cutting</b>	Yes	No	N/A	Date Corrected
Flash shielded, Oxy/Fuel separated, caps, PPE, fire extinguishers, valves closed, flash back arrestors, hoses/cables, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Concrete Construction</b>	Yes	No	N/A	Date Corrected
Forms braced, PPE, rebar caps, nails removed, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Work in Roadways and Traffic Zones</b>	Yes	No	N/A	Date Corrected
Proper TTC setup, hard hats and vests worn, adequate work area for crew, workers alert and aware.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Masonry</b>	Yes	No	N/A	Date Corrected
Proper scaffold, saws guarded, dust control, safe hoisting, limited access zone & wall bracing, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
<b>Asbestos</b>	Yes	No	N/A	Date Corrected
Procedure for unexpected presence – Stop Work, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				

## **Chapter 15 Job Hazard Analysis Plan**

### **15.1 Purpose, Scope & Policy**

#### **15.1.1 Purpose**

COMPANYNAME understands that its efforts to provide for a safe and healthful workplace must begin in the early stages of planning its work.

#### **15.1.2 Scope**

This policy will be enacted to help create procedures for jobs that could expose employees to hazards.

#### **15.1.3 Policy**

In an effort to achieve its objectives, COMPANYNAME will engage in the process of Job Hazard Analysis. Many times, this process will be done informally through observation of a given task and assessment of the hazards associated with it. Corrective measures can often be identified easily.

However, when a procedure is more complex or presents more potential hazards, or high-risk hazards to its workers, COMPANYNAME will utilize a formal Job Hazard Analysis.

### **15.2 Roles & Responsibilities**

#### **15.2.1 Employer Responsibilities**

It is management's responsibility to identify hazards associated with jobs for a Job Hazard Analysis. Management will ensure JHAs are completed and reviewed as necessary. Management will also ensure that employees are trained on the proper JHAs for the tasks they are involved in.

#### **15.2.2 Employee Responsibilities**

It is the employee's responsibility to follow safety procedures in the Job Hazard Analysis for the tasks they are involved in.

### **15.3 Job Hazard Analysis Process**

The process of Job Hazard Analysis is used to reduce or eliminate the risks to the workers involved in a particular process or project. The first step is that of identifying each and every task associated with the process. Once each of the tasks has been identified, each of these tasks is evaluated for its potential hazard to the worker. Finally, the hazards are reviewed to determine the best corrective measures to ensure the safety of the worker. The result of this process is a new procedure for how best to undertake a particular project with minimal risk to the workers involved. Often, this process results in the discovery of more efficient methods by which routine projects are handled.

### **15.4 Hierarchy of Controls**

When assessing the hazards for the best corrective measures, the following hierarchy of controls will be utilized:

#### **15.4.1 Elimination or Substitution**

The first consideration for controlling hazards is to eliminate the hazard or substitute a less hazardous material or process. Eliminating the exposure must always be the first consideration.

#### **15.4.2 Engineering Controls**

The next option shall be to consider physical changes to the work area or process that effectively minimize a worker's exposure to hazards.

- Enclose – encapsulate or enclose the hazard.
- Isolate – Guard or barrier
- Redesign – redesign the work station or process
- Example – Wet-cutting kit added to a concrete saw

### **15.4.3 Administrative Controls**

Administrative controls utilize a procedure, series of steps, or method to control the hazards.

- Adjusting work schedules
- Altering how the task is performed
- Training and work procedures
- Example - Lockout/tagout

### **15.4.4 Personal Protective Equipment**

The last line of defense utilized is personal protective equipment. When engineering or administrative controls have been explored and found to be impractical, then we resort to this control. The reason for this is that we have effectively not removed the hazard yet still have to put the worker in the environment.

- Perform PPE Hazard Analysis
- Assign PPE to address hazards identified in the hazard assessment
- Examples - safety glasses, hard hats, goggles, respirators, and dust masks, fall protection harnesses, gloves.

## **15.5 Training**

Employees will be trained on the Job Hazard Analysis created for the tasks they are involved in to have an understanding of what controls they can take to minimize the potential for injury.

### **15.5.1 Initial**

Initial training will be completed during the New Hire Orientation process, prior to performing a new task which an employee has not reviewed the JHA for, or as new JHAs are developed.

### **15.5.2 Refresher**

Refresher training will be completed if management has a reason to believe that an employee, who has already been trained for that particular task, lacks the skill or understanding needed for safe work involving that particular task.

## **15.6 Appendix**

- Job Hazard Analysis

## Job Hazard Analysis

## JOB HAZARD ANALYSIS

Sheet #: \_\_\_\_\_ of \_\_\_\_\_

Control

thoroughly evaluate the task for the workers

**Specify the Inspection  
Interval Here  
(and delete this box)**

Company: \_\_\_\_\_

Project or Process Name: \_\_\_\_\_

JHA Prepared By: \_\_\_\_\_

Task

Preparer: Remember that there may be more than one hazard exposure to hazards.

## Chapter 16 Personal Protective Equipment (PPE) Program

### 16.1 Purpose, Scope & Policy

#### 16.1.1 Purpose

COMPANYNAME will ensure that all work practices and job hazards are evaluated for potential injury. This evaluation

#### 16.1.2

The following required

(Required by the w

Employee

#### 16.1.3

Using personal protective equipment to remove fully exhausted

### 16.2

#### 16.2.1

It is management's responsibility to provide its employees with the proper PPE necessary to do their daily functions. This includes personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers.

Supervisors and managers shall regularly monitor employees for correct use and care of PPE and enforce as necessary. Follow-up training shall be provided if required to ensure each employee has the knowledge and understanding necessary for PPE use.

#### 16.2.2 Employee Responsibilities

It is the responsibility of all employees to wear, use, and maintain their PPE in a sanitary and reliable condition.

Employees must report any changes in conditions or behaviors that may require a follow-up PPE Hazard Assessment of the task.

Employees are to receive their PPE at no cost, with the exception of prescription safety glasses and non-specialty safety-toe boots if required. An employee may provide their own personal protective equipment with the written approval of management.

### 16.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. <sup>iv</sup>

### 16.4 Hazards

Hazards associated with PPE include employees misusing the personal protective equipment, not wearing it properly, and or improper selection for the hazard exposure.

### 16.5 Hazard Control Measures

#### 16.5.1 Head Protection

It is the policy of the company that as a condition of employment all regular full time, part time, and temporary employees working in areas that have overhead exposure are required to wear ANSI approved

**Specify the PPE  
Available for Use at  
Your Company  
(and delete this box)**

hard hats to help prevent head injuries, including those resulting from falling objects, or bumping the head against a fixed object.

- Hard hat areas are posted or generally understood to be those areas where overhead hazards exist. Employees are required to wear protective headwear in those areas.
- Employees confine their hair where there's a risk of injury from entanglement in moving parts, or a risk of contamination by combustible or toxic substances.
- Employees are protected from falling objects by guardrails, toe boards, and other safety equipment and practices.
- All employees required to wear hard hats must routinely inspect and properly care for their hard hats.
- Hard hat areas are posted or generally understood to be those areas where overhead hazards exist. Employees are required to wear protective headwear in those areas.
- Employees confine their hair where there is a risk of injury from entanglement in moving parts, or a risk of contamination by combustible or toxic substances.
- Employees are protected from falling objects by guardrails, toe boards, and other safety equipment and practices.
- All employees required to wear hard hats must routinely inspect and properly care for their hard hats.
- Employees who work near exposed electrical conductors that could contact their head must wear appropriate electrically protective hard hats (Class C, G, E).
- Employees who are exposed to power-driven machinery or to sources of ignition must wear caps or other head covering that completely covers and contains their hair.

### 16.5.2 Eye and Face Protection

- Employees who are at risk of eye injury due to flying particles, hazardous substances, projections, or light rays will be provided with and use suitable eye and/or face protection.
- Impact resistant safety glasses with side shields, or impact resistant goggles, are used when general eye hazards exist from the use of varying types of power tools, hand tools, powder actuated tools and the like.
- Impact resistant safety glasses with side shields, or impact resistant goggles, along with impact resistant face shields are used for chipping, grinding, sawing concrete, and other operations where there is a danger of flying fragments, chips, or other particles which have the potential to injure the face of the employee.
- Splash resistant goggles are used when working with acids and other hazardous liquid chemicals. (Splash resistant goggles are either unventilated or have indirect ventilation.). Face shields must be used when there is a risk of injury to the face of the worker.
- Employees performing welding operations use welding helmets with filter lenses or plates to screen out harmful light and ultraviolet rays, as well as providing adequate face protection. Welding goggles should not be used without additional protection for the face from ultraviolet rays due to the risk of burns.
- Employees who use vision correcting glasses and need job site eye protection are provided with either:
  - Safety glasses capable of fitting over prescription glasses;
  - Goggles capable of fitting over prescription glasses; or
  - Side shields capable of properly fitting the side of the employee's own glasses.
- All protective eye and face wear will carry the appropriate ANSI Z87.1 rating as a minimum.

### 16.5.3 Hearing Protection

All employees are required to wear appropriate hearing protection prior to engaging in work that will result in excessive noise. The table (OSHA G-16) identifies permissible noise exposures. When workers are exposed to noise levels in excess of those identified in the table, hearing protection may be required.

**TABLE G-16 - PERMISSIBLE NOISE EXPOSURES (1) (OSHA)**

<u>Duration per day, hours</u>	<u>Sound level dBA slow response</u>
8	90
6	92
4	95
2	100
1 ½	102
1	105
½	110
¼ or less	115

Hearing protection devices must be worn when workers are exposed to an eight-hour time weighted average beyond 85 decibels or by workers who have experienced a threshold shift. See the Hearing Conservation Program for more details. Various hearing protection devices may be utilized to protect hearing. Employees should choose hearing protection that fits comfortably, snugly, and is approved for the exposure. Never remove hearing protection during operations.

**NOTE:** Failure to wear appropriate personal protective equipment will result in disciplinary action.

#### **16.5.4 Body Protection**

- Clothing appropriate to the work being performed and the environment in which it is being performed must be worn.
- When necessary, employees are provided with and must use appropriate body protection. Depending on the hazard, this may include an apron, coveralls, or a full body suit which can protect against toxic substances, electrical hazards, steam, oil, water, and extreme heat or cold.
- Employees working with asbestos, lead, and/or other regulated carcinogens must wear protective clothing as required by the specific applicable OSHA standards.
- Welders must wear leather aprons and flame-resistant shirts with long sleeves and collars, as well as required head, face, eye, hand, foot, and respiratory protection as appropriate for the particular hazards encountered.
- Employees must wear appropriate reflective warning garments (shirts, vests, jackets) when they work on foot near vehicular traffic hazards or in areas where there is a hazard of being struck by moving equipment. High-visibility clothing such as safety vests, jackets, or body suits must meet or exceed the Manual of Uniform Traffic Control Devices (MUTCD) standard when working in traffic areas.
- Loose sleeves, ties, cuffs, or other clothing must not be worn near moving machinery and equipment.
- Personal items including rings, wristwatches, dangling earrings, bracelets, chains and other jewelry that may contact electrical circuitry or moving machine parts must not be worn.
- Clothing that has been saturated or impregnated with hazardous chemicals including flammables, corrosives, toxics, irritants, or oxidizers must be removed immediately and not worn until thoroughly cleaned.

#### **16.5.5 Arm Protection**

Workers performing work that may exposed them to thermal injury, cuts, hazardous chemicals, harmful light, or radiation must be provided adequate protection. This may take the form of long-sleeves, flame-resistant clothing, insulated sleeves, cut-resistant wristlets or sleeves, and chemical protective clothing.

#### **16.5.6 Hand Protection**

When work involves potential risk of cuts, burns, harmful physical or chemical agents, or radioactive material, employees are provided and use appropriate hand protection. All employees who work in designated work areas and/or job assignments are responsible for wearing company provided gloves to comply with this policy. Failure to comply will result in disciplinary action up to, and including, discharge. (Exception: Not required if gloves might become caught in moving parts or machinery).

- Welders use non-flammable gloves with gauntlets.
- Employees use NFPA 70E approved gloves for live high voltage electrical work. Rubber gloves are protected by outer canvas or leather gloves from objects penetrating, creating holes in the gloves. Gloves are not used to replace other required safety measures.
- Employees wear impermeable gloves, of the correct type, to prevent skin contact with hazardous substances, and replace used gloves as required. (To determine the appropriate glove for the substance, consult the SDS for the substance, or contact the glove supplier or manufacturer.)

### **16.5.7 Leg Protection**

Workers exposed to hot substances or dangerous chemical spills must wear leggings or high boots designed to protect against the hazard.

Workers who use chainsaws must wear cut-resistant leggings or chaps that cover the leg from the upper thigh to the mid-calf. Leg protectors must be made from materials designed to protect against cuts from chainsaws.

### **16.5.8 Foot Protection**

- Workers exposed to potential foot injuries from crushing or penetrating actions, hot surfaces, falling objects, or hazardous substances, or who are required to work in abnormally wet locations, use appropriate foot protection such as steel-toed safety shoes and/or boots.
- Rubber boots are worn when working with concrete or in water.

### **16.5.9 Fall Protection**

All employees are required to wear ANSI approved fall protection whenever exposed to heights greater than 6 feet. Fall protection will be deemed appropriate and approved for the type of work performed.

- All employees must be properly trained on the fall protection equipment that they will be using, as well as the rules and regulations of height exposure.
- Employees from temporary work agencies and contractors are required to wear fall protection if assigned to work in an area that exposes them to heights greater than 6 feet.
- All fall protection equipment is required to be inspected upon every use and must be properly cared for.

### **16.5.10 Fall Protection**

All employees are required to wear ANSI approved fall protection whenever exposed to fall hazards at unguarded heights greater than six (6) feet, or when working on unguarded walking/working surfaces above dangerous equipment or machinery. Fall protection equipment will be evaluated and approved for the type of work performed.

All employees must be properly trained on the fall protection equipment that they will be using, as well as the rules and regulations of height exposure.

- Employees from temporary work agencies and contractors are required to wear fall protection if assigned to work in an area that exposes them to heights greater than six (6) feet when working on scaffolding.
- All fall protection equipment is required to be inspected upon every use and must be properly cared for.

### **16.5.11 Fall Protection - Scaffolding**



All employees are required to wear ANSI approved fall protection whenever exposed to fall hazards at unguarded heights greater than ten (10) feet when working on scaffolding, or when working on unguarded walking/working surfaces above dangerous equipment or machinery. Fall protection equipment will be evaluated and approved for the type of work performed.

All employees must be properly trained on the fall protection equipment that they will be using, as well as the rules and regulations of height exposure.

- Employees from temporary work agencies and contractors are required to wear fall protection if assigned to work in an area that exposes them to heights greater than ten (10) feet when working on scaffolding.
- All fall protection equipment is required to be inspected upon every use and must be properly cared for.

### **16.5.12 Respiratory Protection**

Appropriate respirators must be worn when workers are exposed to air contaminants above permissible exposure limits. These contaminants may range from nuisance dust to carcinogens, toxins, or other harmful chemicals that may cause an acute or chronic medical condition including fatality. Industrial hygiene testing must be performed to determine whether the atmosphere is safe to work in without respirator protection.

Respirators may include dust masks, air-purifying respirators (half-mask or full-facepiece filtering masks), Powered Air-purifying Respirators (PAPR), Supplied Air Respirators (SAR), Self-contained Breathing Apparatus (SCBA), and other devices. An industrial hygienist can be consulted to determine the need for respirators and to identify which respirator type is appropriate.

## **16.6 Maintenance and Cleaning**

All employees are instructed to wash promptly and thoroughly after exposure to injurious substances, regardless of the type of protective clothing or equipment which has been used. It is against work rules to use PPE that is in disrepair or not able to perform its intended function.

It is important that all PPE be kept clean and properly maintained by the employee to whom it is assigned. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision. Contaminated PPE which cannot be decontaminated, or is saturated or impregnated with flammable liquids, corrosive substances, irritants, oxidizing agents, or other hazardous chemicals shall be promptly removed and disposed of in a manner that protects employees from exposure to hazards.

## **16.7 Training**

The employer will provide training to each employee who is required to use PPE. Each employee will be trained to know at a minimum when PPE is necessary, what PPE is necessary, how to properly adjust and wear PPE, the limitations of the PPE, and the proper care, maintenance, useful life, and disposal of PPE.

### **16.7.1 Initial**

If the employee is going to be needing PPE for his or her daily functions, they will be trained prior to starting the job. Initial training will be done through new hire orientation.

### **16.7.2 Refresher**

Employees will be retrained when they demonstrate that they do not have an understanding or lack skill needed with PPE. A refresher training will also be done when new PPE is distributed, or new PPE is needed.

## **16.8 Reference**

OSHA Standard 29 CFR 1910 Subpart I

**16.9 Appendix**

- Personal Protective Equipment (PPE) Hazard Assessment Form
- Glove Program

### Personal Protective Equipment (PPE) Hazard Assessment Form

Task: \_\_\_\_\_ Area: \_\_\_\_\_

Required PPE: \_\_\_\_\_

Protection	Hazards	Personal Protective Equipment
<b>Fall</b>	<input type="checkbox"/> Unguarded work surfaces above a lower level <input type="checkbox"/> 4' (General Industry) <input type="checkbox"/> 6' (Construction) <input type="checkbox"/> 10' (Scaffolding) <input type="checkbox"/> 15' (Steel Erection) <input type="checkbox"/> Unguarded work surfaces above dangerous equipment	<input type="checkbox"/> Personal Fall Arrest System (PFAS) <input type="checkbox"/> Lanyard with deceleration device <input type="checkbox"/> Self-retracting lifeline (SRL) <input type="checkbox"/> Personal Fall Restraint System <input type="checkbox"/> Other: _____ <input type="checkbox"/> None required
<b>Head</b>	<input type="checkbox"/> Falling overhead objects <input type="checkbox"/> Swinging and/or moving objects <input type="checkbox"/> Stationary objects that present a bump hazard <input type="checkbox"/> Energized electrical equipment <input type="checkbox"/> Other: _____ _____	ANSI Z89.1 compliant head protection <input type="checkbox"/> Type I (bump protection) <input type="checkbox"/> Type II (side impact protection) <input type="checkbox"/> Class C (Conductive 0v) <input type="checkbox"/> Class G (electrical <2,220v) <input type="checkbox"/> Class E (electrical <20,000v) <input type="checkbox"/> Other: _____ <input type="checkbox"/> None required
<b>Eye and Face</b>	<input type="checkbox"/> Flying particulate matter from chipping, grinding, sawing, or hammering operations <input type="checkbox"/> Swinging objects <input type="checkbox"/> Splash from solvents, hazardous chemicals, hot liquids, or infectious materials <input type="checkbox"/> Radiant energy from welding or harmful rays from lasers or other radiant light <input type="checkbox"/> Other: _____ _____	ANSI Z87 compliant eyewear <input type="checkbox"/> Safety glasses with side shields <input type="checkbox"/> Chemical goggles Welding <input type="checkbox"/> Shield <input type="checkbox"/> Goggles Shade/filter #: _____ <input type="checkbox"/> Face shield <input type="checkbox"/> Splash shield <input type="checkbox"/> Other: _____ <input type="checkbox"/> None required

Protection	Hazards	Personal Protective Equipment																				
<b>Hearing</b>	<p>Noise levels exceeding those shown in the table below</p> <table border="1"> <thead> <tr> <th>Sound Level (dBA)</th> <th>Hours of Exposure</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> 90</td><td>8</td></tr> <tr><td><input type="checkbox"/> 92</td><td>6</td></tr> <tr><td><input type="checkbox"/> 95</td><td>4</td></tr> <tr><td><input type="checkbox"/> 97</td><td>3</td></tr> <tr><td><input type="checkbox"/> 100</td><td>2</td></tr> <tr><td><input type="checkbox"/> 102</td><td>1-½</td></tr> <tr><td><input type="checkbox"/> 105</td><td>1</td></tr> <tr><td><input type="checkbox"/> 110</td><td>½</td></tr> <tr><td><input type="checkbox"/> 115</td><td>¼</td></tr> </tbody> </table>	Sound Level (dBA)	Hours of Exposure	<input type="checkbox"/> 90	8	<input type="checkbox"/> 92	6	<input type="checkbox"/> 95	4	<input type="checkbox"/> 97	3	<input type="checkbox"/> 100	2	<input type="checkbox"/> 102	1-½	<input type="checkbox"/> 105	1	<input type="checkbox"/> 110	½	<input type="checkbox"/> 115	¼	<input type="checkbox"/> Ear plugs NRR: _____ dB <input type="checkbox"/> Earmuffs NRR: _____ dB <input type="checkbox"/> Other: _____ <input type="checkbox"/> None required
Sound Level (dBA)	Hours of Exposure																					
<input type="checkbox"/> 90	8																					
<input type="checkbox"/> 92	6																					
<input type="checkbox"/> 95	4																					
<input type="checkbox"/> 97	3																					
<input type="checkbox"/> 100	2																					
<input type="checkbox"/> 102	1-½																					
<input type="checkbox"/> 105	1																					
<input type="checkbox"/> 110	½																					
<input type="checkbox"/> 115	¼																					
<b>Respiratory</b>	<input type="checkbox"/> Nuisance dust or mist <input type="checkbox"/> Oxygen deficient, toxic, or IDLH atmosphere <input type="checkbox"/> Welding fumes <input type="checkbox"/> Hazardous chemical vapors <input type="checkbox"/> Paint spray <input type="checkbox"/> Mold or mildew <input type="checkbox"/> Asbestos <input type="checkbox"/> Lead <input type="checkbox"/> Other: _____ _____	<input type="checkbox"/> Filtering face piece (dust mask) <input type="checkbox"/> ½-mask respirator (APR 10) <input type="checkbox"/> Full face respirator (APR 50) Required filter for above masks: _____ <input type="checkbox"/> Powered Air Purifying Respirator (PAPR) <input type="checkbox"/> Supplied-air Respirator (SAR) <input type="checkbox"/> Self-contained Breathing Apparatus (SCBA) <input type="checkbox"/> CBRNE <input type="checkbox"/> Other: _____ <input type="checkbox"/> None required																				
<b>Torso/Body</b>	<input type="checkbox"/> Impact from objects <input type="checkbox"/> Hazardous chemicals <input type="checkbox"/> Splash from very hot or cold liquids, or from molten metal <input type="checkbox"/> Extreme temperatures <input type="checkbox"/> Weather <input type="checkbox"/> Deep water <input type="checkbox"/> Energized electrical equipment <input type="checkbox"/> Ionizing radiation <input type="checkbox"/> Other: _____ _____	<table border="0"> <tr> <td>High-visibility</td> <td><input type="checkbox"/> Vest</td> <td><input type="checkbox"/> Clothing</td> </tr> <tr> <td>Insulated</td> <td><input type="checkbox"/> Jacket</td> <td><input type="checkbox"/> Hood</td> </tr> <tr> <td>Flame-resistant</td> <td><input type="checkbox"/> Jacket</td> <td><input type="checkbox"/> Pants</td> </tr> <tr> <td>Chemical-resistant</td> <td><input type="checkbox"/> Coveralls</td> <td><input type="checkbox"/> Apron</td> </tr> <tr> <td>Molten-metal-resistant</td> <td><input type="checkbox"/> Apron</td> <td></td> </tr> </table> <input type="checkbox"/> Electrical protective clothing (see arc-flash hazard analysis for details) <input type="checkbox"/> Personal Flotation Device (PFD) <input type="checkbox"/> Other: _____ <input type="checkbox"/> None required	High-visibility	<input type="checkbox"/> Vest	<input type="checkbox"/> Clothing	Insulated	<input type="checkbox"/> Jacket	<input type="checkbox"/> Hood	Flame-resistant	<input type="checkbox"/> Jacket	<input type="checkbox"/> Pants	Chemical-resistant	<input type="checkbox"/> Coveralls	<input type="checkbox"/> Apron	Molten-metal-resistant	<input type="checkbox"/> Apron						
High-visibility	<input type="checkbox"/> Vest	<input type="checkbox"/> Clothing																				
Insulated	<input type="checkbox"/> Jacket	<input type="checkbox"/> Hood																				
Flame-resistant	<input type="checkbox"/> Jacket	<input type="checkbox"/> Pants																				
Chemical-resistant	<input type="checkbox"/> Coveralls	<input type="checkbox"/> Apron																				
Molten-metal-resistant	<input type="checkbox"/> Apron																					

Protection	Hazards	Personal Protective Equipment
<b>Extremities - Hands and Arms</b>	<input type="checkbox"/> Equipment, tools, and materials that can cause soft tissue injury (bruises, abrasions, lacerations, punctures, fractures, amputation) <input type="checkbox"/> Chemical exposure <input type="checkbox"/> Energized electrical equipment <input type="checkbox"/> Extreme temperature (hot and/or cold) <input type="checkbox"/> Other: _____ _____	<b>Gloves</b> <input type="checkbox"/> General purpose <input type="checkbox"/> Cut-resistant <input type="checkbox"/> Chemical-resistant <input type="checkbox"/> Flame-resistant <input type="checkbox"/> Thermal-insulated <input type="checkbox"/> Latex/Nitrile <input type="checkbox"/> Electric-insulated <input type="checkbox"/> Anti-vibration  <b>Arms</b> <input type="checkbox"/> Cut-resistant <input type="checkbox"/> Sleeves <input type="checkbox"/> Wristlets  <input type="checkbox"/> Other: _____ <input type="checkbox"/> None required
<b>Extremities - Feet</b>	<input type="checkbox"/> Heavy objects that can roll or be dropped on the foot <input type="checkbox"/> Hot, wet, or slippery walking/working surfaces <input type="checkbox"/> Sharp objects that could penetrate the footwear <input type="checkbox"/> Hazardous chemicals <input type="checkbox"/> Molten metal or other hot materials <input type="checkbox"/> Energized electrical equipment <input type="checkbox"/> Other: _____ _____	<b>Footwear</b> <input type="checkbox"/> Closed shoe <input type="checkbox"/> Boot with 6" shaft (min) <input type="checkbox"/> Waterproof <input type="checkbox"/> Thermal-insulated <input type="checkbox"/> Chemical-resistant <input type="checkbox"/> Electric-insulated <input type="checkbox"/> Protective toe <input type="checkbox"/> Metatarsal guards <input type="checkbox"/> Slip-resistant sole <input type="checkbox"/> Oil-resistant sole <input type="checkbox"/> Puncture-resistant sole  <input type="checkbox"/> Other: _____ <input type="checkbox"/> None required
<b>Extremities - Legs</b>	<input type="checkbox"/> Hot substances <input type="checkbox"/> Chemical exposure <input type="checkbox"/> Cuts from chain saws <input type="checkbox"/> Other: _____ _____	<b>Leggings or boots</b> <input type="checkbox"/> Penetration-resistant <input type="checkbox"/> Chemical-resistant <input type="checkbox"/> Molten-metal-resistant <input type="checkbox"/> Chaps or leg protectors (chain saw use) <input type="checkbox"/> Other: _____ <input type="checkbox"/> None required

Notes:

Assessment performed by: \_\_\_\_\_ Date: \_\_\_\_\_  
 (Print name) (Signature)

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## Glove Program

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The COMPANY provides all employees with personal protection equipment to suit the task and known hazards. Equally as our commitment to safety, we hope our employees will reinforce and be proactive to their safety as well. Glove usage is required, and such will lessen the likelihood of occupational injuries and/ or illnesses. As other required personal protection equipment, gloves initially may seem awkward and inconvenient, however in a short period of times we accept the benefits versus consequences. Gloves are a tool for efficiency.

Gloves require a hazard analysis to determine what hazards are present, or likely to be present. Based on this analysis the following action will be taken:

1. Select and have each affected employee use the proper glove.
  - a. Skin absorption of harmful substances.
  - b. Severe abrasions.
  - c. Punctures.
  - d. Chemical burns.
  - e. Thermal burns.
  - f. Harmful temperature extremes.
2. Communicate selection decisions to each affected employee.
3. Select gloves that properly fit each affected employee.
4. Gloves alone shall not be relied on to provide protection, but also be used in conjunction with guards, engineering controls and sound safety practices.
5. Gloves shall be replaced periodically, depending on frequency of use and permeability to substances handled. Gloves overtly contaminated shall be rinsed and carefully removed from use.
6. Gloves should also be used whenever it is necessary to handle rough or sharp-edged objects-and very hot or cold materials. Examples of gloves include leather, welder's gloves, and aluminum-backed and other types of insulated glove material. (See attached guide)

Careful attention must be given to protecting your hands when using tools and machinery. Power tools and machinery must have guards installed or incorporated into their design to prevent hands from contacting the "point of operation", power trains and/or moving parts. To protect the hands from injury due to contact with moving parts it is important to:

1. Ensure guards are always in place and used at all times.
2. Always lock out machines, tools or products being worked on and disconnect the power before making repairs.
3. Give materials you are working on or near a visual inspection before you make hand contact.
4. Do not wear gloves around moving machinery, such as drill presses, mills, lathes, and grinders.
5. Do not wear rings or bracelets.

Selection of hand PPE shall be based on an evaluation of the performance characteristics of the hand protection relative to the tasks to be performed, conditions present, duration of use and the hazards and potential hazards identified.

Again, there is no glove that provides protection against all potential hand hazards. Commonly available glove materials provide only limited protection with chemicals. Select gloves for most appropriate situation, determine how long they can be worn, and whether they can be reused.

For general use, as long as the performance characteristics are acceptable, it may be more cost efficient to regularly change less priced gloves than the more expensive types. Also, the work activities of the employee should be studied to determine the degree of dexterity required, the durations, frequency, and degree of exposure of the hazard, and the physical stresses that are applied.

**Continued on next page**

**GENERAL CATEGORIES OF GLOVE USAGE**

Always read the Safety Data Sheet when dealing with chemicals. There is no one glove that is good for all situations. Read the characteristics of glove materials pertaining as thickness, permeation rate and exposure time will vary.

CHEMICALS EVENTUALLY PERMEATE ALL GLOVES' MATERIALS: CHECK PERMEATION RATE and TIME FOR EACH GLOVE TYPE.

*\*NOTE: One type of glove will not work for all situations.*

## **Chapter 17 Emergency Action Program**

### **17.1 Purpose, Scope & Policy**

#### **17.1.1 Purpose**

The purpose of this emergency action program is to minimize injury and loss of human life by providing proper training to employees, maintaining all necessary equipment and by implementing the Emergency Action Plan.

#### **17.1.2 Scope**

This program applies to all COMPANYNAME employees during emergency situations requiring employee action including emergency interventions and emergency evacuation.

#### **17.1.3 Policy**

The emergency action plan must be in writing, kept in the workplace, and available to employees for review. If the workplace has 10 or fewer employees, the employer may communicate the plan orally.

### **17.2 Roles & Responsibilities**

#### **17.2.1 Employer Responsibilities**

COMPANYNAME is responsible for providing adequate controls and equipment that, when used properly, will minimize, or eliminate risk of injury to employees in the event of an emergency management will update the plan as needed and review it annually to determine if any changes are needed.

#### **17.2.2 Employee Responsibilities**

Employees are responsible for following the procedures described in this plan. Employees will attend training sessions on the emergency action plan and be able to implement the plan when needed.

### **17.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>v</sup>

### **17.4 Hazards**

Employees need to know how to respond in different situations.

- Fire
- Medical
- Chemical Release
- Weather
  - Tornado
- Flooding
- Electrical Outage

### **17.5 Hazard Control Measures**

#### **17.5.1 Preferred Means of Reporting Fires and Other Emergencies**

The preferred means of reporting fires and other emergencies is by phone. Emergency phone numbers are posted at in the Emergency Action Plan for the job site and the Emergency Contact Poster. In the case of telephone failure, the authorities should be notified in person.

#### **17.5.2 Emergency Evacuation Procedures**



### **17.5.2.1 Alarm**

A distinctive alarm for emergency notification shall be established and reviewed with all employees. If the alarm sounds, or if a supervisor orders the evacuation of the job site, remain calm, walk to the nearest exit, and leave the job site immediately. After leaving the job site, proceed to the Emergency Muster Location. Do not leave the area. Do not re-enter the job site. Follow your supervisor's instructions.

Notification of an emergency or of an evacuation is communicated to the employees via the method designated in the Emergency Action Plan for the job site.

### **17.5.2.2 Evacuation**

If there are no critical processes which require continued operation during an emergency, all employees are expected to leave the job site immediately when an evacuation order is announced.

Where a critical process does exist contingency plans must be developed prior to any emergency that specifically identify procedures to quickly shut down the critical process and then evacuate the site to the designated must location. Such procedures must be assigned to specific responsible persons and reviewed prior to any emergency situation.

Where employees have been trained and assigned to perform emergency actions such as rescue, medical, or firefighting, those employees shall adhere to the appropriate established procedures for the emergency. No deviation from established procedures is permitted without authorization from the Supervisor. Where procedures do not exist, no provisions are made for employees who remain within the job site to perform rescue, medical or firefighting duties.

### **17.5.2.3 Emergency Muster Location**

Designate and state an Emergency Muster Location on the Emergency Action Plan for each job site.

### **17.5.2.4 Accounting for All Employees after an Emergency Evacuation**

Within the first 15 minutes of each shift, the supervisor is responsible for taking attendance of the workers. The attendance sheet should remain in the office at all times. In the event of an evacuation, all employees are instructed to leave the jobsite, proceed to the Emergency Muster Location. The daily attendance sheets will be used to account for the workers. In the event that a worker is absent, the supervisor may at his own discretion, sweep the area for the missing employee. Employees must not leave the area until instructed to do so by the supervisor.

### **17.5.3 Fire Brigade**

We do not support a company fire brigade. Employees are not expected to fight fires, clean up major chemical spills, or participate in rescue procedures unless specifically trained, equipped, and authorized to do so. Authorized employees must maintain current training in order to perform these tasks.

Fire extinguisher use – employees must receive annual classroom and hands-on training in how to properly select and use a fire extinguisher.

### **17.5.4 Rescue and Medical Duties for Employees**

Employees are not expected to perform any rescue or medical duties unless trained or authorized to do so. Employees authorized to perform first aid or firefighting duties must have current training and certification to do so.

Municipal emergency medical and fire personnel are used for emergency medical treatment beyond first aid. At no time should an employee be directed, or attempt to perform emergency duties which may endanger their life.

### 17.5.5 Specific Emergency Procedures

#### 17.5.5.1 Fire/Smoke

- Notify Supervisor/ Manager immediately
- Recognize and respond to proper warning signals and verbal instructions
- Exit towards nearest primary or alternate exit away from hazard
- DO NOT travel in direction of fire/ smoke
- Walk towards exit advising others to exit on the way out
- If necessary, activate a manual fire alarm pull station as you exit the floor or job site.
- DO NOT re-enter the job site once you have exited for ANY reason
- Head towards assigned emergency muster location
- Check in with management at the emergency muster location

#### 17.5.5.2 Medical Emergency

- Initiate medical emergency aid or resuscitation
- Notify management requesting 911 medical emergency
- Direct the medical emergency responders at the entrance to facilitate directing them to the specific location within the job site
- Notify senior leaders of the situation
- A senior leader will notify family members as established by affected worker
- A senior leader should accompany the affected worker to ER
- A senior leader should be identified to serve as the point of contact with the family, affected worker, medical providers, the insurance company, OSHA, and the press as appropriate.

#### 17.5.5.2.1 First Aid

The company is committed to the safety and health of its employees; therefore, it follows several guidelines to insure the availability of first aid in its work places.

- First aid kits are provided, stocked and readily available to all employees. First aid kits are located in/at FIRSTAIDKITLOCATION
- At a minimum each first aid kit will comply with ANSI Z308 Minimum Requirements for Workplace First Aid Kits.
- The first-aid kit will contain (minimum):

16	o Adhesive Bandages, 1"x3"	2	- Pair Exam Gloves
2	- Sterile Pad, 3" x 3"	1	- Scissors
2	- Trauma Pad, 5" x 9"	1	- Triangular Bandage, 40" x 40" x 56"
1	- Roller Bandage, 2" x 4 yds	6	- Hand Sanitizer, 0.9g
1	- Adhesive Tape 2.5 yd	10	- Burn Treatment, 1/32 oz
1	- Breathing Barrier	1	- Burn Dressing, gel soaked, 4" x 4"
1	- Cold Pack	10	- Antiseptic Applications 1/57 oz
1	- Eye Wash, 1 oz.	10	- Antibiotic Treatment Application, 1/57 oz
2	- Eye Covering	1	- First-aid Guide

Work sites are evaluated for distance from outside sources of prompt medical attention. If medical attention would require longer than 4 minutes to arrive in cases of severe injury, a person who has a valid certificate in first-aid training shall be made available.

- A communication system for the work site to contact emergency services shall be made available.
- A determination will be made as to whether or not 911 is available in the area of the work site. If not, the appropriate emergency numbers will be filled in on the Emergency Contact Poster.
- Where it is possible that the eyes of a person may be exposed to injurious corrosive materials, provision for flushing of the eyes shall be provided with the first aid kit.

#### **17.5.5.3 Chemical Release**

- In the event of a fire or a chemical emergency, our policy is to immediately evacuate all employees from the section of the job site directly affected. Additional evacuation of the job site, whether partial or complete, is left to the discretion of the foreman or the shift supervisor.
- Evacuated employees must report in the Emergency Muster Location. The supervisor of each crew must take attendance to account for all personnel involved.
- Depending on the type and scope of chemical release, the emergency muster location may need to be changed. Employees should always muster in a location that is uphill and upwind of the release. The change must be clearly identified to all employees. When changed, a supervisor should monitor the original muster location to inform any employees who did not receive notification of the location change.

#### **17.5.5.4 Weather**

##### **17.5.5.4.1 Tornado**

- When a warning is issued by sirens or other means, seek inside shelter. Consider the following:
  - Small interior rooms on the lowest floor and with no windows.
  - Hallways on the lowest floor away from doors and windows.
  - Rooms constructed with reinforced concrete, brick, or block with no windows.
  - Stay away from outside walls and windows.
  - Use arms to protect head and neck.
  - Remain sheltered until the tornado threat is announced to be over.

##### **17.5.5.4.2 Flood**

- If indoors:
  - Be ready to evacuate as directed by the Emergency Coordinator and/or the designated official.
  - Follow the recommended primary or secondary evacuation routes.
- If outdoors:
  - Reach to high ground and stay there.
  - Avoid walking or driving through flood water.
  - If car stalls, abandon it immediately and reach to a higher ground.

#### **17.5.5.5 Electrical Outage**

- In the event of an electrical outage, emergency lighting should illuminate the job site. All employees should report in the emergency Muster Location. All employees should remain in the Emergency Muster Location unless the foreman or supervisor issues new instructions.

#### **17.5.6 Emergency Contact Information**

For further explanation or more detailed information, a contact list providing names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan shall be established. Use the Emergency Contact Poster provided at the end of this program.

The Emergency Contact Poster must be posted conspicuously. It must be completely filled in including the complete job address for use in case of an emergency.

### **17.6 Training**

Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

All employees will be trained to specific location practices to ensure the safe and orderly emergency response.

#### **17.6.1 Initial**

All employees will initially be trained on the emergency action plan through new hire orientation. A review of the emergency plans must be complete with each new employee prior to the employee beginning his/her duties within the job site. The supervisor is responsible for performing the review with new employees. Under no circumstances should a new employee be allowed to begin work without safety and evacuation training.

#### **17.6.2 Refresher**

Refresher training will be administered when the following situations occur:

- Whenever designated employee's responsibilities or designated actions under the plan change
- Changes in the workplace or type of work being performed renders previous training obsolete
- When the plan is updated or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

#### **17.7 Reference**

OSHA Standard 29 CFR 1910.38

#### **17.8 Appendix**

- Emergency Contact Poster

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**Emergency Contact Poster**

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Job #: \_\_\_\_\_ Job Name: \_\_\_\_\_

Job Address: \_\_\_\_\_  
(Be accurate and complete - for emergency use)**Emergency Phone Numbers**

Fire Department:

Emergency Medical  
Services:

Police:

Security:  
(if applicable)Building Manager:  
(If applicable)**COMPANYNAME Supervisor**

Name: \_\_\_\_\_

Mobile Phone: \_\_\_\_\_

*Attach map of facility location and emergency route to nearest hospital.*

## **Chapter 18 Fire Prevention Program**

### **18.1 Purpose, Scope, and Policy**

#### **18.1.1 Purpose**

The purpose of this fire prevention plan is to eliminate the causes of fire, prevent loss of life and property by fire, and to comply with the Occupational Safety and Health Administration standard on fire prevention. It provides employees with information and guidelines that will assist them in recognizing, reporting, and controlling fire hazards.

#### **18.1.2 Scope**

A separate Emergency Action Plan spells out the procedures for responding to fires. This Fire Prevention Plan serves to reduce the risk of fires.

#### **18.1.3 Policy**

COMPANYNAME is committed to minimizing the threat of fire to employees, visitors, and property. The company complies with all applicable laws, regulations, codes, and good practices pertaining to fire prevention.

### **18.2 Roles & Responsibilities**

#### **18.2.1 Employer Responsibilities**

Management will provide adequate controls to provide a safe workplace and will provide adequate resources and training to its employees to encourage fire prevention and the safest possible response in the event of a fire emergency. Management will ensure that:

- This fire prevention plan is made available to employees for review;
- All records pertaining to this plan are maintained;
- Fire control equipment and systems are properly maintained;
- Fuel source hazards are controlled;
- Fire risk surveys are conducted, and deficiencies are corrected in a timely manner. (This bullet does not apply to construction projects)

##### **18.2.1.1 Supervisor Responsibilities**

Supervisor's responsibilities include:

- Ensuring that employees receive appropriate fire safety training
- Notifying Management when changes in operations increase the risk of fire
- Enforcing the fire prevention and protection policies.

##### **18.2.2 Employee Responsibilities**

All employees will complete the required training prior to working without supervision. Employees will conduct operations safely to limit the risk of fire and report all potential fire hazards to their supervisor. Employees will also be held responsible for following all fire emergency procedures.

### **18.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>vi</sup>

## 18.4 Hazards

Hazards include but are not limited to:

- Cutting, Welding, and Open Flame Work
- Electrical Fire Hazards
- Flammable and Combustible Materials
- Office Fire Hazards
- Portable Heaters
- Smoking

## 18.5 Hazard Control Measures

### 18.5.1 Cutting, Welding, and Open Flame Work

The following policies are in place to reduce the risk of fire related to cutting, welding, and open flame work:

- Hot work permits are required prior to beginning cutting, welding, or open flame tasks.
- Fire watch must be established prior to started cutting, welding, or open flame operations.
- Cutting and welding are to be completed by authorized personnel only.
- Cutting and welding should be performed in designated cutting and welding areas whenever possible.
- Adequate ventilation is to be in place.
- Torches, regulators, pressure-reducing valves, and manifolds must be properly listed or approved.
- Oxygen-fuel gas systems must be equipped with listed and/or approved backflow valves and pressure-relief devices.
- Cutters, welders, and helpers must wear eye protection and protective clothing as appropriate.
- Cutting or welding is prohibited in sprinklered areas while sprinkler protection is out of service.
- Cutting or welding is prohibited in areas where explosive atmospheres of gases, vapors, or dusts could develop from residues or accumulations in confined spaces.
- Cutting or welding is prohibited on metal walls, ceilings, or roofs built of combustible sandwich-type panel construction or having combustible covering.
- Confined spaces such as tanks must be tested to ensure that the atmosphere is not over ten percent of the lower flammable limit before cutting or welding in or on the tank.
- Small tanks, piping, or containers that cannot be entered must be cleaned, purged, and tested before cutting or welding on them begins.

### 18.5.2 Flammable and Combustible Materials

Certain types of substances can ignite at relatively low temperatures or pose a risk of catastrophic explosion if ignited. Such substances obviously require special care and handling. All materials shall be stored, handled, and piled with due regard to their fire characteristics.

#### 18.5.2.1 Ordinary Combustibles (Class A)

These include common combustible materials (wood, paper, cloth, rubber, and plastics) that can act as fuel and are found in non-specialized areas such as offices.

To handle Class A combustibles safely:

- Dispose of waste daily.
- Keep trash in metal-lined receptacles with tight-fitting covers (metal wastebaskets that are emptied every day do not need to be covered).
- Keep work areas clean and free of fuel paths that could allow a fire to spread.

- Keep combustibles away from accidental ignition sources, such as hot plates, soldering irons, or other heat- or spark-producing devices.
- Store paper stock in metal cabinets.
- Store rags in metal bins with self-closing lids.
- Do not order excessive amounts of combustibles.
- Make frequent inspections to anticipate fires before they start.

Water, multi-purpose dry chemical (ABC), and halon 1211 are approved fire extinguishing agents for Class A combustibles.

### 18.5.2.2 Flammable Liquids (Class B)

These include flammable and combustible liquids (oils, greases, tars, oil-based paints, and lacquers), flammable gases, and flammable aerosols.

To handle Class B combustibles safely:

- Use only approved pumps, taking suction from the top, to dispense liquids from tanks, drums, barrels, or similar containers (or use approved self-closing valves or faucets).
- Do not dispense Class B flammable liquids into containers unless the nozzle and container are electrically interconnected by contact or by a bonding wire. Either the tank or container must be grounded.
- Store, handle, and use Class B combustibles only in approved locations where vapors are prevented from reaching ignition sources such as heating or electric equipment, open flames, or mechanical or electric sparks.
- Do not use a flammable liquid as a cleaning agent inside a building (the only exception is in a closed machine approved for cleaning with flammable liquids).
- Oily rags or rags soaked with flammable liquids shall be properly disposed of in containers with self-closing lids so designed for this purpose.
- Spills of flammable liquids shall be immediately cleaned up with appropriate absorbent materials.
- Do not use, handle, or store Class B combustibles near exits, stairs, or any other areas normally used as exits.
- Do not weld, cut, grind, or use unsafe electrical appliances or equipment near Class B combustibles.
- Do not generate heat, allow an open flame, or smoke near Class B combustibles.
- Know the location of and how to use the nearest portable fire extinguisher rated for Class B fire.
- Flammable liquids will be dispensed and stored only in approved "safety cans". These safety cans will have self-closing lids and flash screens to prevent sparks or flames from entering the can and igniting the vapors.
- Compressed gas cylinders will be properly secured in an upright position, capped, and separated when in storage.
- Flammable gasses and oxygen must be separated by a distance of twenty (20) feet, or a half-hour rated fire wall at least five (5) high.
- No more than twenty-five (25) gallons of flammable liquids shall be stored in a room outside of an approved storage cabinet. For storage of liquefied petroleum gas, see 1926.153.
- Quantities of flammable liquid in excess of twenty-five (25) gallons shall be stored in an acceptable or approved cabinet.
- Cabinets shall be labeled in conspicuous lettering, "Flammable-Keep Away from Open Flames".

Water should not be used to extinguish Class B fires caused by flammable liquids. Water can cause the burning liquid to spread, making the fire worse. To extinguish a fire caused by flammable liquids, exclude the air around the burning liquid. The following fire-extinguishing agents are approved for Class B combustibles: carbon dioxide, multi-purpose dry chemical (ABC), halon 1301, and halon 1211. **NOTE:** Halon has been determined to be an ozone-depleting substance and is no longer being manufactured. Existing systems using halon can be kept in place.

### 18.5.2.3 Flammable Liquid Fuels



- Do not dispense Class B flammable liquids into containers unless the nozzle and container are electrically interconnected by contact or by a bonding wire. Either the tank or container must be grounded.
- Equipment shall not be fueled while hot or while running.
- No Smoking signs will be posted near refueling stations and smoking shall be prohibited in these areas as well as anywhere else that flammable liquids are being dispensed.
- Portable containers shall be placed on the ground while filling or grounded with a grounding strap. They shall not be left in the rear of pickup trucks or similar vehicles while being filled.

### **18.5.3 Electrical Fire Hazards (Class C)**

To prevent electrical fires, employees shall:

- Make sure that worn wires are replaced.
- Use only appropriately rated fuses.
- Never use extension cords as substitutes for wiring improvements.
- Use only approved extension cords
- Check wiring in hazardous locations where the risk of fire is especially high.
- Check electrical equipment to ensure that it is either properly grounded or double insulated.
- Ensure adequate spacing while performing maintenance.

### **18.5.4 Office Fire Hazards**

To prevent office fires, employees shall:

- Avoid overloading circuits with office equipment.
- Turn off nonessential electrical equipment at the end of each workday.
- Keep storage areas clear of rubbish.
- Ensure that extension cords are not placed under carpets.
- Ensure that trash and paper set aside for recycling is not allowed to accumulate.
- 

### **18.5.5 Portable Heaters**

All portable heaters shall be approved by Management. Portable electric heaters shall have tip-over protection that automatically shuts off the unit when it is tipped over. There shall be adequate clearance between the heater and combustible furnishings or other materials at all times. Portable heaters shall not be left unattended.

### **18.5.6 Smoking**

Smoking is prohibited in all facility buildings. Certain outdoor areas may also be designated as no smoking areas. The areas in which smoking is prohibited outdoors are identified by NO SMOKING signs.

### **18.5.7 Housekeeping**

Housekeeping is essential for prevention of fires. General cleanup of items such as dust, flammables, and loose scrap will not only reduce fire hazards but will also prevent from other hazards such as slips and trips. Employees will make sure doors, hallways, stairs, and other exit routes are kept free of obstructions. This is in case of an emergency; the emergency routes are kept clear.

### **18.5.8 Fire Extinguishers**

Portable fire extinguishers can be very effective for fighting fires in their incipient stages. A person who is well-trained in fire-extinguisher use can save both lives and property. Portable fire extinguishers must be available even when other firefighting measures are available. For extinguishers to be effective in a fire

situation, proper selection, inspection, and maintenance are essential. All fire extinguishers must be placed in conspicuous locations, clearly visible and easily accessible. Keep all fire extinguishers fully charged and operable, and in their proper locations at all times.

There are five main types of fire extinguishers

- Class A – for ordinary combustibles
- Class B – for flammable liquids
- Class C – for electrical fires
- Class D – for fires involving flammable metals
- Class K – for fires in cooking systems such as grease fires in a fryer or on a stove

Some fire extinguishers are multi-purpose and may be indicated as ABC extinguishers or another combination of purposes.

#### **18.5.8.1 Class A Fire Extinguisher**

A class 'A' fire extinguisher is used on class 'A' fires which are ordinary combustibles fires. Paper, wood, cloth, plastic, etc. Consider it equivalent to water. In fact, a 2A fire extinguisher has the same potential fire-fighting capability as 2.5 gallons of water. Each 'A' rating is equivalent to 1.25 gallons of water. A 1A is equivalent to 1.25 gallons of water, a 2A is equivalent to 2.5 gallons of water, a 3A is equivalent to 3.75 gallons of water, etc. A pump can or pressurized water can is a Class 'A' fire extinguisher.

#### **18.5.8.2 Class B Fire Extinguisher**

A class 'B' fire extinguisher is used on class 'B' fires which are flammable liquid fires involving fuels such as oils, grease, gasoline, etc. The number in front of the 'B' rating refers to the amount of square footage of a flammable liquid fire that extinguisher can extinguish. A 10B rated fire extinguisher can extinguish a flammable liquids fire 10 square feet in size. Figure a 3' x 3' area. Dry powder and CO<sub>2</sub> extinguishers are examples of Class 'B' fire extinguishers.

#### **18.5.8.3 Class C Fire Extinguisher**

A class 'C' fire extinguisher is intended for use on fires involving energized equipment. They are safe to use on running or connected electrical equipment. Unplugging or disconnecting the equipment from the power source turns the Class 'C' fire to a Class 'A' or Class 'B' fire. Keep in mind however that de-energized powered equipment may still have some residual electricity stored in capacitors and may still offer a shock hazard. Dry powder and CO<sub>2</sub> extinguishers are examples of Class 'C' fire extinguishers.

Therefore a fire extinguisher rated 2A:10B:C or 2-A:10-B:C is a fire extinguisher that can be used on all three main types of fires. Because it is rated 'C', it will use dry powder or CO<sub>2</sub> to extinguish the fire. These will NOT be water extinguishers. A fire extinguisher rated thusly has the fire-fighting equivalency of 2.5 gallons of water on Class 'A' fires and can fight class 'B' or 'C' fires no larger than 10 square feet in size.

















#### **18.5.8.4 Other Fire Extinguishers**

There are also Class 'D' (flammable metals) and Class 'K' (kitchen usage for large grease fires) fire extinguishers. These are specialty extinguishers and are not commonly found in normal usage.

Portable fire extinguishers must be available for use by employees on;

- Class A fires so that the travel distance for employees to any extinguisher is 75 feet or less.
- Class B fires so that the travel distance for employees to any extinguisher is 50 feet or less.
- Class C hazards on the basis of the appropriate pattern for the existing Class A or Class B hazards.

- Class D fires so that the travel distance for employees to any extinguisher is 75 feet or less. Portable fire extinguishers for Class D hazards are required in those combustible metal working areas where combustible metal powders, flakes, shavings, or similarly sized products are generated at least once every two weeks.
- Soda-acid and inverted-foam fire extinguishers are not approved portable firefighting equipment.
- Carbon tetrachloride and other toxic vaporizing liquid fire extinguishers are prohibited.
- Portable fire extinguishers shall be inspected periodically in intervals not to exceed thirty (30) days and maintained in accordance with Maintenance and Use of Portable Fire Extinguishers, NFPA No. 10A-1970.
- Fire extinguishers which have been listed or approved by a nationally recognized testing laboratory, shall be used to meet the requirements of this subpart.
- The table below may be used as a guide for selecting the appropriate portable fire extinguishers.

	WATER TYPE FOAM		CO <sub>2</sub>	DRY CHEMICAL					
				Sodium or Potassium Bicarbonate		Multi-Purpose ABC			
									
Adapted from OSHA 1926.150 Table F-1			Stored Pressure	Water Pump Tank	Stored Pressure	Cartridge Operated	Stored Pressure	Stored Pressure	Cartridge Operated
Class A Fires			YES	YES	NO	NO	NO	YES	YES
Class B Fires			NO	NO	YES	YES	YES	YES	YES
Class C Fires			NO	NO	YES	YES	YES	YES	YES
Class D Fires			SPECIAL EXTINGUISHING AGENTS APPROVED BY RECOGNIZED TESTING						
Method of Operation	Pull pin, squeeze handle	Pump handle	Pull pin, squeeze lever	Rupture cartridge, squeeze lever	Pull pin, squeeze handle	Pull pin, squeeze handle	Rupture cartridge, squeeze lever		
Range	30' – 40'	30' – 40'		5' – 20'	5' – 20'	5' – 20'	5' – 20'		
Maintenance	Check air pressure gauge monthly	Discharge and fill with water annually	Weigh semi-annually	Weigh gas cartridge, check condition of dry chemical annually	Check gas pressure gauge and condition of dry chemical annually	Check gas pressure gauge and condition of dry chemical annually	Weigh gas cartridge, check condition of dry chemical annually		

### 18.5.8.5 Proper Use of a Fire Extinguisher

When a fire starts, your first thought should be of your safety and the safety of others. Only trained workers should use fire extinguishers, and only if the fire is small enough to be extinguished by a hand-held extinguisher.

The effectiveness of fire extinguishers is dependent on the training and expertise of the user.

Users should know which fire extinguisher to use on each type of fire as well as which fire extinguishers not to use. Using the wrong fire extinguisher could be at best ineffective and at worst may actually exacerbate the problem.

When the fire is large (bigger than a garbage can), the combustible material is unknown, or you have not been trained in the proper use of extinguishers, leave the firefighting to professionals with the proper equipment. In this case, sound the fire alarm, and call for emergency help from a safe place.

In the event that you need to use an extinguisher to put out a fire, stay calm and remember these simple steps:

- P.** Pull the pin
- A.** Aim the nozzle at the base of the fire

- S. Squeeze the trigger
- S. Sweep the extinguisher from side to side

The concept is to lay a blanket of material over the base of the fire to cool and smother the materials that are burning.

Remember too, that most extinguishers have a very limited operation time, only 8–10 seconds, so application must be done quickly and applied correctly at the base of the fire, not at smoke or flames.

#### **18.5.8.6 Inspections**

Fire extinguishers must be inspected monthly to ensure the fire extinguishers:

- are present where they're supposed to be
- are in good condition and ready for use
- do not need any service, maintenance, replacement, or annual certification

OSHA refers to NFPA 10 and its requirement that extinguishers be inspected when placed in service and thereafter at intervals not to exceed thirty (30) days in duration (monthly).

##### **18.5.8.6.1 Performing the Inspection**

1. Make sure the extinguisher is in its designated place, is easily visible, and has unobstructed access for immediate use in case of emergency
2. Check that the annual certification tag is present, and the fire extinguisher is within its service date interval. Tags indicate the last date of inspection so, if a tag is labeled with the date of the year and the October option is punched or indicated, that means it was last inspected in October of the indicated year and needs to be re-inspected by a certified testing service by the end of October of the next year.
3. Check the pressure gauge for damage and that the indicator needle is within the operating (green) range. If the needle is out of the operating range it may indicate a loss of pressure, an equipment failure, or that it has been used.
4. Remove the extinguisher from the mounting system to ensure it is easily accessible and that the mounting bracket/system is secure and in good condition.
5. Check the extinguisher body and all external metal parts for signs of damage or corrosion. If damage is found remove extinguisher from service and replace. Have extinguisher inspected by certified testing service.
6. For dry-powder extinguishers turn the extinguisher upside down and shake to loosen extinguishing media.
7. Check to ensure the safety pin is in place and secured with an easily removable retention device, usually a breakaway zip-tie or similar.
8. Check the hose and nozzle for damage.
9. Check the labels for damage and legibility. The labels should clearly indicate the extinguisher's size and capability. Ensure the correct fire extinguisher is in the designated location.
10. Record the inspection. Most annual certification tags have a grid on the reverse side for this purpose. Record the date of inspection and the initials of the person performing the inspection.

##### **18.5.8.6.2 Periodic, Testing:**

Hydrostatic testing involves the complete disassembly of the extinguisher to check the internal parts and the tank for strength. A professional testing/certification service should be contracted to perform this task.

Refillable fire extinguishers must be hydro-tested every:

- Pressurized water or carbon dioxide extinguishers (every five years)
- Dry-chemical extinguishers (every 12 years).

Non-refillable fire extinguishers (disposable, one-time use type) must be replaced every 12 years.

### **18.5.9 Fire Protection in Construction**

#### **18.5.9.1 Additional requirements.**

The employer shall be responsible for the development of a fire protection program to be followed throughout all phases of the construction and demolition work and shall provide for the firefighting equipment as specified in this subpart. As fire hazards occur, there shall be no delay in providing the necessary equipment.

- Access to all available firefighting equipment shall be maintained at all times.
- All firefighting equipment, provided by the employer, shall be conspicuously located.
- All firefighting equipment shall be periodically inspected and maintained in operating condition. Defective equipment shall be immediately replaced.
- As warranted by the project, the employer shall provide a trained and equipped firefighting organization (Fire Brigade) to ensure adequate protection to life.

#### **18.5.9.2 Fire Brigade**

Employees are not permitted to fight fires, clean up major chemical spills, or participate in rescue procedures unless specifically trained, assigned, and equipped to perform those duties. Unless trained, authorized, and assigned to engage in such duties all employees are expected to contact trained and assigned employees and emergency services as the situation warrants.

#### **18.5.9.3 Water supply.**

A temporary or permanent water supply, of sufficient volume, duration, and pressure, required to properly operate the firefighting equipment shall be made available as soon as combustible materials accumulate.

Where underground water mains are to be provided, they shall be installed, completed, and made available for use as soon as practicable.

#### **18.5.9.4 Portable firefighting equipment**

A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of the protected building area, or major fraction thereof. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.

A ½ inch diameter garden-type hose line, not to exceed 100 feet in length and equipped with a nozzle, may be substituted for a 2A-rated fire extinguisher, providing it is capable of discharging a minimum of five (5) gallons per minute with a minimum hose stream range of thirty (30) feet horizontally. The garden-type hose lines shall be mounted on conventional racks or reels. The number and location of hose racks or reels shall be such that at least one hose stream can be applied to all points in the area.

##### **18.5.9.4.1 Fire Extinguishers**

One or more fire extinguishers, rated not less than 2A, shall be provided on each floor. In multistory buildings, at least one fire extinguisher shall be located adjacent to stairway.

Fire extinguishers must be properly mounted in appropriate locations to prevent damage or relocation. In wide open areas consider using fire-extinguisher base stands to provide a stable and readily visible indication of the fire extinguisher location.

Extinguishers and water drums, subject to freezing, shall be protected from freezing.

A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used on the jobsite. This requirement does not apply to the integral fuel tanks of motor vehicles.

### **18.5.9.5 Fixed Fire Protection Systems**

#### **18.5.9.5.1 Sprinkler protection.**

If the facility being constructed includes the installation of automatic sprinkler protection, the installation shall closely follow the construction and be placed in service as soon as applicable laws permit following completion of each story.

During demolition or alterations, existing automatic sprinkler installations shall be retained in service as long as reasonable. The operation of sprinkler control valves shall be permitted only by properly authorized persons. Modification of sprinkler systems to permit alterations or additional demolition should be expedited so that the automatic protection may be returned to service as quickly as possible. Sprinkler control valves shall be checked daily at close of work to ascertain that the protection is in service.

#### **18.5.9.5.2 Standpipes**

In all structures in which standpipes are required, or where standpipes exist in structures being altered, they shall be brought up as soon as applicable laws permit and shall be maintained as construction progresses in such a manner that they are always ready for fire protection use. The standpipes shall be provided with Siamese fire department connections on the outside of the structure, at the street level, which shall be conspicuously marked. There shall be at least one standard hose outlet at each floor.

#### **18.5.9.5.3 Fire alarm devices.**

An alarm system, e.g., telephone system, siren, etc., shall be established by the employer whereby employees on the site and the local fire department can be alerted for an emergency.

The alarm code and reporting instructions shall be conspicuously posted at phones and at employee entrances.

#### **18.5.9.5.4 Fire cutoffs.**

Fire walls and exit stairways, required for the completed buildings, shall be given construction priority. Fire doors, with automatic closing devices, shall be hung on openings as soon as practicable.

Fire cutoffs shall be retained in buildings undergoing alterations or demolition until operations necessitate their removal.

### **18.5.9.6 Ignition hazards.**

Electrical wiring and equipment for light, heat, or power purposes shall be installed in compliance with the requirements of Subpart K of this part.

Internal combustion engine powered equipment shall be so located that the exhausts are well away from combustible materials. When the exhausts are piped to outside the building under construction, a clearance of at least 6 inches shall be maintained between such piping and combustible material.

Smoking shall be prohibited at or in the vicinity of operations which constitute a fire hazard and shall be conspicuously posted: "No Smoking or Open Flame."

Portable battery powered lighting equipment, used in connection with the storage, handling, or use of flammable gases or liquids, shall be of the type approved for the hazardous locations.

The nozzle of air, inert gas, and steam lines or hoses, when used in the cleaning or ventilation of tanks and vessels that contain hazardous concentrations of flammable gases or vapors, shall be bonded to the tank or vessel shell. Bonding devices shall not be attached or detached in hazardous concentrations of flammable gases or vapors.

#### **18.5.9.7 Temporary buildings.**

No temporary building shall be erected where it will adversely affect any means of exit.

Temporary buildings, when located within another building or structure, shall be of either noncombustible construction or of combustible construction having a fire resistance of not less than 1 hour.

Temporary buildings, located other than inside another building and not used for the storage, handling, or use of flammable or combustible liquids, flammable gases, explosives, or blasting agents, or similar hazardous occupancies, shall be located at a distance of not less than 10 feet from another building or structure. Groups of temporary buildings, not exceeding 2,000 square feet in aggregate, shall, for the purposes of this part, be considered a single temporary building.

#### **18.5.9.8 Open yard storage.**

Combustible materials shall be piled with due regard to the stability of piles and in no case higher than 20 feet.

Driveways between and around combustible storage piles shall be at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other articles or materials. Driveways shall be so spaced that a maximum grid system unit of 50 feet by 150 feet is produced.

The entire storage site shall be kept free from accumulation of unnecessary combustible materials. Weeds and grass shall be kept down, and a regular procedure provided for the periodic cleanup of the entire area.

When there is a danger of an underground fire, that land shall not be used for combustible or flammable storage.

Method of piling shall be solid wherever possible and in orderly and regular piles. No combustible material shall be stored outdoors within 10 feet of a building or structure.

Portable fire extinguishing equipment, suitable for the fire hazard involved, shall be provided at convenient, conspicuously accessible locations in the yard area. Portable fire extinguishers, rated not less than 2A, shall be placed so that maximum travel distance to the nearest unit shall not exceed 100 feet.

#### **18.5.9.9 Indoor storage.**

Storage shall not obstruct, or adversely affect, means of exit.

All materials shall be stored, handled, and piled with due regard to their fire characteristics.

Noncompatible materials, which may create a fire hazard, shall be segregated by a barrier having a fire resistance of at least 1 hour.

Material shall be piled to minimize the spread of fire internally and to permit convenient access for firefighting. Stable piling shall be maintained at all times. Aisle space shall be maintained to safely accommodate the widest vehicle that may be used within the building for firefighting purposes.

Clearance of at least 36 inches shall be maintained between the top level of the stored material and the sprinkler deflectors.

Clearance shall be maintained around lights and heating units to prevent ignition of combustible materials.

A clearance of 24 inches shall be maintained around the path of travel of fire doors unless a barricade is provided, in which case no clearance is needed. Material shall not be stored within 36 inches of a fire door opening.

## **18.6 Training**

Each employee will be trained on the procedures and policies of the fire prevention plan. Employees designated and authorized to use portable fire extinguishers to extinguish incipient fires shall be trained to understand the hazards and how to properly use the fire extinguisher.

### **18.6.1 Initial**

Employees will receive initial training at time of hire and prior to their working assignment and will consist of topics required to comply with industry standards and regulations and to perform selected work.

### **18.6.2 Refresher**

Refresher training will be administered annually and when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## **18.7 Reference**

OSHA Standard 29 CFR 1910.39

OSHA Standard 29 CFR 1926.150-152



## **Chapter 19 Medical/First-Aid Program**

### **19.1 Purpose, Scope, and Policy**

#### **19.1.1 Purpose**

The purpose of this program is to ensure readily available first-aid kits to all employees.

#### **19.1.2 Scope**

This program outlines responsibilities for management and all employees.

#### **19.1.3 Policy**

COMPANYNAME is committed to the safety and health of its employees. Therefore, it follows several guidelines to ensure the availability of first-aid in its work places.

### **19.2 Roles & Responsibilities**

#### **19.2.1 Employer Responsibilities**

Management will ensure the availability of medical personnel for advice and consultation. Management will determine the distance of their facility to the nearest hospital or clinic and determine if personnel trained in first-aid will be available at the site at all times.

#### **19.2.2 Employee Responsibilities**

It is the responsibility of the employees to know where first-aid stations are and know how to seek medical care, if needed.

### **19.3 Definitions**

**First-Aid** - The provision of initial care for an illness or injury.

### **19.4 Hazards**

If first-aid kits are not readily available and fully stocked, the employee may not be able to treat themselves or others which could lead to life threatening conditions.

#### **19.4.1 Bloodborne Pathogens**

Please refer to the Blood Borne Pathogen Chapter

### **19.5 Hazard Control Measures**

Properly equipped first-aid responders will provide initial treatment to determine the extent of injury while waiting for emergency services to arrive.

#### **19.5.1 First-aid Responders**

A person(s) will be adequately trained to render first aid if an infirmary, clinic, or hospital that is normally used for treatment of employees is not within three (3) to four (4) minutes of the work site. All staff trained as First Aid/CPR responders shall be trained by an accredited organization.

The first-aid responder must be trained to triage the patient to determine if more advanced measures and/or transport to a medical facility are necessary. If more advanced measures will be necessary, emergency services shall be contacted immediately before or as first-aid treatment is provided.

##### **19.5.1.1 Responder Staffing**

Recommended minimum staffing of first-aid responders:

Fewer than fifty (50) employees on site - One responder certified in first aid, cardiopulmonary resuscitation (CPR), and automated external defibrillator (AED)

More than fifty (50) employees on site - Two responders certified in first aid, cardiopulmonary resuscitation (CPR), and automated external defibrillator (AED)

### 19.5.2 First-aid kits

First-aid kits are provided, stocked and readily available to all employees.

At a minimum, each first-aid kit will comply with ANSI Z308 Minimum Requirements for Workplace First-aid Kits. First-aid kits shall consist of appropriate items and be stored in a weather-proof container with individually sealed packages of each type of item and first-aid supplies shall be available and readily accessible when required for an emergency.

First aid kits are designated by type (I, II, III, IV) and class (A or B). First aid kit types are established based on the environment in which they will be used.

- Type I kits are designed for indoor use. They are typically mounted the wall and are not designed for portable use. They are intended for general indoor use, office use or use in a light manufacturing facility.
- Type II kits are also designed for indoor use and are often mounted to the wall but are designed to be easily removed and taken to the injury site. Like the type I kits, they are intended for general indoor use, office use, or in a light manufacturing facility.
- Type III kits are portable and designed for indoor or outdoor environments where there is low likelihood for environmental damage or damage due to rough handling. The container is designed to be mounted and is equipped with a weather/water-resistant seal. If used in outdoor environments they should be mounted and kept in a sheltered location.
- Type IV kits are intended for locations where the risk of corrosion, moisture, rough handling, and impact damage is high. They are used in transportation, utility, construction, and heavy manufacturing environments.

The first-aid kit will contain at a minimum:

#### ANSI Class A First-aid kit

(smaller workplace, common workplace injuries such as minor cuts, abrasions, and sprains)

16	o Adhesive Bandages, 1" x 3"	2	- Pair Exam Gloves
2	- Sterile Pad, 3" x 3"	1	- Scissors
2	- Trauma Pad, 5" x 9"	1	- Triangular Bandage, 40" x 40" x 56"
1	- Roller Bandage, 2" x 4 yds	6	- Hand Sanitizer, 0.9g
1	- Adhesive Tape 2.5 yd	10	- Burn Treatment, 1/32 oz
1	- Breathing Barrier	1	- Burn Dressing, gel soaked, 4" x 4"
1	- Cold Pack	10	- Antiseptic Applications 1/57 oz
1	- Eye Wash, 1 oz.	10	- Antibiotic Treatment Application, 1/57 oz
2	- Eye Covering	1	- First-aid Guide

#### ANSI Class B First-aid kit

(larger workplace, more serious injuries related to a more complex or high-risk environment)

50	o Adhesive Bandages, 1"x3"	1	- Scissors
4	- Sterile Pad, 3" x 3"	2	- Triangular Bandage, 40" x 40" x 56"

- |                                |  |
|--------------------------------|--|
| 4 - Trauma Pad, 5" x 9"        | 10 - Hand Sanitizer, 0.9g                      |
| 2 - Roller Bandage, 2" x 4 yds | 25 - Burn Treatment, 1/32 oz                   |
| 1 - Roller Bandage, 4" x 4 yds | 2 - Burn Dressing, gel soaked, 4" x 4"         |
| 2 - Adhesive Tape 2.5 yd       | 50 - Antiseptic Applications 1/57 oz           |
| 1 - Breathing Barrier          | 25 - Antibiotic Treatment Application, 1/57 oz |
| 2 - Cold Pack                  | 1 - Splint, 4" x 24" (minimum)                 |
| 1 - Eye Wash, 4 oz.            | 1 - Tourniquet                                 |
| 2 - Eye Covering               | 1 - First-aid Guide                            |
| 4 - Pair Exam Gloves           |  |

To ensure first-aid kits are ready for use in the event of an emergency they should be inspected frequently. For temporary work sites as in construction, the first-aid kits shall be checked before being sent out to the site and at least weekly on each job to ensure expended items are replaced. For static sites such as in general industry, commercial, and office environments the kits should be inspected at least monthly. Inspection checklists are provided at the end of the program.

### 19.5.3 Automated External Defibrillators (AED)

An Automated External Defibrillator (AED) is a portable emergency life-saving device that can be used on a patient who is experiencing cardiac arrest. While AEDs do not correct all heart arrhythmias, they can be effective if used quickly and properly. They are programmed to automatically detect certain abnormal rhythms and deliver a controlled electric shock to reset the heart into a normal rhythm. This is known as defibrillation.

The AED kit consists of the unit which diagnoses the patient's rhythm, and if it identifies a correctable rhythm delivers a shock or series of shocks which are applied to the patient's heart through adhesive electrode pads applied to the patient's chest.

COMPANYNAME provides AED kits at our facility(ies) for use by trained first-aid providers. If a suspected cardiac emergency occurs:

- Contact emergency services (911) and the facility first-aid responder(s) immediately.
- Begin CPR
- Use the AED as soon as it is available to attempt restarting the heart.

#### 19.5.3.1 Storage, Inspections, and Maintenance

AEDs must be properly stored and maintained to assure accessibility and readiness for use in a cardiac medical emergency. Follow the manufacturer's recommendations for use, care, and maintenance checks.

Inspections should be done monthly to ensure readiness for use. Key components to inspect are the unit, the battery, and the defibrillator pads. An inspection form is available at the end of the program to assist.

- Inspect the AED physical condition and working status.
- Check the AED battery and defibrillator pads (battery charge, expiration dates, etc.).
- Clean the unit as necessary.

When the battery and/or defibrillator pads are within two (2) months of expiration replacements should be ordered to ensure they are available when replacement is due.

#### 19.5.4 Quick Drenching

Where it is possible that the eyes of a person may be exposed to corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body are provided for immediate use.

### **19.5.5 Patient Transport**

If the patient requires transport to a medical provider for further evaluation or treatment, the condition of the patient must be considered. Patients with serious injuries requiring continued and more advanced treatment should be transported by trained medical personnel. It is recommended that whenever possible, a company representative accompanies the patient to the treatment center to provide needed information and to represent the company's interests in the treatment of the patient.

Under no circumstances shall a seriously ill or injured employee be permitted to drive themselves to the hospital. The first-aid responder may recommend that stable patients that should be evaluated by a medical professional be transported to the medical provider by a company representative. The decision to transport should be made by a responsible employee.

### **19.5.6 Emergency Contact Poster**

The Emergency Contact Poster must be posted conspicuously in the same location as the first-aid kit. It must be completely filled in, including the address of the facility to communicate to emergency medical services where their help is needed. A determination will be made as to whether or not 911 is available in the area of the work site. If not, the appropriate emergency numbers will be filled in on the Emergency Contact Poster. A communication system for the work site to contact emergency services will be made available.

### **19.5.7 Electric Shock-CPR**

If someone is discovered that has received an electric shock and is unconscious, first check to see if their body is in contact with an electrical circuit. Do not touch a person until you are sure there is no contact with an electrical circuit.

- Call for help immediately.
- When it is safe to contact the victim, begin CPR if the person's heart has stopped or they are not breathing.

## **19.6 Training**

### **19.6.1 Initial**

Where appropriate medical assistance is not available within the first three (3) to four (4) minutes of the jobsite, specific persons shall be trained and assigned to render first aid. Personnel who are assigned as a First Aid/CPR responder they will be trained by an accredited organization such as the National Safety Council, American Red Cross, or American Heart Association prior to this assignment.

### **19.6.2 Refresher**

Refresher training will be conducted per the training organizations (National Safety Council, American Red Cross, American Heart Association) required recertification schedule.

Refresher training will be administered when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## **19.7 Reference**

OSHA Standard 29 CFR 1910.151

**19.8 Appendix**

- Emergency Contact Poster
- Emergency Evacuation Route Map
- First-aid Kit Inventory Checklist - Class A
- First-aid Kit Inventory Checklist - Class B
- [AED Inspection Log](#)

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**Emergency Contact Poster**

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Facility:

Address:

(Be Accurate and complete-for emergency use)

**Emergency Phone Numbers**

Fire Department:

Paramedics:

Police:

Security: (if applicable)

Building Manager: (If applicable)

COMPANYNAME Superintendent

Name:

Mobile Phone:

Attach map of facility location and emergency route to nearest hospital.

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Emergency Evacuation Route Map

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**INSERT EMERGENCY  
EVACUATION ROUTE  
MAP(s) HERE**

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**First-aid Kit Inventory Checklist - Class A**


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First-aid kits should be checked monthly to ensure readiness in the event of emergency. A good practice is to inspect and maintain first-aid kits on the first Monday of every month (or Tuesday if the Monday is a holiday).

Replace missing inventory as soon as identified. For commonly used items it is recommended to have replacements in inventory for immediate replacement upon use.

Keep this inventory checklist in each first-aid kit and turn in for replacement once it is filled in.

First-aid Kit Location: \_\_\_\_\_ Expiration Date: \_\_\_\_\_  
(look at expirables such as eye wash)

**Class A First-aid Kit**

Date	Inventory	Contents	Initials
	16 - Adhesive Bandages, 1" x 3"		
	2 - Sterile Pad, 3" x 3"		
	2 - Trauma Pad, 5" x 9"		
	1 - Roller Bandage, 2" x 4 yds		
	1 - Adhesive Tape 2.5 yd		
	1 - Breathing Barrier		
	1 - Cold Pack		
	1 - Eye Wash, 1 oz		
	2 - Eye Covering		
	2 - Pair Exam Gloves		
	1 - Scissors		
	1 - Triangular Bandage, 40" x 40" x 56"		
	6 - Hand Sanitizer, 0.9g		
	10 - Burn Treatment, 1/32 oz		
	1 - Burn Dressing, gel soaked, 4" x 4"		
	10 - Antiseptic Applications, 1/57 oz		
	10 - Antibiotic Treatment Application, 1/57 oz		
	1 - First-aid Guide		



### First-aid Kit Inventory Checklist - Class B

First-aid kits should be checked monthly to ensure readiness in the event of emergency. A good practice is to inspect and maintain first-aid kits on the first Monday of every month (or Tuesday if the Monday is a holiday).

Replace missing inventory as soon as identified. For commonly used items it is recommended to have replacements in inventory for immediate replacement upon use.

Keep this inventory checklist in each first-aid kit and turn in for replacement once it is filled in.

First-aid Kit Location: \_\_\_\_\_ Expiration Date: \_\_\_\_\_  
(look at expirables such as eye wash)

#### Class B First-aid Kit

Date	Inventory	Contents	Initials
	50 - Adhesive Bandages, 1" x 3"		
	4 - Sterile Pad, 3" x 3"		
	4 - Trauma Pad, 5" x 9"		
	2 - Roller Bandage, 2" x 4 yds		
	1 - Roller Bandage, 4" x 4 yds		
	2 - Adhesive Tape 2.5 yd		
	1 - Breathing Barrier		
	2 - Cold Pack		
	1 - Eye Wash, 4 oz		
	2 - Eye Covering		
	4 - Pair Exam Gloves		
	1 - Scissors		
	2 - Triangular Bandage, 40" x 40" x 56"		
	10 - Hand Sanitizer, 0.9g		
	25 - Burn Treatment, 1/32 oz		
	2 - Burn Dressing, gel soaked, 4" x 4"		
	50 - Antiseptic Applications, 1/57 oz		
	25 - Antibiotic Treatment Application, 1/57 oz		
	1 - Splint, 4" x 24" (minimum)		
	1 - Tourniquet		
	1 - First-aid Guide		

## AED MONTHLY INSPECTION LOG

20\_\_

AED Make: \_\_\_\_\_

Model: \_\_\_\_\_

Serial #: \_\_\_\_\_

Battery Exp  
Date: \_\_\_\_\_Pads Exp  
Date: \_\_\_\_\_

Location: \_\_\_\_\_

Criteria	Corrective Action / Comments
AED is accessible, highly visible, and near working phone.	
AED unit is clean and free of physical damage.	
The AED battery is installed and properly charged (check indicator).	Battery indicator should show a black hourglass or a green check mark or blinking light.
The battery replacement date is more than two (2) months away.	Battery expiration date should be at least two (2) months away.
There are two (2) sets of AED pads.	Pad packages must be sealed (unopened) and the expiration date must be at least two (2) months away
Rescue kit is present and in good condition.	Rescue kit should include: <ul style="list-style-type: none"> <li>• Pocket mask with one-way valve</li> <li>• Exam gloves</li> <li>• Safety razor</li> <li>• Absorbent gauze pads</li> </ul>
Quick Reference Guide is present.	

	Date	Init
JAN	/	
FEB	/	
MAR	/	
APR	/	
MAY	/	
JUN	/	
JUL	/	
AUG	/	
SEP	/	
OCT	/	
NOV	/	
DEC	/	

NOTES: \_\_\_\_\_

- When defibrillator pads are identified as being within two (2) months of their expiration date.
- When battery indicator shows 25% life remaining.
- When battery is identified as being within two (2) months of its expiration date.

## **Chapter 20 Bloodborne Pathogens**

### **20.1 Purpose, Scope & Policy**

#### **20.1.1 Purpose**

COMPANYNAME is committed to the safety and health of their employees and preventing the spread of blood borne pathogens. Therefore the following blood borne pathogens safety program has been adopted in order to protect employees from exposure to human blood and other potentially infectious materials.

#### **20.1.2 Scope**

This program outlines responsibilities for management and all employees.

##### **20.1.2.1 Policy**

In the event an employee has the potential to be exposed to blood borne pathogens all measures within this program shall be provided to eliminate the spread of disease.

### **20.2 Roles & Responsibilities**

#### **20.2.1 Employer Responsibilities**

Management is responsible for creating and implementing the Exposure Control Plan and training employees on the Exposure Control Plan. In addition, management will maintain, review, and update the Exposure Control Plan at least annually, to include new or modified procedures.

#### **20.2.2 Employee Responsibilities**

Understand the Exposure Control Plan and abide the rules and regulations under this plan. Employees must be aware of the tasks they may perform that have occupational exposure. In addition, employees must develop and maintain good personal hygiene habits.

### **20.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual.<sup>vii</sup>

### **20.4 Hazards**

Exposure to a bloodborne pathogen can directly result in contamination of healthy cells. Bloodborne pathogens are infectious microorganisms in human blood that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV). Exposure to blood, bodily fluids containing blood, needlesticks and other sharps-related injuries may expose workers to bloodborne pathogens. Employees, including first responders and those assigned to certain housekeeping tasks, may be at risk for exposure to bloodborne pathogens.

### **20.5 Hazard Control Measures – Exposure Control Plan**

COMPANYNAME will establish a written exposure control plan that applies to all potential employee exposures to blood or other potentially infectious materials. This exposure control plan will be made available to all employees and a copy provided on employee request.

The hierarchy of controls shall be exercised to eliminate or minimize employee exposure to bloodborne pathogens.

#### **20.5.1 Exposure Determination**

All employees who, as a result of performing their job duties, must engage in activities where exposure to blood or other potentially infectious materials is reasonably anticipated are considered to have occupational exposure to blood borne pathogen. Employees shall take necessary precautions to avoid direct contact with body fluids.

The plan will address contingencies for those employees most likely to be exposed to infectious materials such as:

- Emergency responders and first-aid providers
- Foremen
- Supervisors
- Janitors
- Others as identified

The most common concern for spread of blood borne pathogen is during the administration of first aid. Employees designated as First Aid Responders are considered at risk of occupational exposure due to the nature of these duties (e.g., assisting bleeding victims, resuscitation).

Additional Potential tasks include cleaning bathrooms, disposal of garbage, disposal of sharps (needles, broken glass), and cleaning up any potentially infected material including blood or human waste.

When determining exposure potential the determination shall be made without regard to the use of personal protective equipment.

The hierarchy of controls shall be exercised to eliminate or minimize employee exposure to bloodborne pathogens.

#### **20.5.1.1 Hierarchy of Controls**

The following control methods are listed in order of effectiveness, from the most effective to the least effective. Controls should be implemented as much as feasible from the top down. For example, PPE usage should be implemented only when all other methods are infeasible.

- Elimination – Eliminating the exposure must always be the first consideration.
- Substitution – Controlling a hazard by using a less hazardous material or implementing a less hazardous process.
- Engineering Controls – Physical changes to the work area or process that effectively minimize a worker's exposure to hazards.
- Administrative Controls – Policy, procedure, series of steps, or method to control the hazards.
- Personal Protective Equipment – The last line of defense; to be used only when other measures fail to eliminate the hazard.

#### **20.5.2 Universal Precautions**

All employees must utilize universal precautions. This means that any potentially infectious material is handled as if it were known to be infectious. Where the determination or differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious materials. All appropriate PPE must be used.

For handling bags of trash, employees must not touch any visibly contaminated bags with the bare hands. Latex or vinyl gloves must be used when handling any potentially infected material. Gloves are not required for bags with no sign of potentially infectious material when employees grab the trash can liner from the clean underside of the can liner or when the entire container is dumped out without touching its contents.

Broken glass or other sharps must not be handled; use a long-handled dust pan and broom to clean up this type of material, then dispose of the material safely to avoid exposure to anyone else.

Sanitary products with blood or other bodily fluids can be thrown away in the regular trash. Be sure to close all bags or other containers to avoid potential exposure. Never swing or throw potentially contaminated material.

To avoid possible needle sticks or other exposure, never push trash down with your hands or other parts of the body.

All spills of bodily fluid must be sprinkled with a medical waste absorbent, swept up, and then mopped with a 10% bleach solution or other disinfectant. Properly dispose of all potentially infectious material swept up.

COMPANYNAME shall ensure that hand washing facilities are readily available at all work locations. Where provision of hand-washing facilities is not feasible, appropriate alternative measures will be provided such as an antiseptic hand cleanser with clean cloth cloths or paper towels, or antiseptic towelettes.

### **20.5.3 Contaminated Equipment or Materials**

In order to prevent occupational exposure to blood or other potentially infectious material, all equipment or material that comes into contact with pathogens shall be decontaminated. Contaminated equipment or other contaminated items are not to be placed or stored in areas where food is kept, and decontamination should be accomplished as soon as possible. Decontamination is not to take place in any area where food or drink is consumed. Cloths used to wipe contaminated equipment can be discarded as refuse unless they would somehow become contaminated to the extent that they would be considered regulated waste. A biohazard label is to be attached to any large contaminated equipment and is to state which portions are or remain contaminated. For smaller pieces of equipment, the biohazard label should be attached as above, and the piece of equipment should be placed in a bag prior to shipping.

Examples of Contaminated Equipment or Material:

- Objects that may have been bled upon
- Bandages or gauze
- Equipment used during first aid

All specimens of potentially biohazardous material, contaminated objects that cannot be properly decontaminated, cleanup materials, or other contaminated items shall be placed in a container which prevents leakage during collection, handling, processing, storage, transport, or shipping.

### **20.5.4 Personal Protective Equipment**

Although employees are expected to avoid the handling of blood or other potentially infectious materials as well as contact with surfaces or items contaminated with such materials during the course of first aid administration, it is likely that the employee shall be exposed to blood. Therefore, personal protective equipment such as gloves shall be provided in the first aid kit. These gloves are not to be washed or decontaminated for reuse. Special care must be taken to avoid touching the potentially contaminated surface of disposable gloves.

First Aid Responders should have available disposable resuscitation masks and disposable gloves. Such equipment is to be used for the employee's protection in cases where the employee is expected to provide ventilator assistance. Decontaminant shall also be available to all employees to decontaminate equipment.

### **20.5.5 Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up**

This company offers the hepatitis B vaccine and vaccination series to personnel with duties that may require the employee to come in contact with blood (i.e. first aid administration). This company also offers post-exposure evaluation and follow-up after an exposure incident to any employee who suffers an exposure incident while performing duties on the job. All medical evaluations and procedures are to be made available at no cost to employees, at a reasonable time and place.

- Hepatitis B Vaccination is available to employees at any Public Health Service facility where physical examinations are performed. All employees whose job duties involve occupational exposure are to be offered the hepatitis B vaccination. The vaccine will be made available after receiving training regarding blood borne pathogens and within 10 days of initial assignment of the employee to duties with occupational exposure. Personnel, even after training, may decline to receive the hepatitis B vaccine. In such case, the declining employee is to sign the declination statement. The employee can receive the vaccine after signing the declination statement if a change of mind occurs and if duties still involve those with occupational exposure. Management will assure that each employee scheduled for immunization at a Public Health Service facility is provided with the written opinion sample format in this chapter's appendix. These materials are to be taken by the employee to the evaluating physician for completion. The written opinion should be returned to the Office where the employee is assigned. A copy of medical records related to hepatitis B vaccination should be obtained by the employee or first aid provider before departing the facility where vaccination takes place. The employee should insert this copy of such records. Should an exposure incident occur, Appendix D, including the hepatitis B related records, serves as the Materials for the Evaluating Physician and is to be given to the evaluating physician.
- Post-exposure Evaluation and Follow-up Management shall instruct the employee to seek medical attention in the same manner that it would be sought should any injury occur. In the event of an exposure incident (as defined in 29 CFR 1910.1030),
- The employee is to immediately wash any skin with soap and water and flush mucous membranes with water when such areas have had contact with blood or other potentially infectious materials.
- The employee should then seek medical attention. It must be realized that any exposure incident is an event for which immediate attention must be sought, as the effectiveness of cleaning and decontamination depends on the immediacy of its delivery.
- In addition, the employee who has had an exposure incident is to report such incident to his or her supervisor as soon as possible.
- Information provided to the Evaluating Physician post-exposure evaluation and follow-up are to be provided to the employee consistent with the OSHA requirements of 29 CFR 1910.1030. Therefore, upon presenting for evaluation, the employee will give to the physician the Materials for the Evaluating Physician (Appendix C of this Plan for Hepatitis B vaccination, Appendix D of this Plan for Evaluation following Exposure Incident). The instructions for the physician describe the requirements of 29 CFR 1910.1030 and instruct the physician to give the physician's written opinion to the employee to return to the company. The evaluation results will become a part of the employee's confidential medical records. Records regarding any exposure incidents of personnel will be maintained in a confidential manner.

### **20.5.6 Communication of Hazards to Employees**

- Labels and Bags Biohazard labels are to be affixed to bags containing any contaminated equipment or material. Bags will be disposed of as ordinary refuse unless in the rare instance when they are contaminated to the extent that they are considered regulated waste as defined by the standard.
- Bags should be located in first aid kits and stocked regularly
- Information and Training Personnel whose job duties involve occupational exposure are to participate in a training program for blood borne pathogens at the time of initial assignment to tasks where occupational exposure occurs. The training program contains all the elements specified in 29 CFR 1910.1030(g) (2).

### **20.5.7 Recordkeeping**

Medical records are to be maintained as part of the medical files of employees. Such records are maintained in accordance with 29 CFR 1910.20 and are kept confidential. Medical records shall be kept for at least the duration of employment plus thirty (30) years.

Training records are to contain all information specified in 29 CFR 1910.1030(h) (2) and will be maintained for at least three (3) years from the date on which the training occurred.

#### **20.5.7.1 Transfer of Records**

COMPANYNAME will comply with the requirements of 29 CFR 1910.20(h) involving any transfer of records. The employee may request and receive a copy of such records when transferring to another assignment or job.

All records that are required to be maintained shall be made available to the employee upon request in accordance with regulations established in OSHA 29 CFR 1910.1010(h), (h)(3)(i), (h)(3)(iii), and (h)(4).

#### **20.5.8 Investigation of Exposure Incidents**

All exposure incidents shall be investigated, and proper accident/incident investigation procedures shall be followed.

### **20.6 Training**

The employer will provide training to each employee who has occupational exposure to bloodborne pathogens. Each employee will be trained on the causes, symptoms, and transmission of bloodborne pathogen diseases.

#### **20.6.1 Initial**

Initial training will be provided to any employee who has occupational exposure to bloodborne pathogens prior his or her initial assignment

#### **20.6.2 Refresher**

All employees in affected jobs will undergo refresher training at least annually or when changes are made such as modifications of tasks or procedures. Refresher training will be conducted no later than one year from previous training.

Refresher training will be administered when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

### **20.7 Reference**

OSHA Standard 29 CFR 1910.1030

### **20.8 Appendix**

- Hepatitis-B Vaccination Declination Statement
- Hepatitis-B Written Medical Opinion
- Instructions for the Evaluating Medical Professional

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**Hepatitis-B Vaccination Declination Statement**

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Employee Name: \_\_\_\_\_

**DECLINATION STATEMENT:**

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_



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**Hepatitis-B Written Medical Opinion**

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**To the Evaluating Physician or Licensed Health Care Professional (PLHCP):**

Thank you for your evaluation of this employee.

After you have determined whether there are contra-indications to vaccination of this employee with Hepatitis B vaccine, please state in the space below only:

(A) if vaccine was indicated; and

(B) if vaccine was administered.

(All other findings are to remain confidential and are not to be included on this page)

Please return this sheet to this employee, \_\_\_\_\_.  
(print employee name here)

☐ Vaccine is indicated

☐ Vaccine was administered

PLHCP Signature: \_\_\_\_\_ ☐ MD ☐ RN ☐ APN ☐ Other \_\_\_\_\_

PLHCP Name (Printed): \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

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**Instructions for the Evaluating Medical Professional**

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This employee may have suffered an exposure incident to a Bloodborne Pathogen. In accordance with the standard's provision for post exposure evaluation and follow up, the employer submits to you for the following evaluations:

- A. A copy of 29 CFR 1910.1030, Occupational Exposure to Bloodborne Pathogens;
- B. A description of the exposed employee's duties as they relate to the exposure incident;
- C. Documentation of the routes of exposure and circumstances under which exposure occurred;
- D. Results of the source individual's blood testing, if available; and
- E. All medical records relevant to this employee's appropriate treatment, including vaccination status.

**After completing the evaluation, please:**

- A. Inform the employee regarding the evaluation results and any follow up needed;
- B. Complete the attached written opinion form and give it to the employee.  
(This form will be maintained in the office to which the employee is assigned); and
- C. Send a copy of all evaluation results and records to:

U.S. Department of Labor - OSHA Office of Occupational Medicine Room N3653  
200 Constitution Avenue, NW  
Washington, DC 20210  
CONFIDENTIAL: MEDICAL RECORDS

These copies will be maintained as part of the employee's confidential medical record in OSHA's Office of Occupational Medicine Medical Records Section.

Should you have any questions regarding the evaluations or medical records, please contact OSHA's Office of Occupational Medicine at (202) 219-5003.

Date exposure incident occurred: \_\_\_\_\_

Describe the circumstances under which the exposure incident occurred (what happened that resulted in the incident)

\_\_\_\_\_  
\_\_\_\_\_

What body fluid(s) were you exposed to? \_\_\_\_\_

What was the route of exposure (e.g., mucosal contact, contact with non-intact skin, percutaneous)?

\_\_\_\_\_

Describe any personal protective equipment in use at time of exposure incident: \_\_\_\_\_

\_\_\_\_\_

Did PPE fail? \_\_\_\_\_ If yes, how? \_\_\_\_\_

\_\_\_\_\_

Identification of source individual(s) (names): \_\_\_\_\_

\_\_\_\_\_

Other pertinent information: \_\_\_\_\_

\_\_\_\_\_

## **Chapter 21 Infectious Disease Control Program**

### **21.1 Purpose, Scope, and Policy**

#### **21.1.1 Purpose**

COMPANYNAME has established this program to provide guidance in the protection of our employees during exposure to an infectious disease event.

It is the goal of COMPANYNAME during an infectious disease event to operate effectively and ensure all essential services are continuously provided while keeping employees safe within the workplace.

COMPANYNAME is committed to providing information from authoritative sources about the nature and spread of infectious diseases, including informing of signs and symptoms as well as required steps to follow in the event of an infectious disease outbreak.

This program is NOT a disease-specific Exposure Control Plan. This program provides general direction to begin protecting the workplace against an infectious disease outbreak. A disease-specific Exposure Control Plan must be established to protect workers against specific hazards and identify specific control measures for implementation.

This document has been developed in accordance with CDC and OSHA guidelines to keep employees safe and must be updated by the user as guidelines and recommendations change.

#### **21.1.2 Scope**

This program applies to all employees and all operations during an epidemic or pandemic infectious disease event identified by federal, state, and local authorities requiring extraordinary measures for containment and mitigation.

#### **21.1.3 Policy**

COMPANYNAME will take proactive steps and define measures for implementation in an effort to protect the workplace in the event of an infectious disease outbreak.

### **21.2 Roles & Responsibilities**

#### **21.2.1 Employer Responsibilities**

Management shall provide continually updated information from recognized sources such as the Centers for Disease Control and Prevention (CDC), the Occupational Safety and Health Administration (OSHA), the Department of Labor (DOL), and others as applicable to the specific event. These sources should be accessed regularly to identify and comply with any required posting or informational requirements.

COMPANYNAME will provide employees with information, education, training, personal protective equipment, and control measures to reduce employee exposure to an infectious disease as much as reasonably achievable.

##### **21.2.1.1 Internal Communications**

COMPANYNAME will provide employees with information, education, training, personal protective equipment, and control measures to reduce employee exposure to an infectious disease as much as reasonably achievable.

##### **21.2.1.2 External Communications**

COMPANYNAME will provide clients, vendors, visitors, and other outside stakeholders with information, education, training, personal protective equipment, and control measures to reduce exposure to an infectious disease as much as reasonably achievable.

### **21.2.2 Employee Responsibilities**

Employees are responsible for following safety precautions and policies set forth by management and will attend all safety training as outlined in this program.

Employees shall follow all established company policies related to reducing exposure to and spread of a potential infectious disease. Employees who are infected or exposed, or suspect they are infected or have been exposed must inform their supervisor immediately upon recognizing the potential infection or exposure.

### **21.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>viii</sup>

### **21.4 Program Elements**

The following elements are addressed in this program:

- Monitoring guidance from federal, state, and local agencies
- Evaluating the risk of exposure at the workplace
- Developing contingency plans
- Implementing basic infection control measures
- Developing policies and procedures for reducing spread of infection
- Implementing hazard control measures
- Training

### **21.5 Hazards**

Infectious diseases may spread at different rates and have different effects on individuals. The same infectious disease may show no signs or symptoms on one individual and be fatal to another. Some diseases are easily spread, others have a low rate of infection. There are different routes of exposure as well; some diseases are airborne and can be caught by breathing in the germs, others require ingestion or skin contact.

Regardless of the likelihood of infection and rate of spread, infectious diseases can have a toll on both the infected individual and their family.

### **21.6 Hazard Control Measures**

The following measures must be implemented to reduce and/or eliminate the dangers associated with an infectious disease epidemic or pandemic event. This program will be reevaluated on an on-going basis to ensure all applicable requirements can effectively and consistently be implemented. CDC requirements should be covered in each daily safety briefing prior to the start of the shift. These topics should include social-distancing, hand-sanitizing, identifying symptoms of the disease, and the items identified for site-specific plans.

#### **21.6.1 Recognizing Signs and Symptoms**

Signs and symptoms of infection vary depending on the infectious disease. The CDC website at [www.cdc.gov](http://www.cdc.gov) should be visited daily to ensure the most recent information and updates are available. As information and recommendations change, update any information bulletins, procedures, policies, or guidelines to reflect the change(s).

The following signs and symptoms are indicative of a serious infection. **Immediate Medical Attention** should be requested for anyone experiencing these signs and symptoms:

- Difficulty breathing or shortness of breath in severe cases
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face due to breathing difficulty

**Call emergency medical services (911) for any medical emergency:** When calling, notify the operator that the emergency may be related to an infectious disease. Have the patient don a facemask or face covering before medical help arrives.

Some signs and symptoms related to infectious disease can include (but are not limited to):

- Fever
- Cough
- Sore throat
- Runny or stuffy nose
- Body aches
- Headache
- Chills
- Nausea and/or vomiting
- Fatigue

### 21.6.2 Monitoring Guidance

Information pertaining to any current epidemic or pandemic infectious disease event can be obtained from the following federal sources:

- Centers for Disease Control and Prevention (CDC) – [www.cdc.gov](http://www.cdc.gov)
- Occupational Safety and Health Administration (OSHA) – [www.osha.gov](http://www.osha.gov)
- U.S. Department of Labor (DOL) – [www.dol.gov](http://www.dol.gov)
- National Institutes of Health (NIH) – [www.nih.gov](http://www.nih.gov)
- U.S. Department of Health & Human Services (HHS) – [www.hhs.gov](http://www.hhs.gov)

Local and state requirements are region specific and may be more stringent than those implemented by federal authorities. State and local agencies should be consulted for information, recommendations, and requirements beyond those established by the federal government.

### 21.6.3 Evaluating Risk of Exposure

An evaluation of the risk of exposure must be conducted in order to develop contingency plans to address:

- Likelihood of exposure/infection due to interaction with:
  - The general public
  - Persons known or suspected to be infected
- Increased absenteeism
- Worker susceptibility to the disease
- Non-occupation risk factors at home and in community settings
- Conducting operations with reduced workforce
- Interrupted supply chains

Most workplace operations present a low risk of exposure to an infectious disease with the greatest exposure risk coming from an infected employee or a visitor bringing the disease to work.

Regardless of the outcome of the risk evaluation, any protective measures established must follow all established federal, state, and local recommendations and requirements.

### 21.6.4 Exposure Control Plan

COMPANYNAME will develop and implement an infectious disease-specific Exposure Control Plan that identifies the disease, the risks of exposure, and the specific control measures to be implemented to reduce the risk of exposure and spread of infection to the work force.

COMPANYNAME is committed to providing authoritative information about the nature and spread of infectious disease including symptoms and signs to watch for, as well as required steps to follow in the event of an infectious disease outbreak.

When developing an exposure control plan the following considerations must be addressed.

- Signs and Symptoms of infection
- Action Steps
- Limiting the Spread of Infection in the Workplace
- Reducing Transmission Among Employees
- Protecting Employees with Personal Protective Equipment
- Supervision of Protective Measures
- Evaluation of Employee Health Status
- Implementing Hazard Control Measures
- Suspected or Confirmed Infection
- Sanitizing the Work Area After Possible Exposure
- Medical Information
- Recordkeeping
- Training

### **21.6.5 Infection Control Measures**

The following control measures may be established to reduce and control the risk of infection:

- General housekeeping
- Hygiene – best practices
- Social distancing
- Personal Protective Equipment
- Flexible work policies

#### **21.6.5.1 Action Steps**

##### **21.6.5.1.1 Staying Home When Ill**

Many times, with the best of intentions, employees report to work even though they feel ill. During an infectious disease outbreak however, it is critical that employees not report to work while they are ill and/or experiencing signs and symptoms of infection.

Stay-at-home instructions should be developed taking federal, state, and local recommendations under consideration. Instructions should be tailored to the specific disease as a single approach for all exposures may not be the most effective method of reducing exposure or the spread of the disease. The Exposure Control Plan should address and identify stay-at-home contingencies for the duration of the epidemic or pandemic event.

Currently, the Centers for Disease Control and Prevention (CDC) recommends people with an infectious illness such as the flu remain home until at least twenty-four (24) hours after they are free of fever (100° F or 37.8° C or above) or signs of a fever without the use of fever-reducing medications. Employees who report to work ill will be sent home in accordance with these health guidelines. Infected employees are required to stay home except to get medical care.

**Call emergency medical services (911) for any medical emergency:** When calling, notify the operator that the emergency may be related to an infectious disease. Have the patient don a facemask or face covering before medical help arrives.

#### 21.6.5.1.2 Seeking Medical Attention

**If you are having trouble breathing, seek medical attention immediately, but call first.**

- Call your doctor or emergency room and inform them of your symptoms before going in. They will advise you of recommended actions.
- **Wear a facemask:** If available, put on a facemask before coming in contact with medical personnel including emergency medical technicians and ambulance personnel. If a facemask is not available don another face covering such as a bandana or scarf that can control the spread of fluids when coughing.
- If you cannot put on a facemask or face covering, cover your coughs and sneezes and maintain established social distance from others. This can help protect the people in the office or waiting room.
- **Follow care instructions from your healthcare provider and local health department:** Your local health authorities may give instructions on checking your symptoms and reporting information.

#### 21.6.5.1.3 Home Isolation

In some cases, the medical care provider may recommend staying at home until signs and symptoms have passed.

In all cases, **follow the guidance of your healthcare provider and local health department.** The decision to stop home isolation should be made in consultation with your healthcare provider and with state and local health departments. Local decisions depend on local circumstances.

Home isolation may be discontinued only under the guidance of your health care provider or parameters established by federal, state, and local health agencies.

#### 21.6.5.1.4 Caregivers

The following recommendations apply to those who are exposed to an infected person. These steps can reduce the risk of acquiring the disease or spreading it to others.

Those who are caring for others who are ill or may be infected should take all reasonable measures to protect themselves from exposure and infection. Whenever possible the ill person should wear a mask to reduce the spread of droplets or disease.

If the ill person is unable to wear a facemask (for example, because it causes trouble breathing), then the caregiver should wear a facemask when in the same room with them.

When leaving the room, wash hands with soap and water for at least twenty (20) seconds. Then remove the facemask and use a hand sanitizer having at least 60% alcohol content to sanitize the hands.

If you are feeling ill but are not experiencing signs or symptoms of infection call ahead before visiting your doctor.

- **Call ahead:**
  - During an outbreak medical visits for routine care may be postponed or done by phone or tele-medicine.

- If a medical appointment cannot be postponed call your doctor's office and tell them you have been or may have been exposed. This will help the office protect themselves and other patients.
- **Wear a facemask:** If available, put on a facemask before you enter the building. If a facemask is not available don another face covering such as a bandana or scarf that can control the spread of fluids when coughing.

**Note:** During a public health emergency, facemasks may be reserved for healthcare workers.

### 21.6.5.2 General Housekeeping

COMPANYNAME will ensure a clean workplace, including the regular cleaning of objects and areas which are frequently used, such as break rooms, conference rooms, door handles, etc. We require all employees to cooperate in taking steps to reduce the transmission of infectious disease in the workplace. The best strategy remains the most obvious—frequent hand washing with warm, soapy water; covering your mouth whenever you sneeze or cough; and discarding used tissues in wastebaskets.

In the event large numbers of employees become ill additional cleaning and sanitizing may be required. Consult with your local Public Health Department to identify response and reporting requirements for multiple cases of infection conformed by laboratory testing.

Alcohol-based hand sanitizers, anti-bacterial wipes and disinfectant spray will be made available in designated locations, but not limited to the break rooms and common areas in the workplace.

### 21.6.5.3 Limiting the Spread of Infection

Personal protective equipment (PPE) will be provided such as gloves, goggles, face shields and face masks as appropriate for the activity being performed.

Social distancing or physical distancing measures may be implemented based on recommendations and guidance from federal, state, and local authorities having jurisdiction.

Unless otherwise notified, normal attendance and leave policies will remain in place.

Employees may face challenges in reporting to work during an infectious disease outbreak. Affected employees should take steps to develop any necessary contingency plans. For example, employees may need to plan for alternative sources of family care or transportation, and/or speak with supervisors about the potential to work from home temporarily or on an alternative work schedule.

#### 21.6.5.3.1 Evaluating Employee Health Status

Prior to starting work each day, a daily safety briefing should be conducted to review updated information relating to the status of the epidemic/pandemic emergency, and updated requirements and recommendations for treatment and disease spread control.

Worker health status should be established. A questionnaire should be established to determine whether workers:

- Are experiencing signs or symptoms indicating an infection
- Have been in direct contact with someone known to be infected
- Have returned from travel to an area considered to have widespread concern for the infectious disease according to the CDC
- Other questions specific to the disease that may assist in identifying the health status of the worker.



Most persons infected with an infectious disease present with elevated body temperature or fever. Consider also conducting temperature checks to ensure worker's body temperature is within normal limits (typically between 97°F [36.1°C] and 99°F [37.2°C]).

An elevated temperature (temperature above 100.4° F [38° C]) may be an indication of infection and may warrant additional assessment including clearance from a medical professional to report to work.

**Reminder:** A normal temperature reading is not a confirmation that the subject is disease free, only that they are not currently experiencing fever. An infected person may be symptom free and still be a carrier/spreader of the disease. Report elevated temperature to your supervisor.

The CDC requirements must be covered in each daily safety briefing prior to the start of the shift. These topics should include social-distancing, hand-sanitizing, identifying signs and symptoms of the infectious disease and other items identified for site-specific plans.

#### **21.6.5.3.2 Social Distancing**

COMPANYNAME may implement the social distancing guidelines found at the end of this program to minimize the spread of the disease in the workplace. Determination of implementation and specific guidelines will be made in accordance with CDC Guidance and federal, state, and local requirements. If implemented, the guidelines will remain in effect until rescinded by COMPANYNAME.

The purpose of social distancing is to reduce exposure to employees and others as much as possible to reduce the likelihood of disease transmission. Therefore every feasible effort must be made to keep close contact to a minimum. As much as feasible, worker positioning will be staggered as necessary to reduce density and maintain minimum social distance separation between employees.

Where social distancing is infeasible, worker proximity restrictions must be maintained as much as possible and a Job Hazard Analysis and PPE Hazard Assessment must be performed by a qualified person to identify associated hazards, alternative control measures, and PPE requirements to prevent transmission of the disease. Any alternative measures and PPE choices implemented must be at least as effective in preventing the transmission of disease as those established by federal, state, and local requirements or guidance.

When employees are required to work closely together, masks, or other acceptable face coverings as recommended by CDC, federal, state, or local requirements must be worn. In all instances however, requirements set forth by federal, state, or local authorities having jurisdiction must be followed.

'Choke points' and areas where high worker density is likely shall be identified and communicated to all employees. Communication can be accomplished through training or posting of signage in these areas reminding workers of the social distancing requirements. Areas of limited capacity should be identified with an occupancy limit, and occupancy monitored and enforced. Examples of high-risk areas include elevator lobbies, elevators and hoists, stairways, hallways, break areas, and other areas of limited space and high traffic.

#### **21.6.5.3.3 Security and Access**

It is critical that potential exposures and sources of exposure are identified in order to control the spread of disease and to inform all employees, vendors, and visitors of possible exposure to the infectious disease in the workplace.

In order to maintain accountability and tracking of persons possibly exposed or sources of exposure, COMPANYNAME requires all persons visiting the workplace to sign in on the Daily Attendance Log.

#### **21.6.5.3.4 Visitors**

A metered approach should be implemented to limit contact with outside visitors and vendors. In order to maintain business operations it may not be advisable to implement a blanket ban on visitors, vendors, suppliers, contractors, or workers from outside the organization.

A policy should be established that identifies the purpose and necessity of the visit. If your business is authorized to remain in operation, then support services should be prioritized for access over non-essential activities such as a scheduled visit with a prospective client or sales representative.

Service technicians may need access to perform service, maintenance, or repairs on a piece of equipment necessary for operation. Delivery personnel may need to drop off materials and pick up products. Other support personnel may include safety support services, inspectors, emergency services personnel, and other services that maintain and support essential operations.

Activities not related to business operations such as social visits or a group tour should be deferred until the epidemic/pandemic event has ended.

Visitors deemed essential to the performance of safe and efficient work activities should be granted access.

A visitor access authorization form is provided at the end of this document to assist in determining access priority and authorization.

In all cases, visitors must be informed of and comply with the established control measures including PPE usage and social distancing guidelines for the prevention of disease spread.

#### **21.6.5.3.5 Meetings and Travel**

All nonessential travel should be avoided. Employees who travel as an essential part of their job should consult with management on appropriate actions. Employees should avoid crowded areas and maintain social distancing when using public transportation.

##### **21.6.5.3.5.1 Telecommuting**

One method of limiting travel is to work remotely when possible. Telework requests will be handled on a case-by-case basis. While not all positions will be eligible, all requests for temporary telecommuting should be submitted to your manager for consideration. This approach is subject to change and may be modified to align with federal, state, and/or local guidance and proclamations.

##### **21.6.5.3.5.2 Food Handling**

Handle food carefully:

- Wash hands before eating food
- Limit food sharing
- Prepare meals at home for consumption
- Eat separately and maintain social distancing from others rather than congregating in groups

#### **21.6.6 Reducing Transmission Among Employees**

COMPANYNAME will keep all employees informed as to the latest information available from the CDC and federal, state, and local authorities regarding the use of personal protective equipment, social distancing, good hygiene practices, and other measures to employ specific to the disease.

In order to reduce disease transmission between employees, all employees who show signs and/or symptoms of infection shall immediately inform their supervisor and stay home. If already at work, employees should inform their supervisors whereupon the employee will be immediately separated from others and sent home.

All employees have a responsibility to limit the spread of disease. Continual vigilance should be exercised when monitoring your condition as well as the condition of others. If another worker is observed displaying possible signs or symptoms of infection, the supervisor must be informed so that protective actions can be taken. This is for the health and welfare of the worker showing signs of infection as well as all affected workers in the area.

Employees showing signs of infection should follow disease-specific recommendations by the CDC.

Employees who are not showing signs of infection but have an infected family member at home should notify their supervisor and follow disease-specific CDC recommendations.

If an employee is confirmed to be infected, employers should inform employees of the possible exposure to the disease in the workplace but maintain confidentiality as required by the Americans with Disabilities Act (ADA). Exposed employees should self-monitor for symptoms.

#### **21.6.6.1 Hygiene**

Hand washing facilities, anti-bacterial soap, antiseptic hand cleansers, towelettes, hand sanitizer, cleansing wipes, and other hygiene products will be provided to employees as recommended by federal, state, and local requirements, guidelines, and recommendations.

Germ transmission is often accomplished through poor personal hygiene practices.

- Avoid touching your face, mouth, nose, or eyes. Unwashed hands or gloves may transfer germs from your hands to your face and from there into your mouth, nose, or eyes eventually leading to infection. If you are infected, even unknowingly, you could be transferring your germs to commonly touched surfaces leading to the infection of others.
- Cover all coughs and sneezes using a tissue, if available, or the inside of your elbow rather than your hand. Properly discard all used tissues upon use, do not save them for later use or leave them laying around. Doing so can increase risk to others.
- Avoid phone to face contact to prevent germ transfer.
- Increase ventilation by opening windows or adjusting air conditioning

#### **21.6.6.2 Hand Sanitation**

Practicing hand hygiene is a simple yet effective way to prevent infections. Cleaning your hands can prevent the spread of germs, including those that are resistant to antibiotics and are becoming difficult, if not impossible, to treat.

- Wash your hands frequently with soap and water for at least twenty (20) seconds. This is especially important after blowing your nose, coughing or sneezing, using the restroom, and before eating or preparing food.
- If soap and water are not available, use an alcohol-based hand sanitizer having at least 60% alcohol content, covering all surfaces of your hands and rubbing them together until they feel dry.
- Avoid touching your eyes, nose, and mouth with unwashed hands.

#### **21.6.6.3 Cross-contamination**

Do not share dishes, cups, eating utensils, towels, food, or other objects that may have come in contact with the mouth and/or nose. For any commonly used appliances, wash them thoroughly with soap and water before restoring them for use.

Surfaces and objects that are commonly touched by others such as, telephones, guard and handrails, machines and machine controls, shared tools and equipment, hand tools, elevator control buttons, tabletops, doorknobs, light switches, countertops, desks, keyboards, toilets, faucets, sinks, handles, towels,

dispensers, and other items should be frequently sanitized with approved sanitizing products such as alcohol-based hand sanitizers, anti-bacterial wipes, and disinfectant spray.

Assign designated personnel to wipe down these and other identified commonly touched surfaces at the end of the day prior to leaving the facility/premises.

### **21.6.7 Personal Protective Equipment**

Personal Protective Equipment (PPE) can be an effective method of reducing risk of exposure to infectious disease. Depending on the type of disease exposure and the type of work being performed this may include the use of disposable medical or chemical protective gloves, splash shields, protective eyewear or goggles, and respirator masks.

COMPANYNAME will follow recommendations established by governmental guidance when requiring PPE use. Where guidelines are limited or lacking COMPANYNAME will perform a PPE Hazard Assessment to identify whether PPE is needed and what type will be used.

COMPANYNAME will refer to the latest information from the CDC and from federal, state, and local guidelines and instructions for proper PPE selection and usage. State and local recommendations may also apply, and applicable health services should be consulted for more information. In all instances however, requirements set forth by federal, state, or local authorities having jurisdiction must be followed.

When employees are required to work in close proximity, masks or other acceptable face coverings as recommended by CDC, or federal, state, and local guidance must be worn.

Personal protective equipment (PPE) identified as necessary either by federal, state, or local requirements, or through Job Hazard Analysis and PPE Hazard Assessment for protection against disease exposure will be provided as appropriate for the activity being performed.

When requiring the use of PPE in the workplace employers bear certain responsibilities including (but not limited to):

- PPE hazard assessment
- PPE selection
- Employee training:
  - Selection of appropriate PPE
  - Use and care of PPE
  - Maintenance and storage of PPE.

If PPE recommendations established by governmental guidance prevent work operations or make work operations infeasible, an assessment must be made to identify alternative measures. A Job Hazard Analysis and a PPE Hazard Assessment must be performed to identify associated hazards, alternative control measures, and PPE requirements to prevent transmission of the disease. Any alternative measures and PPE choices implemented must be at least as effective in preventing the transmission of disease as those established by federal, state, and local guidance.

If alternative measures cannot be established, or do not provide an effective level of protection, it may be necessary to cease those operations until the emergency is over. For example, the alternative measure selected exposes employees to another risk, or necessary equipment (such as recommended masks) is not available.

#### **21.6.7.1 Respirators**

Respirator use can cause medical distress in some workers and when required, respiratory protection program requirements apply. A written respiratory protection program must be implemented, and medical

surveillance must be made available to all employees who are required to wear a respirator. Other requirements include the employer providing respirators, medical surveillance, training, and fit testing prior to permitting employees to use the respirator.

When required, an engineered respirator mask recognized to be effective against exposure should be used. Respirators may range from an N95-rated respirator mask to cartridge filter face masks to supplied air respirators and self-contained breathing apparatus. An N95-rated respirator is typical but always refer to federal, state, and local guidance when selecting PPE for breathing protection. When using N95-rated respirators, medical respirators are best and are available from medical supply sources. If an N95-rated medical mask is not available, then another N95-rated mask can be used. These masks can be acquired from business and home-supply stores, hardware stores, or online.

If an N95-rated mask is not available, then COMPANYNAME will provide alternative options designed to protect against fluid exposure following recommendations established by recognized agencies such as the CDC.

#### **21.6.7.1.1 Voluntary Use of Respirator Masks**

When used voluntarily, workers should be advised that if they experience any medical distress while wearing a respirator, they should discontinue use and seek medical attention before resuming respirator use.

Workers allowed to wear a respirator mask voluntarily must be provided with a copy of Appendix D of OSHA's Respiratory Protection Standard. This document advises of certain precautions you should take when wearing a respirator voluntarily.

Appendix D advises workers to:

- read and follow the manufacturer's instructions provided with the respirator;
- choose respirators that have been certified by NIOSH for protection against the contaminant of concern;
- keep track of your respirator so that you do not use someone else's respirator by mistake; and
- not to wear your respirator in areas with contaminants that the respirator is not designed to protect against.

When permitting voluntary use of respirator masks, employers must establish and implement those elements of a written respiratory protection program necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is properly cleaned, stored, and maintained.

**Exception:** Employers are not required to include in a written respiratory protection program, those employees whose only use of respirators involves the voluntary use of filtering facepieces (dust masks).

#### **21.6.7.2 Improvised Face Coverings**

In some cases the CDC has recommended the use of improvised face coverings to reduce droplet spread for the protection of others from disease exposure when social distancing cannot be maintained. Improvised face coverings may be self-manufactured masks using common materials, scarfs or bandanas, or other masks such as winter facemasks or balaclavas. Wearing a face covering over your mouth and nose may reduce your exposure as well as reduce exposure to others to any droplets you may expel.

**NOTE:** Follow all federal, state, and local guidance as it pertains to the use of face coverings.

When respirators or surgical masks are not available then improvised face coverings may be considered. The CDC has advised the use of simple cloth face coverings to slow the spread of infection by providing a barrier against outside exposure and containing any droplets expelled by the infected person.

Improvised face coverings should fit snugly but comfortably against the sides of the face and be secured with ties or ear loops. They should be made with multiple layers of fabric and allow for breathing without restriction. Face coverings should be able to be laundered and machine dried without damage or change to the shape of the mask.

The use of respirators, masks, or face coverings may introduce other hazards into the workplace. Barrier device usage may lead to:

- **Obstructed vision** – face masks may obstruct vision or “fog up” safety glasses or glasses. If an employee is unable to resolve vision obstructions, especially for machine and equipment operation or driving activities, the face masks may create a greater hazard and should not be used.
- **Caught-in / entanglement hazards** – loose fitting barriers and/or their ties could become caught in moving machine parts. Extra care should be exercised to ensure the barrier device used is secure from entanglement.
- **Disease vector / respiratory hazards** – barrier devices (respirators, masks, face coverings) may become a growth environment for viruses and other pathogens.
  - Employees must be trained to safely remove the barrier device without touching their eyes, nose, or mouth, and wash their hands and face after use.
  - Barrier devices should be frequently cleaned or replaced to reduce contamination accumulation.
- **Asphyxiation hazards** – homemade face coverings or barrier devices that are not cleaned or replaced frequently may excessively limit an employee's breathing. This restriction can place stress on the cardio-pulmonary system of the body. Employees with underlying respiratory or cardiac health conditions may be particularly susceptible to this hazard.
- **False sense of security** – employees may presume that they cannot spread or contract an infectious disease while wearing a face mask. For example, the use of improvised face coverings is not intended to protect the wearer from exposure to infectious material but rather to keep the wearer from spreading the droplets further.

The CDC has provided additional information on improvised face coverings at their website: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>

### 21.6.7.3 Barrier Device Usage

Barrier devices include respirators, masks, and improvised face coverings.

- If using a respirator or mask, read and follow the manufacturer provided directions for use.
- Wash your hands before donning and after removing the barrier device.
- Don the barrier device properly ensuring it completely covers your mouth and nose. Adjust it as necessary throughout the day without touching your face, mouth, or nose.
- Secure any ties or loose material and keep the barrier device away from running machinery or equipment to prevent entanglement.
- Don't allow the barrier device to obstruct your vision or wear it if it causes your safety glasses or reading glasses to fog up and impair your vision. Adjustment or a different barrier device may be needed.
- After removing the barrier device clean and store it properly in a clean and dry location and wash your face. Do not lay the barrier device on any surface where it may contaminate or be contaminated.

- If the barrier device adversely affects your ability to breathe replace it. A different barrier device may be needed. If the problem persists, seek medical attention.
- When contaminated or unsanitary, replace or clean the device according to manufacturer recommendations.
- Don't use the barrier device if it is damaged; replace the barrier device and dispose of it at the workplace, do not bring it home.

### 21.6.8 Supervision of Protective Measures

COMPANYNAME will designate a site-specific Infectious Disease Supervisor to enforce this guidance. The designated Infectious Disease Supervisor will be present at all times during work activities and may be any authorized worker designated to carry this role. The Infectious Disease Supervisor has Stop-Work Authority and may exercise that authority for the purpose of correcting any disease control exposures before allowing work to resume.

The designated Infectious Disease Supervisor will be responsible for ensuring the following guidelines in this policy are in compliance at all times:

- ☐ **Social Distancing** – If social distancing protocols are implemented, social distancing will be maintained as recommended by the CDC and federal, state, and local authorities.
- ☐ **Health Status** – During the safety briefing confirm that no one present is ill, displaying signs of being ill, or believed to have come in contact with someone that has tested positive for an infectious disease.
- ☐ **Workplace Cleanliness** – Ensure that work areas are clean and sanitized.

Workplace postings and guidelines identifying required hygienic practices including the Social Distancing Guidelines and Infectious Disease Workplace Mitigation Guidelines listed in the appendices below shall be posted in areas visible to all workers. Check CDC, OSHA, and Department of Labor (DOL) websites for any established posting requirements.

### 21.6.9 Employee Reporting of Confirmed Exposure

If an employee of COMPANYNAME tests positive for infection to the disease, has been exposed to a known case of the disease, has traveled to or through a country the CDC has recommended not visiting, or they have been in contact with someone from another contractor or supplier who thinks they may be infected, **they will follow current CDC Guidelines for isolation.**

COMPANYNAME will report this potential exposure to any site contact and other trades that may have been in contact with the employee.

### 21.6.10 Suspected or Confirmed Infection

In the event an employee at work reports they believe they are experiencing symptoms of infection the following steps should be taken.

- Provide the employee with a mask or face covering to contain droplet spread due to coughing or sneezing.
- Keep employees assisting the infected worker to a minimum. Assisting employees should wear masks, medical gloves, and other PPE as indicated to protect from exposure.
- Maintaining social distancing relocate the employee to a safe area away from others for evaluation.
- Evaluate the employee to determine whether emergency services are needed. If emergency services are required, inform emergency dispatch of the possibility of disease infection.
- Make note of employee information, date, time of day, and area where the worker was working.

- Once information is obtained and it is determined that emergency services are not needed the employee may be released from work with instructions to seek medical advice and treatment as well as clearance to return to work once recovered.
- Inform all affected workers in the area and advise them to seek medical attention for guidance and testing.
- Stop work in the affected area and isolate the area for cleaning and sanitization. Follow CDC guidelines and label instructions when performing sanitizing measures.

### **21.6.11 Sanitizing the Affected Area**

In the event a worker has been confirmed to be infected, the work area may need to be sanitized to prevent spread of the disease.

Follow established CDC disease-specific guidelines for sanitizing the work areas affected by the infected worker.

Cleaning staff or an outside cleaning service should clean and disinfect all common areas that may have been used by the infected person including offices, restrooms, shared electronic equipment such as phones, keyboards and computer controls, tablets, touch screens, and remote controls, etc. focusing on frequently touched surfaces.

Controls, surfaces, tools, equipment, and other items known to or likely to have been used by the infected person should receive special attention.

Dirty surfaces should be cleaned with soap and water prior to disinfection.

### **21.6.12 Vaccination**

COMPANYNAME encourages all employees to consult with their physician about vaccinations and obtain vaccination as recommended by their medical provider.

### **21.6.13 Medical Information**

#### **21.6.13.1 Requests for Medical Information and/or Documentation**

If you are out sick or show symptoms of being ill, for more than three (3) days, it may become necessary to request information from you and/or your health care provider. In general, we would request medical information to confirm your need to be absent, to show whether and how an absence relates to the infection and to know it is appropriate for you to return to work. As always, we expect and appreciate your cooperation when medical information is sought.

#### **21.6.13.2 Confidentiality of Medical Information**

Our policy is to treat any medical information as a confidential medical record. In furtherance of this policy any disclosure of medical information is in limited circumstances with supervisors, managers, first aid and safety personnel and government officials as required by law.

## **21.7 Recordkeeping**

Under OSHA's recordkeeping requirements, a work-related infection to an infectious disease may be a recordable illness, and employers may be responsible for recording cases of work-related illness, if:

- The case is confirmed as a work-related illness; and
- There is objective evidence that an event or exposure in the work environment either caused or contributed to the infection; and



- The evidence was reasonably available to the employer; and
- The case involves one or more of the general recording criteria in 29 CFR 1904.7, such as medical treatment beyond first aid or days away from work.

Where the determination is made that the illness is work-related and the case results in a fatality or hospitalization for treatment, the illness must be reported to OSHA using one of the following reporting methods:

- Online at: <https://www.osha.gov/pls/ser/serform.html>
- Calling OSHA's free and confidential number at 1-800-321-OSHA (6742).
- Calling your closest Area Office during normal business hours.

For more specific guidance refer to applicable OSHA standards and guidelines relating to the infectious disease.

## **21.8 Program Review**

The Infectious Disease Control Program shall be periodically reviewed and tested to ensure relevance and effectiveness. Obtain most recent guidance and recommendations from federal, state, and local health care agencies.

The plan shall be continuously reviewed and evaluated while it is in implementation. Revisions to the plan must be documented for consideration for future plans.

### **21.8.1 Post Pandemic Review**

Following a pandemic event, the plan should be reviewed and evaluated to identify shortcomings and gaps that became apparent during the exercise of the plan and be updated to reflect lessons learned. The review should be conducted with the emergency coordinator and/or planning team within thirty (30) days after the pandemic ends.

After the review process has been completed, updates and revisions will be implemented and tested to ensure preparedness for any future outbreaks.

Post pandemic plan review should address the following:

- Review and discussion of lessons learned
- Identifying ways to improve the planning and implementation process
- Assessing the availability of medical, mental health, and social services for workers
- Maintaining and expanding emergency planning team and partnerships
- Update and practice emergency operations and communication plans annually or as changes in the workplace occur that may affect the emergency response plans

## **21.9 Training**

COMPANYNAME understands the importance of providing a safe and healthful working environment. This is done only through the building of a positive culture of safe work practices.

It is understood that this type of culture must be visible from the beginning of a workers' experience with the workplace. Therefore, COMPANYNAME will engage its employees and sub-contractors in training to this program. The safety policies and procedures training serves to familiarize all employees to the workplace, its culture, and its programs and practices as it relates to everyone's safety.

### **21.9.1 Employee Training**

Employees will be trained on the recommendations and requirements implemented in the Infectious Disease Control Program. Special attention should be placed on the Social Distancing Guidelines and

Infectious Disease Workplace Mitigation Guidelines. These are included as separate pages at the end of this program.

Using the Infectious Disease Program Training Checklist, employees will mark off each item as understood once that topic is discussed. If you have any questions or concerns, please discuss them with the COMPANYNAME representative.

Once you have completed the training, sign and date the checklist form and submit the form to the COMPANYNAME representative.

### **21.9.2 Supervisor Training**

Supervisors must receive training informing them of their roles and responsibilities in ensuring the infectious disease program and exposure control plans are followed. Supervisors must be provided with a copy of the infectious disease program and any associated exposure control plans and informed of the company policies and procedures related to reducing the spread of infection in the workplace.

Once the training has been completed, sign and date the Infectious Disease Program Supervisor Training Checklist and submit the form to the COMPANYNAME representative.

### **21.9.3 Retraining**

Retraining shall be provided whenever the infectious disease program is implemented due to an epidemic or pandemic infectious disease declaration.

Refresher training will be administered when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

Retraining shall be designed to reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

### **21.10 Reference**

The Centers for Disease Control and Prevention – [www.cdc.gov](http://www.cdc.gov)

The Occupational Safety and Health Administration – [www.osha.gov](http://www.osha.gov)

### **21.11 Appendix**

- Social Distancing Guidelines
- Infectious Disease Workplace Mitigation Guidelines
- Visitor Access Authorization Form
- Infectious Disease Supervisor Inspection Checklist
- Daily Attendance Log
- COVID-19 Exposure Control Plan

## SOCIAL DISTANCING GUIDELINES

COMPANYNAME has implemented the social distancing guidelines found below to minimize the spread of disease among the staff. Determination of social distancing requirements has been made in accordance with CDC Guidance and federal, state, and local requirements. These guidelines will remain in effect until rescinded by COMPANYNAME.

### Work Activities

During the workday, employees are requested to:

1. Avoid meeting face-to-face. Employees are encouraged to use the telephone, online conferencing, email, or instant messaging to conduct business as much as possible even when participants are in the same building.
2. Preclude gatherings and whenever two or more people must meet, ensure social distance separation. If face-to-face meetings are unavoidable minimize the meeting time, choose a large meeting room, and sit apart from each other as much as is possible. Avoid person-to-person contact such as shaking hands.
3. Avoid any unnecessary travel and cancel or postpone nonessential meetings, gatherings, workshops, and training sessions.
4. Do not congregate in the break room or any other areas where people socialize.
5. Bring your lunch and eat at your desk or away from others (avoid lunchrooms and crowded restaurants).
6. Encourage members and others to request information via phone and e-mail in order to minimize person-to-person contact. Have materials and information ready for fast pick-up or delivery.
7. Using other workers' phones, desks, offices, work tools, and equipment are highly discouraged. If necessary, clean and disinfect them before and after use.
8. Stagger work activity as necessary to reduce density and maintain minimum social distance separation.
9. Anyone with an infected family member at home must inform the Infectious Disease Supervisor.

### Outside Activities

Employees are encouraged to adhere to the following guidelines to the extent possible when engaging in all outside activities:

1. Avoid public transportation (train, bus, taxi) and walk, cycle, or drive your own car. If the use of public transportation is necessary, consider beginning your commute early or late to avoid rush-hour crowding.
2. Avoid recreational or other leisure classes, meetings, activities, etc., where employees might meet people contagious with the infectious disease. When out in public consider covering your mouth and nose with a mask.

### Employee Reporting of Confirmed Exposure

If an employee of COMPANYNAME tests positive for the infectious disease, has been exposed to a known case of the infectious disease, has traveled to or through a country the CDC has recommended not visiting, or they have been in contact with someone from another contractor or supplier who thinks they may be infected with the infectious disease, **they will follow current CDC Guidelines for isolation.**

Following ADA requirements for patient confidentiality, COMPANYNAME will report this potential exposure to any site contact and other trades that may have been in contact with the employee.

**INFECTIOUS DISEASE WORKPLACE MITIGATION GUIDELINES**

COMPANYNAME has implemented the following measures to reduce and/or eliminate the dangers associated with infectious disease. This plan will be reevaluated on an on-going basis to ensure all applicable requirements can effectively and consistently be implemented. CDC requirements will be covered in each daily safety briefing prior to the start of the shift. These topics should include social-distancing, hand-sanitizing, identifying signs and symptoms of the disease, and the items identified for site-specific plans.

**Hygiene – Best practices**

- ☐ Avoid touching face, mouth, nose, or eyes with unwashed hands or with gloves
- ☐ Routinely wash your hands with soap and water for at least twenty (20) seconds. If soap and water are unavailable use a hand sanitizer having at least 60% alcohol content
- ☐ Refrain from shaking hands - use other non-contact methods of greeting
- ☐ Wear gloves appropriate for your job tasks to reduce skin contact exposure
- ☐ Routinely disinfect frequently touched surfaces such as: telephones, guard and handrails, machines and machine controls, shared tools, elevator control buttons, tables, doorknobs, light switches, countertops, desks, keyboards, toilets, faucets, sinks, handles, and hand tools etc.
- ☐ Cover coughs and sneezes using the inside of your elbow rather than your hand
- ☐ Avoid phone to face contact
- ☐ Increase ventilation by opening windows or adjusting air conditioning

**Meetings and Travel**

- ☐ Practice social distancing and maintain minimum established distance from others
- ☐ Use phones or other electronic methods such as video chat to meet rather than engaging in face-to-face conversations
- ☐ Avoid sitting in close proximity to others
- ☐ Use a handkerchief or tissue when coughing, sneezing, or blowing your nose. Then wash your hands with soap and water for at least twenty (20) seconds. If soap and water are unavailable use a hand sanitizer having at least 60% alcohol content
- ☐ Avoid close contact with people who are sick or are displaying signs and/or symptoms of illness
- ☐ Take responsibility for yourself, your work area, and your co-workers as much as achievable
- ☐ Where workers are forced to stand together in 'choke points' and high-risk areas such as in hallways, hoists and elevators, break areas, and buses; they shall maintain social distancing
- ☐ Minimize interactions when picking up or delivering equipment or materials, maintaining social distance separation
- ☐ When social distancing cannot be maintained other mitigation practices should be used i.e., requiring all workers to use face coverings

**Food Handling**

Handle food carefully:

- ☐ Wash hands before eating food
- ☐ Limit food sharing
- ☐ Prepare meals at home for consumption
- ☐ Eat separately and maintain social distancing from others rather than congregating in groups

**Illness**

Stay home if...

- ☐ you are feeling ill
- ☐ you have an ill family member at home

## VISITOR ACCESS AUTHORIZATION FORM

Access to the work area is restricted to essential employees. Essential employees are defined as employees performing duties essential to the safe and efficient performance of operations including (but not limited to) those listed below.

In order to maintain safe and efficient operations, access will be granted to the following persons.

(check all that apply)

<input type="checkbox"/>	Company employees and sub-contractor/vendor employees engaged in activities essential to the performance of operations.
<input type="checkbox"/>	Transport personnel delivering tools, equipment, and materials essential for continued operation including fuel delivery services necessary to keep equipment running.
<input type="checkbox"/>	Transport personnel removing waste, surplus materials, non-essential equipment
Support Personnel Including:	
<input type="checkbox"/>	Technicians performing emergency service, maintenance, or repair essential to resume or maintain continued operation. Equipment service and maintenance not essential at the time of the visit should be deferred until after the epidemic/pandemic event unless doing so would lead to an equipment failure or an unsafe condition.
<input type="checkbox"/>	Consultant services for the purpose of maintaining safe operations including safety program development, site safety surveys, job hazard analysis, PPE hazard assessments, and other services intended to promote and maintain employee safety.
<input type="checkbox"/>	Inspectors requiring access to inspect and approve work prior to proceeding to the next phase of operation. Other inspectors requiring access may include safety inspectors and investigators, health inspectors, building inspectors, etc.
<input type="checkbox"/>	
<input type="checkbox"/>	Training personnel to provide on-site training for new equipment, hazardous work activities, non-routine tasks, etc. necessary for safe production
<input type="checkbox"/>	Utility services such as electric, water, gas, utility locate services, etc. to secure distribution systems for safe operations.
<input type="checkbox"/>	Emergency services personnel.
<input type="checkbox"/>	

Authorization: \_\_\_\_\_ (name) \_\_\_\_\_ (signature)

Date: \_\_\_\_\_ Time: \_\_\_\_\_

### INFECTIOUS DISEASE SUPERVISOR INSPECTION CHECKLIST

This checklist is used to aid in ensuring the health and well-being of all workers and availability of all listed applicable measures, and to identify measures not applicable for implementation. Continually monitor and check the CDC website for current data and changing conditions, recommendations, and requirements.

<b>Name:</b>		<b>Date:</b>	
<b>Company:</b>			

<input type="checkbox"/>	Copies of this Protocol have been distributed to all employees.
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The Social Distancing Protocol must be posted at each public entrance to the facility and at all 'choke points' and high-risk areas such as hallways, elevators, break areas, etc.

**Signage must be posted at each entrance that informs all entrants that they must:**

<input type="checkbox"/>	not enter the facility if they have a cough or fever;
<input type="checkbox"/>	maintain social distance from one another;
<input type="checkbox"/>	sneeze and cough into a cloth or tissue, or if not available, into one's elbow;
<input type="checkbox"/>	not shake hands or engage in any unnecessary physical contact.
<b>Corrective Actions for Deficiencies:</b>	

**Measures to Protect Employee Health (Facility)**

<input type="checkbox"/>	Everyone who can carry out their work duties from home has been directed to do so.
<input type="checkbox"/>	All employees have been told not to come to work if sick.
<input type="checkbox"/>	Symptom checks are being conducted before employees may enter the workspace.
<input type="checkbox"/>	Work activities are separated by established social distance.
<input type="checkbox"/>	Daily attendance log is being maintained.
<input type="checkbox"/>	Break rooms, bathrooms, handles, desks, phones, switches, and other commonly touched surfaces are being disinfected frequently.
<b>Corrective Actions for Deficiencies:</b>	

**The Following Guidelines are Being Followed by All Workers:**

<input type="checkbox"/>	Workers are routinely washing hands with soap and water and/or hand sanitizer.
<input type="checkbox"/>	No handshaking – use other noncontact methods of greeting.
<input type="checkbox"/>	Gloves and face coverings to reduce risk of infectious exposure as deemed appropriate for job tasks are being worn.
<input type="checkbox"/>	Hand tools and work areas are routinely cleaned.
<input type="checkbox"/>	Face touching is avoided.
<input type="checkbox"/>	Workers are covering coughs and sneezes.
<input type="checkbox"/>	Phone-to-face contact is avoided.
<input type="checkbox"/>	Workers are asked daily if they are sick or have someone at home that is sick. If YES, steps outlined in the Exposure Control Plan are being followed.
<input type="checkbox"/>	Ventilation is increased in work areas by opening windows or adjusting air conditioning.
<b>Corrective Actions for Deficiencies:</b>	

**Meetings and Work Areas - Measures to Prevent Crowds from Gathering**

<input type="checkbox"/>	Social distancing is maintained.
<input type="checkbox"/>	Phones or other electronic methods such as video chat are being utilized to communicate or conduct meetings rather than engaging in face-to-face conversations.
<input type="checkbox"/>	Sitting and/or working in close proximity to others is being avoided.
<input type="checkbox"/>	Close contact with people who are sick and/or showing symptoms are avoided.
<input type="checkbox"/>	Worker density is limited where workers are forced to stand together in 'choke points' and high-risk areas such as in hallways, hoists and elevators, break areas, and buses.
<input type="checkbox"/>	Interactions when picking up or delivering equipment or materials are minimized by maintaining social distance.
<b>Corrective Actions for Deficiencies:</b>	

**Food Handling**

<input type="checkbox"/>	Employees are washing hands before eating food.
<input type="checkbox"/>	Employees are not sharing food.
<input type="checkbox"/>	Employees are eating separately and maintaining social distance rather than congregating in groups.
<b>Corrective Actions for Deficiencies:</b>	

**Supplies**

Soap and water, hand sanitizer, disinfectant, and related supplies are available to all employees at the following location(s):

<input type="checkbox"/>	Break rooms
<input type="checkbox"/>	Restrooms
<input type="checkbox"/>	Other:
<b>Corrective Actions for Deficiencies:</b>	

**Inventory of Available Supplies**

An adequate inventory of each item must be maintained for worker use. Monitor supply usage to identify replacement schedule. Any time an item gets low request replenishment supplies.

<input type="checkbox"/>	Disinfectant spray and paper towels
<input type="checkbox"/>	Disinfectant wipes
<input type="checkbox"/>	Hand sanitizer
<input type="checkbox"/>	Respirators, face masks, face coverings, face shields
<input type="checkbox"/>	Gloves
<b>Corrective Actions for Deficiencies:</b>	

Supervisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

DAILY ATTENDANCE LOG

Date	Print Name	Signature	Company	Contact Information	Time In	Time Out
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		
				Phone: _____ Email: _____		



**COVID-19 EXPOSURE CONTROL PLAN**

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A COVID-19 Exposure Control Plan is available as a separate document and is no longer included in the safety and health manual template.

For up to date information refer to federal guidance available that the Centers for Disease Control (CDC) website at <https://www.cdc.gov/coronavirus/2019-nCoV/index.html> and applicable state and local health advisory agencies.

## **Chapter 22 Back Injury Prevention Program**

### **22.1 Purpose, Scope & Policy**

#### **22.1.1 Purpose**

The purpose of this program is to help reduce the likelihood of serious strains and sprains, including back injuries.

#### **22.1.2 Scope**

Everything we do affects our back.

#### **22.1.3 Policy**

COMPANYNAME is committed to preventing injuries including back strains and sprains. In any situation which appears to require an unsafe lift, please consult with your supervisor to determine a safe method for lifting or moving the material.

### **22.2 Roles & Responsibilities**

#### **22.2.1 Employer Responsibilities**

It is management's responsibility to train employees on the safe procedures involved with back injury. Management will ensure that employees are using proper lifting techniques.

#### **22.2.2 Supervisors**

Observe work in progress to assure proper lifting techniques are utilized.

#### **22.2.3 Employee Responsibilities**

It is the employee's responsibility to attend safety training meetings regarding back injury prevention. Employees will be responsible for implementing the information used in training, such as hazards involved with improper lifting techniques and overexertion, during lifting. Employees will report any injuries to management.

### **22.3 Hazards**

Everything we do affects our back. Unfortunately, the back is not very resilient. Once the back has been injured, it will never be as strong as it was before the injury. How many times a day do we lift, push, pull, stretch, and otherwise put a strain on our back? Back pain can also result from congenital conditions and acquired diseases, but prevention is the most important factor under our individual control.

Some of the most common back injuries include the following:

- Strains and sprains can result from injury to muscles and ligaments that support the back. A torn ligament will result in severe back pain.
- Ruptured or slipped disk is not uncommon and results in severe pain when the disk presses on a nerve.
- Chronic tension or stress can result in muscle spasms and aggravate persistent and painful backache.
- Other conditions such as pain "referred to the back" from other organs, such as the kidneys and prostate, can result in nagging back pain.

Following the guidelines in this chapter both at work and home should help decrease the likelihood of back injury.

The natural position of the back is an “S” curve. This is referred to as the neutral position. To keep the neutral position, and for good posture, we need to learn to maintain a straight line from midline of the ears to the shoulders to the hips to the knees to the ankle. This means standing tall, pulling in our stomach, and tightening our buttocks. Think of it as a plumb line from the ears to the knees. This will keep our back in a natural “S” curve. Our back needs to be maintained in the neutral position when sitting, standing, sleeping, reaching, and pushing.

## **22.4 Hazard Control Measures**

### **22.4.1 Learn to Prevent Back Injury**

Preventing a back injury is much easier than repairing one. Because your back is critically important to your ability to walk, sit, stand, and run, it's important to take care of it. Most back pain arises from using your back improperly, so learning a few basic rules about lifting, posture and proper exercise can help keep your back in good shape.

### **22.4.2 Exercise Vs Cumulative Trauma**

Having strong back and stomach muscles is important in order to ease the work your back is put through each day. By doing simple back-toning exercises, you not only strengthen your back but also reduce stress and improve your appearance, too! Check with your doctor as to the best exercises for you.

Over time, incorrect lifting techniques can do damage which can eventually lead to more serious injuries. Lifting correctly helps the body maintain strength in muscles used by the body to support the back.

### **22.4.3 Lose Excess Weight**

Pot bellies and excess weight exert extra force on back and stomach muscles. Your back tries to support the weight out in front by swaying backwards, causing excess strain on the lower back muscles. By losing weight, you can reduce strain and pain in your back. Check with your doctor for the most sensible diet plan for you.

### **22.4.4 Maintain Good Posture**

You can prevent many back pains by learning to sit, stand and lift items correctly. When you sit down, don't slouch. Slouching makes the back ligaments, not the muscles, stretch and hurt, thus putting pressure on the vertebrae. The best way to sit is straight, with your back against the back of the chair with your feet flat on the floor and your knees slightly higher than your hips. Learn to stand tall with your head up and shoulders back.

### **22.4.5 Good Posture While You Sleep and Drive**

Sleep on a firm mattress or place plywood between your box springs and mattress for good back support. If your mattress is too soft it could result in a back sprain or sway back. Sleep on your side with your knees bent or on your back with a pillow under your knees for support. Drive with your back straight against the seat and close enough to the wheel so your knees are bent and are slightly higher than your hips.

### **22.4.6 Plan Your Lift**

Lifting objects is often a mindless task, and unfortunately many people perform their lift incorrectly, resulting in unnecessary strain on their back and surrounding muscles. In order to lift correctly and reduce strain on your back, it's important to plan your lift in advance. This means to think about the weight of the object you will be moving and the distance you will be moving it. Is it bulky? Will you need help? Do you see any hazards that can be eliminated? Think about this whenever you do any lifting.

### **22.4.7 Proper Position in Front of the Load**

Once you have planned your lift, the next important step is to align yourself correctly in front of the load with your feet straddling the load, one foot slightly in front of the other for balance. Slowly squat down by bending your knees, not your back and stomach. Using both hands, firmly grab the load and bring it as close to your body as you can. This will help distribute the weight of the load over your feet and make the move easier.

### **22.4.8 Lift with Your Legs, Not Your Back**

Once the load is close to your body, slowly straighten out your legs until you are standing upright. Make sure the load isn't blocking your vision as you begin to walk slowly to your destination. If you need to turn to the side, turn by moving your feet around and not by twisting at your stomach. If you have to choose to push or pull a load, pushing with your legs is usually safer than pulling which can injure the back.

### **22.4.9 Set the Load Down Correctly**

Once you have reached your destination, it's equally important that the load is set down correctly. By reversing the above lifting procedures, you can reduce the strain on your back and stomach muscles. If you set your load on the ground, squat down by bending your knees and position the load out in front of you. If the load is set down at table height, set the load down slowly and maintain your contact with it until you are sure the load is secure and will not fall when you leave.

### **22.4.10 Get Help, If Needed**

If the load is too heavy, bulky, or awkward for you to lift alone, find a friend to help you carry it. If no one is available, is it possible to break the load into two smaller loads? Or, can you locate a cart, dolly, forklift, or crane to move it safely? (Remember that crane and forklift operators must attend specialized training and be authorized to use applicable equipment.) Look for simple solutions to help make the move easier on you and your back.

Never attempt to move a load that is awkwardly shaped or too heavy to handle safely.

## **22.5 Training**

### **22.5.1 Initial**

Initial training will be conducted through new hire orientation.

### **22.5.2 Refresher**

Refresher training will be conducted as needed. Refresher training will be given if an employee demonstrates a lack of safe material handling practices.

## **22.6 Reference**

OSHA Standard 29 CFR 1926.200

## **Chapter 23 Hearing Conservation Program**

### **23.1 Purpose, Scope, and Policy**

#### **23.1.1 Purpose**

The purpose of the COMPANYNAME hearing conservation program is to minimize hearing loss by providing proper monitoring, hearing protection, training, and annual hearing tests

#### **23.1.2 Scope**

This program covers all employees working in areas exceeding an eight-hour time weighted average (TWA) of 85dBA.

#### **23.1.3 Policy**

COMPANYNAME is committed to minimizing the threat of hearing loss. The company complies with all applicable laws, regulations, codes, and good practices pertaining to hearing conservation. This program will be reviewed annually and updated as necessary to remain compliant with changes in health and safety regulations and to implement best practices to accomplish the program's purpose.

In all cases where sound levels exceed the values shown in Table D-2 (29 CFR 1926.52(d)(1)), and Table G-16 (29 CFR 1910.95(b)(2)) below), this hearing conservation program shall be administered.

### **23.2 Roles & Responsibilities**

#### **23.2.1 Employer Responsibilities**

It is management's responsibility to use proper control measures to limit employee exposure. Control measures may be either engineering, administrative, or use of PPE.

- Provide hearing conservation training for new and temporary workers prior to assignment of work responsibilities
- Provide annual hearing conservation training for affected workers
- Post signs and warnings in all high noise areas
- Provide hearing protection to all employees
- Schedule annual audiometric testing for affected workers
- Maintain all medical records

#### **23.2.2 Employee Responsibilities**

All employees must comply with the hearing conservation program and wear proper hearing protection when in areas that having noise levels in excess of 85dB. Further, it is the employee's responsibility to request new hearing protection as necessary. Employees will be available to take their yearly audiometric test. All employees should communicate any concerns or issues related to excessive noise levels or wearing of hearing protection to their supervisor.

#### **23.2.3 Safety Coordinator Responsibilities**

The Safety Coordinator is responsible for:

- Periodically surveying work areas to identify potential high noise areas
- Communicate monitoring results and noise levels to affected workers
- Maintain associated monitoring equipment and ensure proper calibration prior to use
- Maintain records of both personnel and area noise measurements
- Provide guidance when evaluating engineering controls utilized to reduce noise exposure
- Maintain an adequate supply of approved hearing protection

- Ensure that personnel wearing hearing protection are adequately trained in their use and effectiveness
- Evaluate and approve all hearing protection equipment
- Ensure all workers have access to their audiogram history
- Administer the Hearing Conservation Program
- Ensure all audiometric testing is performed and administered by qualified personnel
- Maintain all personnel audiograms for the duration of their employment
- Provide audiometric records to successor employers upon request
- Schedule baseline and annual audiometric testing

### 23.3 Definitions

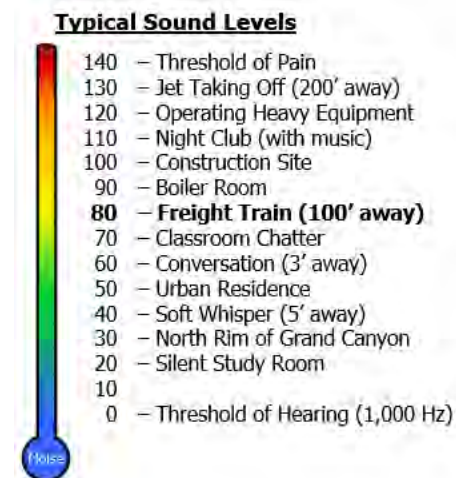
See Definitions Chapter at the end of the Safety and Health Manual.<sup>ix</sup>

### 23.4 Hazards

Noise exposure in excess of 85dB over an eight-hour time weighted average (TWA) can lead to tinnitus, irreversible hearing loss, and deafness. Hearing loss can impair the ability to hear high-frequency sounds and to understand speech which can hinder communication.

Hearing loss can be accelerated depending on the frequency and intensity of the noise, the length of exposure to the noise, and the worker's susceptibility to hearing damage. Additionally, noise levels are cumulative. Two machines generating 60dB each are generating noise levels in excess of 60dB when operating simultaneously.

OSHA has identified an action level of 85dBA over an eight-hour workday for general industry and a Permissible Exposure Limit (PEL) of 90dBA over an eight-hour workday for both general industry and construction. OSHA and NIOSH have both identified time to exposure restrictions with a fifty percent (50%) reduction in exposure time for increases in noise level. Exposure to noise in excess of these levels and durations will result in hearing loss and damage, often permanent.



Exposure Level (OSHA)	Exposure Level (NIOSH)	Time to 100% full noise dose
90 dBA	85dBA	8 hours
95 dBA	88 dBA	4 hours
100 dBA	91 dBA	2 hours
105 dBA	94 dBA	1 hour
110 dBA	97 dBA	30 minutes
115 dBA	100 dBA	15 minutes
120 dBA	103 dBA	7 minutes
125 dBA	106 dBA	3 minutes
130 dBA	109 dBA	1 minute
135 dBA	112 dBA	30 seconds
140 dBA	115 dBA	15 seconds

OSHA exposure levels obtained from  
 Table D-2 (29 CFR 1926.52(d)(1)).

A good rule of thumb is to wear hearing protection any time it is necessary to raise your voice to have a conversation.

Hearing protection and other protection against the effects of noise exposure shall be provided when noise levels exceed those shown in Table D-2 (29 CFR 1926.52(d)(1)) shown above).

A good rule of thumb is to wear hearing protection any time it is necessary to raise your voice to have a conversation.

Hearing protection and other protection against the effects of noise exposure shall be provided when noise levels exceed those shown in Table D-2 (29 CFR 1926.52(d)(1)) shown above).

## **23.5 Hazard Control Measures**

### **23.5.1 Monitoring**

When information shows employee(s) exposure equals or exceeds 85dB, management will implement this policy and initiate the noise monitoring program.

- The sampling strategy will be designed to identify employees in the hearing conservation program and to enable proper selection of hearing protection.
- Instruments used to measure employee noise exposure will be calibrated to ensure measurement accuracy.
- Monitoring will be repeated whenever a change in production, process, equipment, or controls increases noise exposures to the extent that: additional employees may be exposed at or above 85dB or hearing protectors being used by employees may be rendered inadequate.
- Affected employees or their representatives will have an opportunity to observe any noise measurements conducted.

### **23.5.2 Employee Notification**

Management will notify each employee that is exposed at or above 85dB for an 8-hour TWA of their results from the monitoring. Notification will be made through training and signage placed at the entrances of all areas where high noise levels are detected.

### **23.5.3 Audiometric Testing Program**

Management will apply this policy and initiate the audiometric testing program making audiometric testing available to all employees whose exposures equal or exceed an 8-hour TWA of 85 decibels.

- Audiometric tests will be performed by a licensed or certified audiologist, otolaryngologist, or another physician or technician.
- The program will be at no cost to employees.

#### **23.5.3.1 Baseline Audiogram**

A baseline audiogram will be given within six (6) months of an employee's first exposure at or above the action level. The employer is required to establish a valid baseline audiogram to which subsequent audiograms can be compared.

- Employees will not be exposed to workplace noise at least fourteen hours prior to taking the baseline audiogram. Hearing protection may be used as a substitute if the employee is going to be around workplace noise within the fourteen (14) hours prior to the baseline audiogram.
- The employer will notify the employee on the importance of avoiding noise exposure during the fourteen hours prior to the baseline audiogram testing.
- Mobile test van exception - Where mobile test vans are used to meet the audiometric testing obligation; the employer will obtain a valid baseline audiogram within one (1) year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than six (6) months after the employee's first exposure at or above the action level, employees will wear hearing protectors for any period exceeding six months after first exposure until the baseline audiogram is obtained.

#### **23.5.3.2 Annual Audiogram**

Management will arrange Audiograms to be given at least annually after obtaining the baseline audiogram for employees exposed at or above an 8-hour TWA of 85dBA.

### **23.5.3.3 Evaluation of Audiogram**

Each employee's annual audiogram will be compared to that employee's baseline audiogram to determine if the audiogram is valid and if there was a standard threshold shift in the employee's results. If the results show the employee experienced a standard threshold shift management may then obtain a retest within thirty (30) days and consider the results of the retest as the annual audiogram.

### **23.5.3.4 Standard Threshold Shift**

In determining whether a threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram.

### **23.5.3.5 Follow-Up Procedures**

If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee will be notified of this fact in writing within 21 days of the determination.

Unless a physician determines that the standard threshold shift is not work-related or aggravated by occupational noise exposure, management must implement the following steps when a standard threshold shift occurs:

- Employees not using hearing protection must be fitted with hearing protection and trained in its use and care
- Employees will be required to use provided hearing protection whenever they are working in or near the areas with elevated noise levels
- Employees that are already using hearing protection will be refitted and retrained.
- The employee will be referred for a clinical audiological evaluation or an otological examination, as appropriate.
- The employee will be informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

If audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of ninety (90)dB indicates that a standard threshold shift is not persistent, the employer will inform the employee and may discontinue the required use of hearing protection for that employee.

Noise measurements will be conducted in the affected person's work area to determine whether noise levels have changed from previous testing.

### **23.5.4 Hearing Protection**

Management will do the following in relation to hearing protection:

- Provide hearing protection to all employees exposed to an 8-hour TWA of 85dB or greater at no cost to the employees. Hearing protection equipment will be replaced as necessary.
- Ensure that hearing protection is worn by any employees exposed to an 8-hour TWA of 85dB or greater.
- Provide more than one type of appropriate hearing protection for employees to choose from.
- Hearing protection must reduce noise exposure to below 85dB
- Provide training in the use and care of the hearing protection.
- Ensure proper initial fitting and supervise the correct use of all hearing protection.

### **23.5.5 Engineering Controls**

When a work area or work process that generates excessive noise levels is identified, an assessment should be made to determine whether engineering controls can be implemented to reduce noise exposure to below the 85dB TWA threshold.



When noise levels are in excess of 90dB engineering controls shall be implemented to reduce noise levels to within permissible limits.

The following engineering controls should be considered:

- Replacing the equipment or process that is generating the excessive noise
- Maintaining and lubricating machinery and equipment
- Installing mufflers
- Placing a barrier between the source of the noise and the affected workers
- Enclose or isolate the source of the noise
- Others as identified by a qualified person

Whenever equipment is replaced or processes are changed, consideration should be given to the reduction of noise exposure. When purchasing new equipment, noise production levels should be factored into the decision-making process.

### 23.5.6 Distance

Exposure to excessive noise levels can be reduced by moving further away from the noise source. This is because sound waves expand as they project away from the source increasing the surface area of the sound wave front. As the sound wave front expands the noise is spread over a larger area reducing its intensity.

Generally, noise levels will be reduced by 6dB every time the distance from the noise is doubled. For example, if the noise levels are at 90dBA at thirty feet, moving sixty feet away will reduce the noise levels to 84dBA lowering the exposure to within action levels and the PEL.

Distance from Source	Noise reduction	Noise Level
30 feet	0	90 dBA
<b>60 feet</b>	<b>-6 dB</b>	<b>84 dBA</b>
90 feet	-9 dB	81 dBA
<b>120 feet</b>	<b>-12 dB</b>	<b>78 dBA</b>
150 feet	-13.5 dB	76.5 dBA
180 feet	-15 dB	75 dBA
210 feet	-16.5	73.5 dBA
<b>240 feet</b>	<b>-18 dB</b>	<b>72 dBA</b>

### 23.5.7 Personal Protective Equipment

Engineering controls are the first line of defense. However, engineering controls may not always be feasible for some operations or may not always completely control the identified hazards. In these situations, other personal protective equipment must be used.

When engineering and administrative controls fail to reduce sound levels to within the levels established in Table D-2 (29 CFR 1926.52(d)(1)) (Table G-16 above), personal protective equipment shall be provided and used to reduce sound levels to within the levels of the table.

Management will do the following in relation to hearing protection:

- Provide hearing protection to all employees exposed to an 8-hour TWA of 85dB or greater at no cost to the employees. Hearing protection equipment will be replaced, as necessary.
- Ensure that hearing protection is worn by any employees exposed to an 8-hour TWA of 85dB or greater.
- Provide more than one type of appropriate hearing protection for employees to choose from.

- Hearing protection must reduce noise exposure to below 85dB
- Provide training in the use and care of the hearing protection.
- Ensure proper initial fitting and supervise the correct use of all hearing protection.

### 23.5.8 Recordkeeping and Access to Records

Management will maintain records in compliance with 29 CFR 1910.95 (m). Recordkeeping requirements of the noise control standard include:

- Maintaining noise exposure measurement records for a period of two (2) years
- Audiometric testing records must be maintained for the duration of the affected individual's employment and will include:
  - The name and job classification of the employee
  - Dates of all audiogram tests
  - Examiner's name
  - Date of the last acoustic or exhaustive calibration of test equipment, measurements of the background sound levels in audiogram test rooms
  - The employee's most recent noise exposure measurement.
  - Maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms.
- All records required by this section will be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary (OSHA). The provisions of 29 CFR 1910.20 (a)-(e) and (g)-(i) apply to access to records under this section.

## 23.6 Training

All employees are required to attend training regarding proper usage and wearing of hearing protection. COMPANYNAME will ensure employee participation in the hearing conservation program by tracking attendance and maintaining training records. Each employee will be trained on:

- The effects of noise on hearing
- The purpose of hearing protection, including the advantages, disadvantages, and instructions on selection, fitting, use, and care
- The purpose of audiometric testing and an explanation of the test procedures.

The employer will make available to affected employees or their representative's copies of this standard and will also post a copy in the workplace.

### 23.6.1 Initial

Initial training will be given to all workers, including full-time regular employees, part-time employees, or temporary workers exposed to an 8-hour TWA at 85dB or above. Management will train the workers about the hazards of noise and also have the employee take a baseline audiometric test within six (6) months of the employee's first exposure at or above 85dB for an 8-hour TWA.

### 23.6.2 Refresher

Training will be repeated annually for each employee involved in the hearing conservation program, and as needed for the following situations:

- If management has reason to believe that the employee lacks an understanding of the related safe work practices
- When changes in the workplace or PPE render previous training obsolete or inadequate

- When inadequacies in an affected employee's knowledge or use of PPE indicate that the employee no longer has the requisite understanding to perform a job safely.

### **23.7 Reference**

OSHA Standard 29 CFR 1910.95

## Chapter 24 Heat Stress Program

### 24.1 Purpose, Scope, and Policy

#### 24.1.1 Purpose

COMPANYNAME performs work in locations and environments that may be or have been associated with extreme temperatures. Working in extreme temperatures can overwhelm the body's internal temperature control system. When the body is unable to cool itself, heat-related stress can result. Heat stress can contribute to adverse health effects which range in severity from discomfort to death. This program has been developed to minimize the effects of heat stress on employees.

#### 24.1.2 Scope

This program applies when employees are exposed to extreme temperatures whether working in interior or exterior environments.

#### 24.1.3 Policy

It is COMPANYNAME's policy that heat stress is serious health concerns, and that the following program will be implemented in order to ensure the health and welfare of all employees is protected.

### 24.2 Roles & Responsibilities

#### 24.2.1 Employer Responsibilities

Maintain, review, and update the Heat Stress Program as needed, and provide training to employees affected by heat.

The employer must:

- Develop a heat-related illness prevention plan for implementation when heat index levels are elevated
- Train workers about safe work practices in elevated temperatures
- During periods of elevated temperature track weather daily and assess risk to workers
- Implement plan when heat index is at or above 80 degrees Fahrenheit (°F) including the provision of enough fresh water that each employee can drink at least one (1) quart per hour, or four (4) 8-ounce glasses of water per hour.

#### 24.2.2 Supervisor Responsibilities

Review and comply with the provisions outlined in this program. Assess the day-to-day heat stress on employees and employee workload. Assign work and rest schedules as needed. Ensure all employees have the appropriate personal protective equipment (PPE) prior to working in extreme temperature conditions.

#### 24.2.3 Employee Responsibilities

Review and comply with the provisions outlined in this program. Complete training before working in extreme temperature conditions. Use appropriate PPE. Report heat stress concerns and signs and symptoms of heat stress to their supervisor. All employees must monitor each other for signs and symptoms of heat stress and take appropriate actions as needed.

### 24.3 Definitions

**Heat cramps** - caused by the loss of body salts and fluid during sweating. Low salt levels in muscles cause painful cramps.

**Heat exhaustion** - the body's response to loss of water and salt from heavy sweating.

**Heat rash** - also known as prickly heat, is skin irritation caused by sweat that does not evaporate from the skin.

**Heat stroke** - the most serious form of heat-related illness, occurring when the body becomes unable to regulate its core temperature.

## 24.4 Hazards

### 24.4.1 Heat Exposure

There are two primary sources of heat that can lead to a heat-related illness.

- The environmental conditions to which the worker is exposed. For example, working in direct sunlight can add up to 15°F to the heat index.
- The internal heat generated by physical labor. Performing prolonged or strenuous work without adequate rest and hydration can lead to rapid fluid loss and heat-related illness.

Strenuous work performed while wearing heavy protective non-breathable clothing can cause heat retention and prevent evaporation of perspiration which can also lead to a heat-related illness.

### 24.4.2 Heat Index

The Heat Index system combines both temperature and relative humidity into a single value that indicates how hot the temperature feels or affects the human body. The higher the heat index value, the greater risk of the worker experiencing a heat-related illness.

NOAA - National Weather Service Heat Index Table

		Temperature (°F)															
		80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
Relative Humidity (%)	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
	55	81	84	86	89	93	97	101	106	112	117	124	130	137			
	60	82	84	88	91	95	100	105	110	116	123	129	137				
	65	82	85	89	93	98	103	108	114	121	126	130					
	70	83	86	90	95	100	105	112	119	126	134						
	75	84	88	92	97	103	109	116	124	132							
	80	84	89	94	100	106	113	121	129								
	85	85	90	96	102	110	117	126	135								
	90	86	91	98	105	113	122	131									
	95	86	93	100	108	117	127										
100	87	95	103	112	121	132											

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity



Caution



Extreme Caution



Danger



Extreme Danger

### 24.4.2.1 Heat Index Monitoring

Heat index monitoring should be done to determine the level of heat exposure workers are exposed to. On a basic level the heat index can be acquired through weather reports from weather services or from radio and television weather reports. The issue with such general sources is that the reports may not be accurate as these weather reports are often obtained from fixed reporting stations that report the data at that location but may not be accurate for the location in which the work is being performed.

Heat index monitoring can be done by the employer through Wet Bulb Globe Temperature (WBGT) monitoring and through the use of direct read heat index monitors.

#### 24.4.2.1.1 Wet Bulb Globe Temperature (WBGT) Monitoring.

WBGT monitoring takes temperature, humidity, wind speed, sun angle, and cloud cover into consideration when determining heat index.

- Natural Wet Bulb Temperature ( $T_w$ ) – Indicates humidity.
- Globe Thermometer ( $T_g$ ) – Indicates radiant heat.
- Dry Bulb Thermometer ( $T_d$ ) – Indicates ambient air temperature.

Calculation:  $WBGT = (0.7T_w + 0.2T_g + 0.1T_d)$

The WBGT can then be compared to the table below to determine the risk level of heat exposure.

Actions for Conditions	Heat Index
Low Risk	<91°F
Moderate Risk	91°F to 103°F
High Risk	103°F to 115°F
Very High to Extreme	>115°F

### 24.4.3 Heat-related Illnesses

The body regulates temperature by producing and evaporating sweat. While working in elevated temperatures or in hot weather conditions, the human body may not be able to offset the heat generated by the physical activity or external heat sources. If this happens, heat-related illnesses may occur.

The most common health problems caused by hot work environments include:

- Dehydration
- Heat rash
- Heat cramps
- Heat exhaustion
- Heat stroke

#### 24.4.3.1 Dehydration

Dehydration happens when the body uses more water than it takes in. Signs and symptoms of dehydration include increasing thirst, dry mouth, weakness, or light-headedness (particularly if worse upon standing), and a darkening of the urine or a decrease in urination. Frequent drinks of cool water can help prevent or reduce the effects of dehydration.

#### 24.4.3.2 Heat Rash

Also known as prickly heat, heat rash is caused by excessive perspiration that does not evaporate from the skin. It presents as red clusters of pimples or small blisters and is the most common problem in hot work environments.

Heat rash usually appears on the neck, upper chest, in the groin, under the breasts, and in elbow creases. Moving to a cool or shady area and applying moist towels to the neck, forearms, and other affected areas can help reduce the effects of heat rash.

#### **24.4.3.3 Heat Cramps**

Heat cramps are caused by the loss of body fluids and electrolytes, especially salts. Low salt levels in muscles cause painful cramps. Tired muscles—those used for performing the work—are usually the ones most affected by cramps. Cramps may occur during or after working hours.

Signs and symptoms of heat cramps include muscle spasms, most commonly causing pain in the abdomen, arms, and calves. Drinking water and a sports drink can help reduce the effects of the heat cramping.

#### **24.4.3.4 Heat Exhaustion**

Heat exhaustion is the body's response to loss of water and salt from heavy sweating. Signs and symptoms of heat exhaustion include headache, nausea, dizziness, weakness, irritability, confusion, thirst, heavy perspiration, and a body temperature greater than 100.4°F.

Workers experiencing heat exhaustion need to be moved to a shady or cooler area and cooled down. Cool (not cold) drinking water should be provided, and moist towels or cold packs applied to the chest, armpits, forearms, and groin area to reduce body temperature. Medical attention should be provided.

#### **24.4.3.5 Heat Stroke**

Heat stroke is the most serious form of heat-related illness and occurs when the body becomes unable to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Heat stroke occurs when the body temperature increases above 104°F.

Signs and symptoms include confusion, loss of consciousness, hot dry skin, and seizures.

**\*\*Heat stroke is a true medical emergency that may result in death! Call 911 immediately\*\***

### **24.5 Hazard Control Measures**

#### **24.5.1 Preventing Heat-related Illness**

While heat-related illnesses are dangerous and potentially life threatening, they can be prevented. Prevention methods include:

##### **24.5.1.1 Acclimation**

Acclimation is a process by which the physical processes of an employee's body adjust to the environment over a period of time. This process usually takes five to seven days and can take up to three weeks depending on the individual and the work environment. According to the American Industrial Hygiene Association, the process requires a consistent work level for at least two hours each day during the acclimation period in order for an employee to become acclimated. Mere exposure to heat does not confer acclimation, nor does acclimation at one heat stress level confer resistance to heat stress at a higher temperature or more vigorous workload.

Employees who are not adequately acclimated to the heat may experience temporary heat fatigue resulting in a decline in performance, coordination, or alertness. They may also become irritable or depressed. This

can be prevented through gradual adjustment to the hot environment. People in good physical condition tend to acclimatize better because their cardiovascular systems respond better.

#### **24.5.1.2 Engineering Controls**

For employees working indoors, the best way to prevent heat-related illness is to make the work environment cooler. Where and when possible, use air conditioning to cool the work area. Alternatively, increase the general ventilation as much as possible by opening windows or doors. When available, use cooling fans to aid in increasing ventilation.

#### **24.5.1.3 Drinking Water**

OSHA requires employers to provide potable water at work sites. Access to fresh, pure, and suitably cool potable drinking water will be provided to employees free of charge. Water should have a pleasant and odor-free taste and be at a temperature between 50°F and 60°F whenever possible. Water that is too cold can shock the system and water that is too warm may not contribute to cooling.

Drinking water will be located as close as practicable to the areas where employees are working. Where drinking water is not plumbed or otherwise continuously supplied, it shall be provided at the beginning of the work shift in sufficient quantity to provide one (1) quart of water per employee per hour or four (4) 8-ounce glasses of water per hour for the entire shift. The frequent drinking of water by our employees is encouraged.

#### **24.5.1.4 Shade**

Shaded areas that are either open to the air or provided with ventilation or cooling will be provided when the temperature exceeds 80°F during outdoor work. The amount of shade present shall be at least enough to accommodate the number of employees on recovery, rest, or break periods so they can sit in a normal posture fully in the shade without having to be in physical contact with each other.

The shade shall be located as close as practicable to the areas where employees are working. Shade will be available when the temperature does not exceed 80°F and timely access to shade will be provided upon an employee's request.

Employees are permitted and encouraged to take preventative cool-down rests in the shade when they feel the need to do so to protect themselves from overheating. Such access to shade is permitted at all times.

An individual employee who takes a preventative cool-down rest shall:

- be monitored and asked if they are experiencing symptoms of heat illness;
- be encouraged to remain in the shade;
- not be ordered back to work until any signs or symptoms of heat illness have abated, but in no event less than five (5) minutes in addition to the time needed to access the shade.

#### **24.5.1.5 Safe Work Practices**

For employees working outdoors or working indoors without air conditioning or ventilation, take scheduled breaks in cool areas. Ensure there is plenty of cool water to drink and take water breaks as needed. Immediately report any problems to a supervisor. Supervisors should consider scheduling the hottest work for the coolest part of day, assigning extra employees to high demand tasks, and using work-saving devices (e.g. power tools, hoists or lifting aids) to reduce the body's workload.

If an employee exhibits signs or reports symptoms of heat-related illness while taking a preventative cool-down rest, or during a preventative cool-down rest period, the supervisor will summon appropriate first-aid or emergency response.



## **24.6 Training**

### **24.6.1 Initial**

Employees and supervisors will be trained on heat-related illness prevention based on their project assignments

### **24.6.2 Refresher**

Employees will be trained based on observation of improper work practices

## **24.7 References**

OSHA - Using the Heat Index: A Guide for Employers

## **24.8 Appendices**

- Heat Index: Protective Measures
- Hot Weather - Pre-planning Checklist
- Hot Weather - Daily Planning Checklist
- Hot Weather - Understanding Heat-related Emergencies

## HEAT INDEX: PROTECTIVE MEASURES

### Protective Measures to Take at Each Risk Level

Use the protective measures described for each risk level to help you plan ahead, and schedule and train your workers so that everyone is prepared to work safely as the heat index rises.

Actions for Conditions	Heat Index
Low Risk	<91°F
Moderate Risk	91°F to 103°F
High Risk	103°F to 115°F
Very High to Extreme	>115°F

### Summary of Risk Levels and Associated Protective Measures

The most critical actions employers should take to help prevent heat-related illness at each risk level:

Heat Index	Risk Level	Protective Measures
<91°F	Lower (Caution)	<ul style="list-style-type: none"> <li>• Provide drinking water and remind workers to hydrate frequently</li> <li>• Provide for shade when temperatures are in excess of 80°F</li> <li>• Ensure that adequate medical services are available</li> <li>• Plan ahead for times when heat index is higher, including worker heat safety training</li> <li>• Encourage workers to wear sunscreen</li> <li>• Acclimate workers</li> </ul> <p><b>If workers must wear heavy protective clothing, perform strenuous activity, or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.</b></p>
91°F to 103°F	Moderate	<p>In addition to the steps listed above:</p> <ul style="list-style-type: none"> <li>• Remind workers to drink water often (about 4 cups/hour)**</li> <li>• Review heat-related illness topics with workers: how to recognize heat-related illness, how to prevent it, and what to do if someone gets sick</li> <li>• Schedule frequent breaks in a cool, shaded area</li> <li>• Acclimatize workers</li> <li>• Set up buddy system/instruct supervisors to watch workers for signs of heat-related illness</li> </ul> <p><b>If workers must wear heavy protective clothing, perform strenuous activity, or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.*</b></p> <ul style="list-style-type: none"> <li>• <b>Schedule activities at a time when the heat index is lower</b></li> <li>• <b>Develop work/rest schedules</b></li> <li>• <b>Monitor workers closely</b></li> </ul>

103°F to 115°F	High	<p>In addition to the steps listed above:</p> <ul style="list-style-type: none"> <li>• Alert workers of high-risk conditions</li> <li>• Actively encourage workers to drink plenty of water (about 4 cups/hour)**</li> <li>• Limit physical exertion (e.g. use mechanical lifts)</li> <li>• Have a knowledgeable person at the worksite who is well-informed about heat-related illness and able to determine appropriate work/rest schedules</li> <li>• Establish and enforce work/rest schedules</li> <li>• Adjust work activities (e.g., reschedule work, pace/rotate jobs)</li> <li>• Use cooling techniques</li> <li>• Watch/communicate with workers at all times</li> </ul> <p><b>When possible, reschedule activities to a time when heat index is lower</b></p>
>115°F	Very High to Extreme	<p><b>Reschedule non-essential activity for days with a reduced heat index or to a time when the heat index is lower. Move essential work tasks to the coolest part of the work shift; consider earlier start times, split shifts, or evening and night shifts.</b></p> <p><b>Strenuous work tasks and those requiring the use of heavy or non-breathable clothing or impermeable chemical protective clothing should not be conducted when the heat index is at or above 115°F.</b></p> <p>If essential work must be done, in addition to the steps listed above:</p> <ul style="list-style-type: none"> <li>• Alert workers of extreme heat hazards</li> <li>• Establish water drinking schedule (about 4 cups/hour)**</li> <li>• Develop and enforce protective work/rest schedules</li> <li>• Conduct physiological monitoring (e.g., pulse, temperature, etc.)</li> <li>• Stop work if essential control methods are inadequate or unavailable.</li> </ul>

\*The heat index is a simple tool and a useful guide for employers making decisions about protecting workers in hot weather. It does not account for certain conditions that contribute additional risk, such as physical exertion. Consider taking the steps at the next highest risk level to protect workers from the added risks posed by:

- Working in the direct sun (can add up to 15°F to the heat index value)
- Wearing heavy clothing or protective gear

\*\*Under most circumstances, fluid intake should not exceed six (6) cups per hour or twelve (12) quarts per day. This makes it particularly important to reduce work rates, reschedule work, or enforce work/rest schedules.

This guidance is available online at [http://www.osha.gov/SLTC/heatillness/heat\\_index](http://www.osha.gov/SLTC/heatillness/heat_index)

**HOT WEATHER - PRE-PLANNING CHECKLIST**

This checklist can be used to develop a pre-plan for working in environments with increased heat index levels.

- ☐ Develop a list of hot weather supplies (water, shade devices, cooling devices, etc.). Estimate quantities needed and identify responsible persons to manage the acquisition, transportation, distribution, and maintenance of supply inventory.
- ☐ Create emergency action plan for heat-related illness (who will provide first-aid and emergency services)
- ☐ Develop and acclimation schedule for new workers or workers returning from absences longer than one week
- ☐ Identify methods of gaining real-time access to important weather forecast and advisory information from the National Weather Service.
- ☐ Determine how weather information will be used to modify work schedules, provide water, and rest breaks, or to cease work activity as necessary.
- ☐ Train workers on the risks associated with working in elevated temperatures, how to identify heat-related illnesses, and steps that will be implemented to reduce exposure risk.
- ☐ Ensure a knowledgeable person is available at each work site who can develop and enforce work and rest schedules and conduct physiological monitoring during periods of high and very high/extreme risk levels for heat-related illness.
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*This checklist is adapted from concepts appearing in OSHA's Heat-related Illness Prevention Training Guide*

**HOT WEATHER - DAILY PLANNING CHECKLIST****Knowledgeable Person**

- ☐ For high and very high/extreme heat index risk levels, is there an knowledgeable person at the work site who is well informed about heat-related illness and able to determine and enforce appropriate work/rest schedules and can conduct physiological monitoring as necessary?

**Training** Do workers know the:

- ☐ Common signs and symptoms of heat-related illness(es)?
- ☐ Proper precautions to prevent heat-related illness?
- ☐ Importance of acclimation?
- ☐ Importance of frequent hydration (even if they are not thirsty)?
- ☐ Measures to take if someone is exhibiting signs and/or symptoms of heat-related illness?

**Emergencies**

- ☐ Is everyone aware of who to contact in event of emergency?
- ☐ Can workers provide location if they need to call emergency services?
- ☐ Is a first-aid provider identified and available?

**Water**

- ☐ Are adequate amounts of water available?
- ☐ Is water located as close as possible to the workers?
- ☐ Are water coolers refilled throughout the day?
- ☐ Has a responsible person been designated to maintain water supply?

**Shade**

- ☐ Is shade or air conditioning available for breaks and if workers need to recover?

**Worker Reminders**

- ☐ Hydrate frequently
- ☐ Rest in shade
- ☐ Report heat-related signs and symptoms early

**Other**☐☐☐

*This checklist is adapted from concepts appearing in OSHA's Heat-related Illness Prevention Training Guide*

## HOT WEATHER - UNDERSTANDING HEAT-RELATED EMERGENCIES

### How to Prepare for a Heat-related Emergency

- Employers should confirm that worksite emergency procedures include sufficient information to properly address heat-related and hot weather emergencies.
- Have a plan in the event a worker experiences a heat-related illness
- Ensure medical services are available and that workers know what to do if someone develops signs and symptoms of a heat-related illness.
- Be prepared to provide first-aid for any heat-related illness and call emergency services (third-party (911) or onsite medical provider) if a worker shows signs and symptoms of heat stroke.
- Be able to provide clear and concise directions to the work site
- Respond immediately to symptoms of heat-related illness
- Ensure emergency procedures are used when appropriate.
- Develop a plan to reschedule or terminate work if conditions become too risky

### How to Respond to a Heat-related Emergency

If workers report or supervisors observe sign and/or symptoms of heat-related illness, stop work activity immediately. Take action while waiting for help.

#### HEAT STROKE IS A MEDICAL EMERGENCY.

**Call 911 immediately if a worker shows any signs of heat stroke.**

Illness	Signs and Symptoms	First-aid
<b>Heat Stroke</b>	<ul style="list-style-type: none"> <li>• Red, hot, dry skin</li> <li>• Very high body temperature</li> <li>• Confusion</li> <li>• Loss of consciousness</li> <li>• Seizures</li> </ul>	<ul style="list-style-type: none"> <li>• Call 911</li> </ul> <p>While waiting for help:</p> <ul style="list-style-type: none"> <li>• Place worker in shady, cool area</li> <li>• Loosen clothing, remove outer clothing</li> <li>• Fan air on worker</li> <li>• Place cold packs in armpits</li> <li>• Wet worker with cool water, apply ice packs, cool compresses, or ice if available</li> <li>• Provide fluids (preferably water) as soon as possible</li> <li>• Stay with worker until help arrives</li> </ul>
<b>Heat Exhaustion</b>	<ul style="list-style-type: none"> <li>• Cool, moist skin</li> <li>• Heavy perspiration</li> <li>• Headache</li> <li>• Nausea and/or vomiting</li> <li>• Dizziness</li> <li>• Light headedness</li> <li>• Weakness</li> <li>• Thirst</li> <li>• Irritability</li> <li>• Rapid heart rate</li> </ul>	<ul style="list-style-type: none"> <li>• Have worker sit or lie down in cool, shady area</li> <li>• Give worker plenty of water or other cool beverages to drink</li> <li>• Cool worker with cold compresses or ice packs</li> <li>• Take to clinic or emergency room for medical evaluation or treatment if signs or symptoms worsen or do not improve with one hour (60 minutes)</li> <li>• Do not return to work that day</li> </ul>
<b>Heat Cramps</b>	<ul style="list-style-type: none"> <li>• Muscle spasms</li> <li>• Pain in abdomen, arms, or calves</li> </ul>	<ul style="list-style-type: none"> <li>• Have worker rest in cool, shady area</li> <li>• Worker should drink water or other cool beverages</li> <li>• Wait a few hours before allowing worker to return to strenuous work</li> <li>• Have worker seek medical attention if cramps do not go away</li> </ul>
<b>Heat Rash</b>	<ul style="list-style-type: none"> <li>• Clusters of red bumps on skin</li> <li>• Often appears on neck, upper chest, folds of skin</li> </ul>	<ul style="list-style-type: none"> <li>• Move worker to a cooler, less humid environment when possible</li> <li>• Keep affected area dry</li> </ul>
<b>NOTE: If you are not a medical professional, use this information only as a guide to help workers in need</b>		

## Chapter 25 Cold Stress Program

### 25.1 Purpose, Scope, and Policy

#### 25.1.1 Purpose

COMPANYNAME performs work in locations and environments that may be or have been associated with extreme temperatures. Working in extreme temperatures can overwhelm the body's internal temperature control system. When the body is unable to maintain normal body heat, cold-related stress and illness can result. Cold stress can contribute to adverse health effects which range in severity from discomfort to death. This program has been developed to minimize the effects of cold stress on employees.

#### 25.1.2 Scope

This program applies when employees are exposed to extreme temperatures whether working in interior or exterior environments.

#### 25.1.3 Policy

It is the policy of COMPANYNAME that cold stress is a serious health concern, and that the following program will be implemented in order to ensure the health and welfare of all employees is protected.

### 25.2 Roles and Responsibilities

#### 25.2.1 Employer

COMPANYNAME shall:

- Develop a cold-related illness prevention plan for implementation when temperature and wind chill index levels are below safe working levels
- Maintain, review, and update the Cold Stress Program as needed.
- Train workers about safe work practices in very cold temperatures
- During periods of significantly reduced temperature:
  - o Track weather daily;
  - o Assess risk to workers; and
  - o Implement the cold-related illness prevention plan when temperatures are below freezing (32°F)

#### 25.2.2 Supervisor

Supervisors must review and comply with the provisions outlined in this program.

- Assess the day-to-day weather conditions to identify the risk of cold-related stress on employees and employee workload.
- Assign work and break schedules as needed.
- Ensure all employees have the appropriate personal protective equipment (PPE) prior to working in extreme temperature conditions.

#### 25.2.3 Employee

Employees must review and comply with the provisions outlined in this program.

- Complete training before working in extreme temperature conditions
- Use appropriate PPE
- Report cold-related stress concerns, and signs and symptoms of cold-related illness to their supervisor
- All employees must monitor each other for signs and symptoms of cold-related illness and take appropriate actions as needed

### 25.3 Definitions

**Dehydration** - a serious medical condition that occurs when the body loses or uses more fluid than it takes in. The loss of fluid prevents the body from carrying out normal function.

**Frostbite** - a type of injury caused by body tissue freezing. It leads to a loss of feeling and color in the areas affected, usually extremities such as the nose, ears, cheeks, chin, fingers, and toes. Frostbite can permanently damage the body, and severe cases can lead to amputation (removing the affected body part).

**Frostnip** - a precursor to frostbite. Frostnip is the reversible freezing of superficial skin layers marked by numbness and whiteness of the skin. Frostnip occurs due to vasoconstriction and can develop into frostbite if tissue freezes.

**Hypothermia** - a potentially serious health condition. Hypothermia occurs when body heat is lost faster than it can be replaced. When the core body temperature drops to approximately 95°F, the onset of symptoms normally begins.

**Signs and Symptoms** - indicators used to identify or diagnose a medical condition.

Sign - an objective observable indicator that can be seen, heard, smelled, or felt.

Symptom - subjective information provided by the patient describing the effects of the condition.

Example: If the patient can be seen to be shivering, that is a sign. If the patient informs that they are freezing or feeling cold, that is a symptom.

**Trench Foot** - also known as immersion foot syndrome, is a serious condition that occurs when the feet are wet for long periods of time. It can be quite painful, but it can be prevented and treated.

**Wind Chill** - the effect of cold temperature when combined with wind speed on the human body. Often referred to as the 'feels-like' temperature, it is a very real effect that can cause the body to lose heat much more rapidly when exposed.

## 25.4 Hazards

Working in extreme temperatures can overwhelm the body's internal temperature control system. When the body is unable to warm itself, cold-related illness can result. Cold stress can contribute to adverse health effects which range in severity from discomfort to death.

When exposed to cold temperatures and wind chill, the body uses energy to maintain a normal internal body temperature. This results in a shift of blood flow from the extremities (hands, feet, and legs) and outer skin to the core (chest and abdomen). This can cause the body to lose heat rapidly. Anyone working in cold temperatures for extended periods of time may be at risk of the following medical conditions:

- Trench foot
- Dehydration
- Frostnip
- Frostbite
- Hypothermia

The Occupational Safety and Health Administration (OSHA) does not currently have specific standards for cold stress. However, the Occupational Safety and Health Act of 1970 General Duty Clause (Section 5(a)(1)) states that "Each employer shall furnish to each of his employees, employment, and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees".

In addition, OSHA 29 CFR Subpart I relating to personal protective equipment requires employers to provide protection to employees exposed to hazards in the workplace. The OSHA website contains Fact Sheets and Guidance Documents that relate to cold stress that have been incorporated into this program.

### 25.4.1 Severe Winter Weather

Severe cold weather is the primary cause of cold-related illness. Cold stress can be increased when exposed to:

- Blizzards - sustained winds of 35mph or more with blowing snow reducing visibility to less than a ¼ mile, and lasting more than three hours

- Heavy snow - can fall quickly or over a period of days

- Freezing rain - Heavy ice buildup on roadways, structures, trees, power lines

- Sleet - ice pellets, usually mixed with rain and/or snow

- Frigid temperatures - temperatures below freezing, or temperatures when combined with the effects of wind chill, expose the worker to excessive exposure to cold

### 25.4.2 Wind Chill



Outdoor workers exposed to cold and windy conditions are at risk of cold stress. A combination of both air temperature and wind speed affect how cold they feel. Wind Chill is the term used to describe the rate of heat loss from the human body, resulting from the combined effect of low air temperature, and wind speed. The Wind Chill Temperature is a single value that takes both air temperature and wind speed into account.

### 25.4.3 The Cold Stress Equation

OSHA has incorporated information obtained from the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values into the Cold Stress Equation. As the temperature decreases and/or the wind speed increases, the potential for cold stress related illness and injury increases.

The tables at the end of the program can be used to identify wind chill and 'real-feel' temperatures to which the employees may be exposed.

### 25.4.4 Cold-related Illness

The most common health problems caused by cold work environments include:

- Trench foot
- Dehydration
- Frostnip
- Frostbite
- Hypothermia

#### 25.4.4.1 Trench Foot

Trench foot, or immersion foot syndrome is also referred to as a nonfreezing cold injury. First recognized by medical authorities during World War I it was accepted as a specific disease related to exposure to cold.

##### 25.4.4.1.1 Causes

Trench foot is caused by having feet exposed to damp, unsanitary, and cold conditions including water at temperatures above freezing for long periods of time. It is similar to frostbite, but considered less severe although, if left untreated for too long can lead to infection, amputation, or even death. The condition is related more to the prolonged exposure to moisture rather than just the cold although the exposure to cold reduces circulation and may promote tissue damage.

##### 25.4.4.1.2 Signs and Symptoms

Signs and symptoms of trench foot include:

- Swelling of the feet
- Redness or blotchiness to the skin
- Numbness
- Tingling, itching, or burning sensation
- Skin tissue that dies and falls off
- In severe cases, blistering may occur

##### 25.4.4.1.3 Treatment

If left untreated trench foot can lead to the following complications:

- Severe blisters
- Inability to walk on affected feet
- Permanent nerve damage
- Ulcers
- Infection
- Gangrene or tissue loss
- Amputation

For advanced signs and symptoms seek medical attention. Early signs and symptoms can be treated with home remedies including:

- Remove wet socks, wash feet, and allow to dry
- Rest and elevate the affected foot to encourage circulation

Apply heat packs to affected area for up to five minutes

Keep feet dry

Ibuprofen may help alleviate pain and swelling. Consult a physician before taking any medications.

If signs and symptoms do not improve, seek medical attention

#### 25.4.4.2 Dehydration

Dehydration, or loss of body fluid, occurs when more water and fluids leave the body than are taken in and can be caused by a number of factors. The loss of fluid prevents normal body function and can lead to urinary and kidney problems, seizures, and hypovolemic shock (low blood volume). When working in cold weather the body loses fluid while trying to stay warm and sweating may not be as apparent as in warmer weather which may prevent the worker from recognizing they are losing water.

##### 25.4.4.2.1 Causes

Typical causes of dehydration include:

Insufficient fluid intake

Excessive sweating

Fever

Emesis (vomiting)

Diarrhea

Medical condition

##### 25.4.4.2.2 Signs and Symptoms

Signs and symptoms of dehydration include:

###### i. Initial to Moderate

Thirst

Dry mouth

Darker urine

Decreased urine production

Lethargy

Dizziness

Headache

Muscle weakness

###### ii. Advanced

Lack of sweating

Sunken eyes

Shriveled and dry skin

Low blood pressure

Increased heart rate

Fever

Delirium

Unconsciousness

##### 25.4.4.2.3 Treatment

Prevention of dehydration is the best treatment. Maintain hydration by drinking plenty of fluids and eating foods with high water content such as fruits and vegetables. Avoid excessive intake of caffeinated drinks as they are diuretics and contribute to fluid loss.

If the patient suffering from dehydration is conscious and able, provide them with fluids to drink. Water and drinks containing electrolytes such as a non-caffeinated, low-sugar sports energy drink are preferred.

If the patient is showing advanced signs and symptoms of dehydration contact medical services for treatment and transport.

##### 25.4.4.3 Frostnip

Frostnip occurs when the skin exposed to cold temperatures for prolonged periods of time. This often occurs in extremities starting with the fingers and toes and may also occur on the unprotected skin of the face including nose and ears. If the affected areas are not treated and warmed in time frostnip can lead to frostbite.

#### 25.4.4.3.1 Causes

Typical causes of frostnip include:

- Skin is exposed to extreme cold for a prolonged time
- Blood flow to extremities is limited due to vasoconstriction
- Wet gloves, socks, clothing

#### 25.4.4.3.2 Signs and Symptoms

Signs and symptoms of frostnip include:

- Skin is pale or may turn red and feel extremely cold or numb
- Burning sensation
- Skin is still pliable and soft
- Ears, cheeks, noses, fingers, and toes are the most commonly affected

#### 25.4.4.3.3 Treatment

Move to a warm area and stay active. Remove wet clothes and dry the skin. Have the patient place cold hands in their armpits or between their thighs to promote warming. To promote metabolism and assist in raising circulation to the extremities, drink a warm (not hot) sugary drink. Avoid drinks with caffeine.

- Check and treat for hypothermia
- Protect skin from further damage
- Remove wet clothing
- Rewarm skin using warm, not hot water
- Drink warm (not hot) liquids
- OTC medications for inflammation

#### 25.4.4.4 Frostbite

Frostbite occurs when the skin and underlying tissue loses water and freezes. Frostbite is equivalent to a 3<sup>rd</sup> or 4<sup>th</sup> degree burn. While superficial frostbite can be treated, in severe cases amputation of the frostbitten area may be required. While frostbite usually occurs at temperatures 30°F or lower, wind chill can allow frostbite to occur at higher temperatures.

##### 25.4.4.4.1 Causes

Typical causes of frostbite include:

- Exposure to extreme cold for a prolonged time
- Exposure to extreme cold for a short period of time  
(liquid oxygen or nitrogen, dry ice, high velocity compressed gas release)
- Blood flow to extremities is limited due to vasoconstriction
- Inadequate clothing
- Wet gloves, socks, clothing

##### 25.4.4.4.2 Signs and Symptoms

Signs and symptoms of frostbite include:

- Early-stage frostbite - skin appears pale, yellow, or white and may itch, sting, and/or burn.
- Intermediate stage frostbite - skin becomes hard and appears shiny or waxy. Blisters may form as tissues thaw.
- Advanced stage frostbite - skin is hard and cold to the touch. The skin darkens and may appear blue or black in color.

##### 25.4.4.4.3 Treatment

If the patient is conscious move them to a warm area. If their feet are affected, do not allow them to walk. Remove wet clothes and dry the skin. Have the patient place cold hands in their armpits or between their thighs to promote warming. To promote metabolism and assist in raising circulation to the extremities, drink a warm (not hot) sugary drink. Avoid drinks with caffeine.

Do not rub the area to warm it. Wrap the affected areas in soft cloth and contact medical personnel. Do not leave the employee alone. If help is delayed, immerse in warm (maximum 105°F), not hot, water. Do not pour water directly on affected part. If there is a chance that the affected part will get cold again do not warm. Repeated heating and cooling of the skin may cause severe tissue damage.

- Check and treat for hypothermia

- Protect skin from further damage. Never rub the skin but treat the affected areas gently.

- Do not allow victim to walk on frostbitten feet

- Get person indoors and out of the cold

- Remove wet clothing

- Rewarm skin using warm, not hot water

- Do not blow hot air on the area or rewarm skin with direct heat such as a stove, fire, heat lamp, or heating pad

- Drink warm (not hot) liquids

#### 25.4.4.5 Hypothermia

Hypothermia is a potentially serious health condition. Hypothermia occurs when body heat is lost faster than it can be replaced. When the body's core temperature drops to approximately 95°F, the onset of symptoms normally begins.

##### 25.4.4.5.1 Causes

Typical causes of hypothermia include:

- Not dressed for the weather

- Staying out in the cold for too long

- Wearing wet clothes

- Unable to move to a warming location

##### 25.4.4.5.2 Signs and Symptoms

Signs and Symptoms of hypothermia include:

- Shivering (initially)

- Slurred speech or mumbling

- Slow, shallow breathing

- Weak pulse

- Clumsiness or lack of coordination

- Drowsiness or very low energy

- Confusion or memory loss

- Loss of consciousness

- Bright red, cold skin (initially)

The employee's skin will likely become pale and cold. As body temperature continues to fall, these symptoms will worsen, and shivering will stop. Once body temperature falls to around 85°F, severe hypothermia develops, and the person may lose consciousness. At 78°F, vital organs may begin to fail.

##### 25.4.4.5.3 Treatment

Treatment depends on the severity of the hypothermia. For cases of mild hypothermia move to a warm area and stay active. Remove wet clothes and replace with dry clothes or blankets and cover the head. To promote metabolism and assist in raising internal core temperature, drink a warm (not hot) sugary drink. Avoid drinks with caffeine.

For more severe cases contact emergency medical personnel (Call 911 for an ambulance) and do the following:

- Avoid rough handling which can lead to cardiac arrhythmia

- Get person indoors and out of the cold

- Remove wet clothing and wrap in dry blankets

Restore warmth slowly  
Warm the trunk first, warming extremities first can lead to shock  
Apply warm packs to armpits, groin, chest  
If the victim can drink fluids, provide warm (not hot) drinks  
Begin CPR if victim shows no signs of life

## 25.5 Hazard Control Measures

### 25.5.1 Preventing Cold-related Illness

Just as with heat-related illness, cold-related illness and injury is dangerous and potentially life threatening. Maintaining awareness of the hazards can help in preventing these injuries. Prevention methods include:

#### 25.5.1.1 Acclimation

Acclimation is a process by which the physical processes of an employee's body adjust to the environment over a period of time. This process usually takes five to seven days and can take up to three weeks depending on the individual and the work environment. According to the American Industrial Hygiene Association, the process requires a consistent work level for at least two hours each day during the acclimation period in order for an employee to become acclimated. Mere exposure to cold does not confer acclimation, nor does acclimation at one cold stress level confer resistance to cold stress at lower temperatures.

Employees exposed to the cold should be physically fit, without any circulatory, metabolic, or neurologic diseases that may place them at increased risk for hypothermia. A new employee should not be required to work full time in the cold during the first days of employment. Allow them to become adjusted to the working conditions and required protective clothing. New employees should be introduced to the work schedule slowly and trained accordingly.

#### 25.5.1.2 Engineering Controls

For employees working indoors, the best way to prevent cold-related illness is to make the work environment warmer. Wherever possible, use heaters to warm the work area. Alternatively, decrease general ventilation as much as possible by closing windows or doors.

#### 25.5.1.3 Safe Work Practices

For employees working outdoors, or working indoors without heat, take scheduled breaks in warm areas. If available, use wind barricades to block the wind from employees. Ensure there is plenty of water to drink and take water and warming breaks as needed. Immediately report any problems to a supervisor. Supervisors should consider scheduling the most work for the warmest part of day, assigning extra employees to high demand tasks that will require longer work periods in cold areas. All employees should monitor each other for signs and symptoms of cold-related illness.

If an employee exhibits signs or reports symptoms of cold-related illness while working, or during a preventative warmup rest period, the supervisor will summon appropriate first aid or emergency response.

#### 25.5.1.4 Personal Protective Equipment (PPE)

PPE is an important factor in preventing cold stress related illnesses and injuries. Employees should adhere to the following recommendations when dressing for work in a cold environment:

Wear at least three layers of clothing:

- an inner layer of wool, silk, or synthetic to wick moisture away from the body;
- a middle layer of wool or synthetic to provide insulation even when wet;
- an outer wind and rain protection layer that allows some ventilation to prevent overheating.

Wear a hat or hood; up to 40% of body heat can be lost when the head is left exposed.

Wear wool or synthetic socks that do not absorb water. Cotton socks are not recommended as they absorb water and stay wet.

Wear insulated boots or shoes. When purchasing footwear for winter use consider purchasing the footwear a half size larger to allow for the wearing of thicker insulating socks.

Do not wear tight clothing; loose clothing provides better ventilation and the retention of produced body heat.

Keep a complete change of clothing including extra socks available in case work clothes become wet.

## 25.6 Training

### 25.6.1 Initial

Supervisors shall ensure all employees have received Cold Stress training prior to working in such conditions.

The COMPANYNAME Safety Representative can provide cold stress training upon request.

### 25.6.2 Refresher

Employees shall receive refresher training as cold weather approaches and when the following situations occur:

Changes in the workplace or type of work being performed renders previous training obsolete

When company policies and procedures are added or revised

Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

### 25.6.3 Recordkeeping

All training records should be maintained in the employees personnel file and maintained by the supervisor.

## 25.7 Reference

Government of Canada – Wind Chill Index

<https://www.canada.ca/en/environment-climate-change/services/weather-health/wind-chill-cold-weather/wind-chill-index.html>

OSHA – Cold Stress

<https://www.osha.gov/winter-weather>

Ohio State University Heat and Cold Stress Safety Program

## 25.8 Appendix

Wind Chill Index: Protective Measures

Cold Weather – Pre-planning Checklist

Cold Weather – Daily Planning Checklist

Cold Weather – Understanding Cold-related Emergencies

## WIND CHILL INDEX: PROTECTIVE MEASURES

### Protective Measures to Take at Each Risk Level

Use the protective measures described for each risk level to help you plan ahead, and schedule and train your workers so that everyone is prepared to work safely as the wind chill index drops.

The wind chill index chart is a simple tool and a useful guide for employers making decisions about protecting workers in cold weather. It does not account for certain conditions that contribute additional risk, such as physical exertion. Consider taking the steps at the next highest risk level to protect workers from the added risks posed by:

- Working out of direct sunlight
- Exposure to sustained winds
- Lack of available shelter or warming locations
- Working in active precipitation (rain or snow)

Under most circumstances, fluid intake should be at least twelve (12) cups per day but not exceed six (6) cups per hour or twelve (12) quarts per day. This is important to maintain hydration as the body works to remain warm.

		Temperature																	
Wind speed (mph)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
	60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98
Frostbite Times		30 minutes						10 minutes						5 minutes					

### National Weather Service Wind Chill Chart

Adapted from: <https://www.weather.gov/safety/cold-wind-chill-chart>

Actions for Conditions	Wind Chill Index
Low Risk	0°F to -9°F
Moderate Risk	-10°F to -27°F
High Risk	-28°F to -39°F
Very High Risk	-40°F to -47°F
Severe Risk	-48°F to -54°F
Extreme Risk	-55°F and colder

### Summary of Risk Levels and Associated Protective Measures

The most critical actions employers should take to help prevent cold-related illness at each risk level:

Wind Chill	Exposure Risk	Health Concerns	Recommendations
0°F to -9°F	<b>Low</b>	Slight increase in discomfort	<ul style="list-style-type: none"> <li>• Dress warmly</li> <li>• Stay dry</li> <li>• Keep active</li> <li>• Take periodic warming breaks</li> </ul>
-10°F to -27°F	<b>Moderate</b>	Discomfort Moderate risk of hypothermia and frostbite if outside for long periods of time without adequate clothing or shelter from wind and cold.	<ul style="list-style-type: none"> <li>• Dress in layers of warm clothing, including a wind-resistant outer layer.</li> <li>• Wear a hat, mittens or insulated gloves, a scarf, and insulated, waterproof footwear.</li> <li>• Stay dry</li> <li>• Keep active</li> <li>• Take frequent warming breaks</li> </ul>
-28°F to -39°F	<b>High</b> Exposed skin can freeze in 10 to 30 minutes	High risk of frostnip and frostbite. Check face and extremities frequently for numbness or paling of skin. High risk of hypothermia if outside for long periods of time without adequate clothing or shelter from wind and cold.	<ul style="list-style-type: none"> <li>• Dress in layers of warm clothing, including a wind-resistant outer layer.</li> <li>• Cover exposed skin</li> <li>• Wear a hat, mittens or insulated gloves, a scarf, neck tube or face mask, and insulated, waterproof footwear.</li> <li>• Stay dry</li> <li>• Keep active</li> <li>• Take frequent warming breaks</li> </ul>
-40°F to -47°F	<b>Very High</b> Exposed skin can freeze in 5 to 10 minutes (In sustained winds over 30mph frostbite can occur even faster)	Very high risk of frostbite. Check face and extremities frequently for numbness or paling of skin. Very high risk of hypothermia if outside for long periods of time without adequate clothing or shelter from wind and cold.	<ul style="list-style-type: none"> <li>• Dress in layers of warm clothing, including a wind-resistant outer layer.</li> <li>• Cover all exposed skin</li> <li>• Wear a hat, mittens or insulated gloves, a scarf, neck tube or face mask, and insulated, waterproof footwear.</li> <li>• Stay dry</li> <li>• Keep active</li> <li>• <b>Take frequent warming breaks</b></li> </ul>
-48°F to -54°F	<b>Severe</b> Exposed skin can freeze in 2 to 5 minutes (In sustained winds over 30mph frostbite can occur even faster)	Severe risk of frostbite. Check face and extremities frequently for numbness or paling of skin. Severe risk of hypothermia if outside for long periods of time without adequate clothing or shelter from wind and cold.	<ul style="list-style-type: none"> <li>• Be careful, dress in layers of warm clothing, including a wind-resistant outer layer.</li> <li>• <b>Cover all exposed skin</b></li> <li>• Wear a hat, mittens or insulated gloves, a scarf, neck tube or face mask, and insulated, waterproof footwear.</li> <li>• <b>Be ready to cut short or cancel outside activity</b></li> <li>• Stay dry</li> <li>• Keep active</li> <li>• Take frequent warming breaks</li> </ul>
-55°F and colder	<b>Extreme</b> Exposed skin can freeze in less than 2 minutes	<b>DANGER!</b> Outdoor conditions are hazardous	<ul style="list-style-type: none"> <li>• <b>Stay indoors</b></li> </ul>



**COLD WEATHER - PRE-PLANNING CHECKLIST**

This checklist can be used to develop a pre-plan for working in environments with cold temperatures and significant wind chill.

- ☐ Develop a list of cold weather supplies (portable heaters, shelters, warming packs, water, blankets, high-calorie nutrition bars, etc.). Estimate quantities needed and identify responsible persons to manage the acquisition, transportation, distribution, and maintenance of supply inventory.
- ☐ Create emergency action plan for cold-related illness (who will provide first aid and emergency services)
- ☐ Develop and acclimation schedule for new workers or workers returning from absences longer than one week
- ☐ Identify methods of gaining real-time access to important weather forecast and advisory information from the National Weather Service.
- ☐ Determine how weather information will be used to modify work schedules, provide water, and warming breaks, or to cease work activity, as necessary.
- ☐ Train workers on the risks associated with working in cold temperatures, how to identify cold-related illnesses, and steps that will be implemented to reduce exposure risk.
- ☐ Ensure a knowledgeable person is available at each work site who can develop and enforce work and rest schedules, and conduct physiological monitoring during periods of cold and very high/severe/extreme risk levels for cold-related illness.
- ☐
- ☐
- ☐
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- ☐

*This checklist is adapted from concepts appearing in OSHA's Heat-related Illness Prevention Training Guide*

**COLD WEATHER - DAILY PLANNING CHECKLIST****Knowledgeable Person**

- ☐ For high and very high/extreme wind chill index risk levels, is there a knowledgeable person at the work site who is well informed about cold-related illness, able to determine and enforce appropriate work/rest schedules, and can conduct physiological monitoring as necessary?

**Training** Do workers know the:

- ☐ Common signs and symptoms of heat-related illness(es)?
- ☐ Proper precautions to prevent heat-related illness?
- ☐ Importance of acclimation?
- ☐ Importance of frequent hydration (even if they are not thirsty)?
- ☐ Measures to take if someone is exhibiting signs and/or symptoms of heat-related illness?

**Emergencies**

- ☐ Is everyone aware of who to contact in event of emergency?
- ☐ Can workers provide location if they need to call emergency services?
- ☐ Is a first-aid provider identified and available?

**Warming Area/Shelter**

- ☐ Are shelters and heaters available for breaks and if workers need to recover?

**Worker Reminders**

- ☐ Hydrate frequently
- ☐ Maintain caloric intake (eat small frequent high-calorie meals and snacks)
- ☐ Take frequent warming breaks in a warm area out of the wind and cold
- ☐ Report heat-related signs and symptoms early

**Other**☐☐☐

*This checklist is adapted from concepts appearing in OSHA's Heat-related Illness Prevention Training Guide*

## COLD WEATHER - UNDERSTANDING COLD-RELATED EMERGENCIES

### How to Prepare for a Cold-related Emergency

Employers should confirm that worksite emergency procedures include sufficient information to properly address cold-related and cold weather emergencies.

Have a plan in the event a worker experiences a cold-related illness

Ensure medical services are available and that workers know what to do if someone develops signs and symptoms of a cold-related illness.

Be prepared to provide first aid for any cold-related illness and call emergency services (third-party (911) or onsite medical provider) if a worker shows signs and symptoms of hypothermia or frostbite.

Be able to provide clear and concise directions to the work site

Respond immediately to symptoms of cold-related illness — move worker to warm area, remove wet clothing, dry and warm the skin, place warm packs in the armpits, groin area, and on the back of the neck. Give worker something to drink. Call emergency services should the worker lose consciousness or appear confused or uncoordinated. Have someone stay with ill worker.

Ensure emergency procedures are used when appropriate.

Develop a plan to reschedule or terminate work if conditions become too risky

### How to Respond to a Cold-related Emergency

If workers report or supervisors observe sign and/or symptoms of heat-related illness, stop work activity immediately. Take action while waiting for help.

#### HYPOTHERMIA IS A MEDICAL EMERGENCY.

**Call 911 immediately if a worker shows any signs of hypothermia.**

Illness	Signs and Symptoms	First Aid
Trench Foot	<ul style="list-style-type: none"> <li>• Swelling of the feet</li> <li>• Redness or blotchiness to the skin</li> <li>• Numbness</li> <li>• Tingling, itching, or burning sensation</li> <li>• Skin tissue that dies and falls off</li> <li>• In severe cases, blistering may occur</li> </ul>	<ul style="list-style-type: none"> <li>• Remove wet socks, wash feet, and allow to dry</li> <li>• Rest and elevate the affected foot to encourage circulation</li> <li>• Apply heat packs to affected area for up to five minutes</li> <li>• Keep feet dry</li> <li>• Ibuprofen may help alleviate pain and swelling. Consult a physician before taking any medications.</li> <li>• If signs and symptoms do not improve, seek medical attention</li> </ul>
Dehydration	<p>Initial to Moderate</p> <ul style="list-style-type: none"> <li>• Thirst</li> <li>• Dry mouth</li> <li>• Darker urine</li> <li>• Decreased urine production</li> <li>• Lethargy</li> <li>• Dizziness</li> <li>• Headache</li> <li>• Muscle weakness</li> </ul> <p>Advanced</p> <ul style="list-style-type: none"> <li>• Lack of sweating</li> <li>• Sunken eyes</li> <li>• Shriveled and dry skin</li> <li>• Low blood pressure</li> <li>• Increased heart rate</li> <li>• Fever</li> <li>• Delirium</li> <li>• Unconsciousness</li> </ul>	<ul style="list-style-type: none"> <li>• Have patient sit or lie down in warm area out of the wind and cold.</li> <li>• Provide plenty of water or other cool beverages to drink. Non-caffeinated, low-sugar electrolytic drinks are recommended.</li> <li>• If the patient is showing advanced signs and symptoms of dehydration contact medical services.</li> </ul>

Frostnip	<ul style="list-style-type: none"> <li>• Skin is pale or may turn red and feel extremely cold or numb</li> <li>• Burning sensation</li> <li>• Skin is still pliable and soft</li> <li>• Ears, cheeks, noses, fingers, and toes are the most commonly affected</li> </ul>	<ul style="list-style-type: none"> <li>• Move patient to a warm area out of the wind and cold.</li> <li>• Check and treat for hypothermia</li> <li>• Protect skin from further damage</li> <li>• Remove wet clothing and gently dry the skin; do not rub the skin.</li> <li>• Rewarm skin using warm, not hot water</li> <li>• Drink warm (not hot) liquids</li> <li>• OTC medications for inflammation</li> </ul>
Frostbite	<ul style="list-style-type: none"> <li>• Early-stage frostbite Skin appears pale, yellow, or white and may itch, sting, and/or burn.</li> <li>• Intermediate stage frostbite Skin becomes hard and appears shiny or waxy. Blisters may form as tissues thaw.</li> <li>• Advanced stage frostbite Skin is hard and cold to the touch. The skin darkens and may appear blue or black in color.</li> </ul>	<ul style="list-style-type: none"> <li>• Move patient to a warm area out of the wind and cold.</li> <li>• Check and treat for hypothermia</li> <li>• Protect skin from further damage. Never rub the skin but treat the affected areas gently.</li> <li>• Do not allow victim to walk on frostbitten feet</li> <li>• Get person indoors and out of the cold</li> <li>• Remove wet clothing</li> <li>• Rewarm skin using warm, not hot water</li> <li>• Do not blow hot air on the area or rewarm skin with direct heat such as a stove, fire, heat lamp, or heating pad</li> <li>• Drink warm (not hot) liquids</li> </ul>
Hypothermia	<ul style="list-style-type: none"> <li>• Shivering (initially)</li> <li>• Slurred speech or mumbling</li> <li>• Slow, shallow breathing</li> <li>• Weak pulse</li> <li>• Clumsiness or lack of coordination</li> <li>• Drowsiness or very low energy</li> <li>• Confusion or memory loss</li> <li>• Loss of consciousness</li> <li>• Bright red, cold skin (initially)</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid rough handling which can lead to cardiac arrhythmia</li> <li>• Get person indoors and out of the cold</li> <li>• Remove wet clothing and wrap in dry blankets</li> <li>• Restore warmth slowly</li> <li>• Warm the trunk first, warming extremities first can lead to shock</li> <li>• Apply warm packs to armpits, groin, chest</li> <li>• If the victim can drink fluids, provide warm (not hot) drinks</li> <li>• Begin CPR if victim shows no signs of life</li> </ul>
NOTE: If you are not a medical professional, use this information only as a guide to help workers in need		

## **Chapter 26 Respiratory Protection Program: Voluntary Use Only**

### **26.1 Purpose, Scope, and Policy**

#### **26.1.1 Purpose**

The purpose of this program is to ensure that all employees are protected from exposure to respiratory hazards.

#### **26.1.2 Scope**

At this time, management has evaluated its work environments and does not recognize any potential source for respiratory hazards over the OSHA permissible exposure limits (PEL)s. This evaluation is made based on the recognition that hazards either do not exist or are being controlled through alternative measures such as engineering controls.

#### **26.1.3 Policy**

Management requires that all employees exposed to respiratory hazards be provided adequate respiratory protection.

### **26.2 Roles & Responsibilities**

#### **26.2.1 Employer**

Management will continue to evaluate its work environments on an ongoing basis. In the event that the potential for respiratory hazards is identified, further steps will be taken to protect its employees including, but not limited to:

- Instituting a complete respiratory protection program
- Providing the exposed employees with protective measures such as respirators and the appropriate medical and fit testing, etc.
- Training the exposed employees as to the proper use and limitations of the equipment they will be using

#### **26.2.2 Employee**

It is the responsibility of the employee to attend training sessions regarding the limitations of the mask they will be wearing. Employees need to have knowledge on the proper way to wear dust masks and their uses and limitations.

### **26.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>x</sup>

### **26.4 Hazards**

Hazards are present when employees do not know the limitations of a filtering face-piece and wear it unaware that contaminants are leaking into the mask.

### **26.5 Hazard Control Measures**

An employer may provide respirators at the request of employees or permit employees to use their own respirators if the employer determines that such respirator use will not in itself create a hazard. If the employer determines that voluntary respirator use is permissible, the employer shall provide the respirator users with the information contained in appendix D (see appendices at the end of this program).

Employers are not required to provide or pay for respirators that are used voluntarily by employees.

Until such a time as this potential is identified, management will allow its employees to use filtering facepieces (dust masks) on a voluntary basis with the following provisions:

- Employees will be required to review a copy of OSHA's Appendix D of the respiratory protection standard found in OSHA 29 CFR 1910.134 at least annually
- Dust masks must be NIOSH approved and carry the NIOSH label
- Dust masks must be properly worn according to the manufacturer's instructions
- Failure to follow these guidelines for voluntary use will result in disciplinary action

If the employee wishes to use a respirator mask beyond a filtering facepiece (dust mask), the employer must establish and implement those elements of a written respiratory protection program necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.

## **26.6 Training**

### **26.6.1 Initial**

Initial training will be done prior to employees wearing dust masks. Employees need to be trained on the proper way to wear the masks and what they protect against.

### **26.6.2 Refresher**

Refresher training will be administered when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## **26.7 Reference**

- OSHA Standard 29 CFR 1910.134

## **26.8 Appendix**

- OSHA 29 CFR 1910.134 – Appendix D - English
- OSHA 29 CFR 1910.134 – Appendix D - Spanish

**MANDATORY INFORMATION  
FOR EMPLOYEES VOLUNTARILY USING RESPIRATORS****When Not Required Under the Standard**

OSHA 29 CFR 1910.134 – Appendix D - English

(OSHA Standard 1910.134, Appendix D)

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the limitations of the respirator.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Employee Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**INFORMACIÓN OBLIGATORIA  
PARA LOS EMPLEADOS QUE USEN RESPIRADORES VOLUNTARIAMENTE****Cuando no es Requerido por la Norma**

OSHA 29 CFR 1910.134 – Apéndice D – Español

(Norma de OSHA 1910.134, Apéndice D)

Los respiradores son un método efectivo de protección contra peligros designados cuando son seleccionados y usados adecuadamente. El uso del respirador es fomentado, incluso cuando las exposiciones están por debajo del límite de exposición, para proveer un nivel adicional de comodidad y protección para los trabajadores. Sin embargo, si un respirador se utiliza incorrectamente o no se mantiene limpio, el respirador mismo puede ser un peligro para el trabajador. A veces, los trabajadores pueden usar respiradores para evitar exposiciones a peligros, incluso si la cantidad de la sustancia peligrosa no excede a los límites establecidos por la norma de OSHA. Si su empleador provee respiradores para uso voluntario, o si usted provee su propio respirador, necesita tener ciertas precauciones para asegurar que el respirador mismo no presenta un peligro.

Debe hacer lo siguiente:

1. Lea y siga todas las instrucciones provistas por el fabricante en el uso, mantenimiento, limpieza, cuidado, y advertencias de acuerdo con las limitaciones de los respiradores.
2. Escoja respiradores certificados para usar, y proteger contra el contaminante en cuestión. NIOSH, (siglas en inglés) El Instituto Nacional de Seguridad y Salud en el Trabajo del Departamento de Salud y Servicios Humanos de los U.S.A. Una etiqueta o una declaración de certificación debe aparecer en el respirador o en el empaque del respirador. Esto dirá que el respirador está diseñado para y cuanto lo protegerá.
3. No use su respirador dentro de atmósferas que contenga contaminantes para el cual su respirador no está diseñado para protegerlo. Por ejemplo, un respirador diseñado para filtrar partículas de polvo no lo protegerá contra gases, vapores, o muy pequeñas partículas sólidas de humo o vapores.

Mantenga un seguimiento a su respirador para que no use el respirador de otro por error.

Nombre del Empleado: \_\_\_\_\_

Firma del Empleado: \_\_\_\_\_ Fecha: \_\_\_\_\_



## Chapter 27 Respiratory Protection Program

### 27.1 Purpose, Scope & Policy

#### 27.1.1 Purpose

COMPANYNAME has determined that a certain number of its employees are or can be exposed to respiratory hazards. The purpose of this program is to ensure that all employees are protected from exposure to respiratory hazards.

#### 27.1.2 Scope

This program applies to employees who are required to wear respirators during normal work operations and during certain non-routine or emergency operations. Employees participating in the respiratory protection program do so at no cost to them.

Employees who voluntarily choose to use a cartridge style respirator when the respirator is not required are subject to the medical evaluation, cleaning, maintenance, and storage elements of this program. These individuals will also receive training covering proper procedures for cleaning, maintenance, and storage of their respirators. In addition, the information specified in 1910.134 Appendix D: Important Information about Voluntary Use of Respirators will be provided to all voluntary users of respirators.

Employees who voluntarily choose to use a filtering facepiece respirator (i.e., a dust mask style respirator) are excluded from all other requirements of this program. However, those employees will still be given a copy of 1910.134 Appendix D: Important Information about Voluntary Use of Respirators.

#### 27.1.3 Policy

Engineering controls, such as ventilation and substitution of less toxic materials, are the first line of defense. However, engineering controls have not always been feasible for some of our operations or have not always completely controlled the identified hazards. In these situations, respirators and other personal protective equipment must be used.

### 27.2 Roles & Responsibilities

#### 27.2.1 Employer Responsibilities

##### 27.2.1.1 Management

It is the responsibility of management to train all affected employees on proper respiratory protection. Affected employees refers to employees that are required to wear respirators during normal work operations.

##### 27.2.1.2 Supervisors

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their supervision. Duties of the supervisor include:

- Ensure that employees, under their supervision (including new hires), have received appropriate training, fit testing, and medical evaluation.
- Ensure the availability of appropriate respirators, filters/cartridges, cleaning wipes, etc.
- Be aware of tasks requiring the use of respiratory protection.
- Enforce the proper use of respiratory protection when necessary.
- Ensure that respirators are properly cleaned, maintained, and stored according to the respiratory protection plan.
- Ensure that respirators have an adequate seal, fit well, and do not cause discomfort.

- Continually monitor work areas and operations to identify changes in respiratory hazards.
- Coordinate with the program administrator on how to address respiratory hazards or other concerns regarding the program.

### 27.2.1.3 Program Administrator

The person designated as the program administrator is: RPPRESPONSIBLEPERSON.

Duties of the program administrator include:

- Identify work areas, processes or tasks that require workers to wear respirators.
- Evaluate hazards.
- Selection of respiratory protection options.
- Monitor respiratory use to ensure that respirators are used in accordance with their certifications.
- Ensure proper storage and maintenance of respiratory protection equipment.
- Arrange for and/or conduct training & qualitative/quantitative fit testing.
- Administer the medical surveillance program.
- Maintain records required by this program.
- Evaluate the program.
- Update the written program, as necessary, to reflect workplace changes that affect respirator use.

### 27.2.2 Employee Responsibilities

Each employee has the responsibility to wear his or her respirator correctly in areas required and in the manner in which they were trained. Employees will also:

- Care for and maintain their respirators as instructed and store them in a clean and sanitary location.
- Inform their supervisor if the respirator no longer fits well and request a new one that fits properly.
- Inform their supervisor, or the program administrator, of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding this program.
- Notify their supervisor or the program administrator of any other problems associated with using their respirator.

## 27.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xi</sup>

## 27.4 Hazards

Respiratory hazards can exist in various forms at general industry worksites. They may be gases, vapors, dusts, mists, fumes, smoke, sprays, and fog. Some of these substances can make you sick or kill you if you breathe them in. Certain respiratory hazards act quickly, like carbon monoxide – an invisible, odorless gas, which can make you unconscious or kill you in minutes. Other respiratory hazards can take years to make you sick, like asbestos which can cause lung cancer years or even decades after you breathe it in. More examples of respiratory hazards in general industry include, but are not limited to:

- Dusts, such as those found when adding dry ingredients to a mixture.
- Metal fumes from welding, cutting, and smelting of metals.
- Solvent vapors from spray coatings, adhesives, paints, strippers, and cleaning solvents.
- Infectious agents, such as tuberculosis bacteria in healthcare settings.
- Chemical hazards, such as chlorine gas and anhydrous ammonia in chemical processing and use operations.
- Sensitizing vapors or dusts, such as isocyanides, certain epoxies, and beryllium.
- Oxygen deficiency, which might be found in confined spaces.
- Pharmaceuticals during the production of prescription drugs.

## 27.5 Hazard Control Measures

When controlling exposure to occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example):

- Enclosure or confinement of the operation;
- General and local ventilation; and
- Substitution of less toxic materials

When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section.

When respirators are necessary to protect the health of the employee, appropriate respirators shall be provided. The employer shall provide respirators which are applicable and suitable for the purpose intended and shall be responsible for the establishment and maintenance of a respiratory protection program, as identified below. The program shall cover each employee required by this section to use a respirator.

### 27.5.1 Hazard Evaluation Update

The program administrator is responsible to revise and update the hazard evaluation as needed (i.e., any time work process changes may potentially affect employee exposure). If an employee feels that respiratory protection is needed during a particular activity, they are to contact their immediate supervisor or program administrator, then the program administrator will evaluate the potential hazard. The program administrator will then communicate the results of that assessment back to the affected employees. If it is determined that respiratory protection is necessary, all other elements of this program will be in effect for those tasks. This program will be updated according to the statements above in this paragraph.

### 27.5.2 Evaluating Respiratory Hazards

The program administrator will select respirators to be used on-site based on the hazards to which employees are exposed and in accordance with all OSHA standards. The program administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. The hazard evaluation will include:

- Identification of respiratory hazard sources and development of a hazardous substance list used in the workplace by location or work process.
- Review of work processes to determine where hazardous exposures occur and the magnitude of the exposures. This review will be conducted by surveying the workplace, reviewing process records, and talking with employees and supervisors.
- When necessary, exposure monitoring will be conducted to measure potential hazardous exposures.

#### 27.5.2.1 IDLH Atmospheres Requiring Highest Level of Protection

No employee will be permitted to work in any atmosphere that is Immediately Dangerous to Life & Health (IDLH).

No employee will be permitted to work in any atmosphere where oxygen concentration is below 19.5% (oxygen deficient) or above 23.5% (oxygen enriched).

Where there is the presence, or the potential of an IDLH atmosphere, air monitoring shall be conducted to ensure the atmosphere is within safe working limits. Refer to Safety Data Sheets and NIOSH tables to identify permissible exposure limits to known or potential atmospheric hazards.

#### 27.5.2.2 Where Respiratory Use is Not Required (Voluntary Use)

An employer may provide respirators at the request of employees or permit employees to use their own respirators if the employer determines that such respirator use will not in itself create a hazard. If the employer determines that voluntary respirator use is permissible, the employer shall provide the respirator users with the information contained in appendix D (see appendices at the end of this program).

Employers are not required to provide or pay for respirators that are used voluntarily by employees.

Until such a time as this potential is identified, management will allow its employees to use filtering facepieces (dust masks) on a voluntary basis with the following provisions:

- Employees will be required to review a copy of OSHA's Appendix D of the respiratory protection standard found in OSHA 29 CFR 1910.134 at least annually
- Dust masks must be NIOSH approved and carry the NIOSH label
- Dust masks must be properly worn according to the manufacturer's instructions
- Failure to follow these guidelines for voluntary use will result in disciplinary action

If the employee wishes to use a respirator mask beyond a filtering facepiece (dust mask), the employer must establish and implement those elements of a written respiratory protection program necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.

See the Respiratory Protection Program: Voluntary Use Only Program for more information.

### **27.5.3 Respirator Selection**

The program administrator is responsible to ensure that the respirator selected will be adequate to effectively reduce exposure to the respirator user under all conditions of use, including reasonably foreseeable emergency situations.

The employer shall select respirators from a sufficient number of respirator models and sizes to ensure the respirator comfortably and correctly fits the user.

The employer shall provide respirators, training, and medical evaluations at no cost to the employee.

#### **27.5.3.1 Workplace and User Factors**

- The program administrator will review the job operation, the equipment and tools that will be used, and any motion or travel required which can interfere with the type of respirator to be selected. When powered air-purifying respirators or continuous-flow airline respirators are used, the physical demands affecting breathing rate will be evaluated.
- The program administrator will ensure that respirators selected will not impair the worker's vision, hearing, communication, and physical movement necessary to perform jobs safely.

#### **27.5.3.2 NIOSH Certification**

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and will be used in accordance with the terms of that certification. All filters, cartridges, and canisters must be color coded with the appropriate NIOSH approval label. The label must not be removed or defaced while it is in use and must remain legible.

#### **27.5.3.3 Assigned Protection Factors**

The assigned protection factors in 1910.134, Table 1--Assigned Protection Factors" will be used when selecting respirators. Half-mask respirators can provide adequate protection for routine respirator use, where employee exposures do not exceed ten times the permissible exposure limit (PEL). The program

administrator will determine the type of respirator to be selected for non-routine or reasonably foreseeable emergency situations.

Respirator manufacturers may have more stringent APF recommendations. Where this is the case follow the more stringent recommendation but never use APF recommendations less stringent than those specified in Table 1 below.

Type of respirator <sup>1, 2</sup>	Quarter mask	Half mask	Full facepiece	Helmet/hood	Loose-fitting facepiece
1. Air-Purifying Respirator	5	<sup>3</sup> 10	50	- -	- -
2. Powered Air-Purifying Respirator (PAPR)	- -	50	1,000	<sup>4</sup> 25/1,000	25
3. Supplied-Air Respirator (SAR) or Airline Respirator					
• Demand mode	- -	10	50	- -	- -
• Continuous flow mode	- -	50	1,000	<sup>4</sup> 25/1,000	
• Pressure-demand or other positive-pressure mode	- -	50	1,000	- -	- -
4. Self-Contained Breathing Apparatus (SCBA)					
• Demand mode	- -	10	50	50	- -
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	- -	- -	10,000	10,000	- -

**Table 1. – Assigned Protection Factors<sup>5</sup>**

**Notes:**

- <sup>1</sup> Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.
- <sup>2</sup> The assigned protection factors in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.
- <sup>3</sup> This APF category includes filtering facepieces, and half masks with elastomeric facepieces.
- <sup>4</sup> The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators and receive an APF of 25.
- <sup>5</sup> These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d)(2)(ii).

## 27.5.4 Contaminant Breakthrough Warning Systems

- For vapor or gas air purifying respirators, the two systems in place to warn respirator wearers of contaminant breakthrough are using respirator cartridges equipped with an end-of-service life

indicator (ESLI) or using a cartridge replacement schedule based on manufacturer breakthrough test data. The company will utilize a cartridge replacement schedule based on the recommendations of the respirator and filter/cartridge manufacturer.

- For respirators worn exclusively for protection against particles, filters will be changed per the manufacturer's specification and whenever the wearer detects a change in breathing resistance, whenever the wearer can detect particulates while correctly wearing the respirator.

### **27.5.5 Medical Evaluation**

- Employees assigned to tasks where respirators are utilized must be physically able to perform the work while properly wearing the respirator. Accordingly, the employer has the responsibility of ensuring that employees are medically fit and able to tolerate the physical and psychological stress imposed by respirator use, as well as the physical stress originating from job and workplace conditions. Employees will not be allowed to wear respirators until a physician or other licensed health care professional (PLHCP) has determined that they are medically able to do so.
- Any employee refusing the medical evaluation cannot work in an area requiring respirator use.
- Employees voluntarily using filtering face piece respirators (dust masks), provided that is the only respirators used, are exempt from the requirements of the medical evaluation program.

#### **27.5.5.1 Initial Medical Evaluation**

Initial medical evaluation will consist of:

- medical questionnaire evaluation.
- PFT (pulmonary function test) for baseline.
- X-Ray for baseline.
- Physical exam will be added if indicated by a "yes" answer to any of questions 1 through 8 of the Medical Questionnaire.

Employees cleared to wear a respirator will be authorized to do so only until the end of the period specified by the PLHCP determines a medical need to re-evaluate the employee sooner.

A three-year re-evaluation time frame is a good practice based upon the publication by NIOSH titled "A Guide to Working Safely with Silica". As stated in this publication, "NIOSH recommends that medical examinations occur before job placement or upon entering a trade, and at least every 3 years thereafter."

#### **27.5.5.2 Medical Re-Evaluation**

Medical re-evaluation will consist of any, or all, of the elements of the initial evaluation as determined by the PLHCP to be medically indicated.

#### **27.5.5.3 Information Provided to the PLHCP**

The program administrator will provide the PLHCP the following general information before evaluations begin:

- A blank Respirator Medical Evaluation Questionnaire.
- A copy of this written respiratory protection program including a list of respirators used by the company and a copy of the fit testing procedures used by the company.
- The type and weight of the respirator to be used by the employee.
- The duration and frequency of respirator use (e.g., for routine, rescue, and escape tasks).
- The expected physical work effort.
- Additional protective clothing and equipment to be worn.
- Estimates of temperature and humidity extremes that may be encountered.
- Any special or hazardous conditions the employee could encounter.
- A copy of 1910.134(d) Selection of Respirators.

#### **27.5.5.4 Medical Questionnaire Administration**

Employees assigned to tasks requiring the use of respirators will be required to complete the Respirator Medical Evaluation Questionnaire, 1910.134 Appendix C. The program administrator will make available a copy of the questionnaire to all employees requiring medical evaluations. The medical evaluation will be administered confidentially and during working hours at a time and place that is convenient to the employees.

To the extent feasible for maintaining confidentiality, the program administrator or his/her designee will aid employees who are unable to read the questionnaire by providing reading assistance. To ensure confidentiality, the questionnaire will not be reviewed at any time by the program administrator or designee. The program administrator or designee will not review completed questions and there will be no employee/employer interaction that could be considered a breach of confidentiality. Where confidentiality cannot be maintained during administration of the questionnaire, the employee will be sent to the PLHCP for medical evaluation.

If needed, employees will have the opportunity to discuss the questionnaire content and/or examination results with the PLHCP via telephone call. During questionnaire administration, the PLHCP's phone number will be given to employees and access to a phone will be provided at no charge to the employee. All records from medical evaluations, including completed questionnaires, will remain confidential between the employee and the PLHCP.

#### **27.5.5.5 PLHCP's Written Recommendations**

The company will obtain a written recommendation from the PLHCP on whether/or not the employee is medically able to wear a respirator. The recommendation must identify any limitations on the employee's use of the respirator, as well as the need for periodic or future medical evaluations that are required by the PLHCP.

A powered air-purifying respirator (PAPR) will be provided to any employee if information from the PLHCP's written recommendation indicates that the employee can use a PAPR but not a negative pressure respirator. If, subsequent to this evaluation, the PLHCP determines that the employee is able to wear a negative pressure respirator, the company will no longer be required to provide a PAPR to that employee.

The employee will receive a copy of the PLHCP's written recommendations directly from the PLHCP. Information concerning diagnosis, test results, or other confidential medical information will not be disclosed to the company by the PLHCP.

#### **27.5.5.6 Additional Medical Evaluations**

The company will provide additional medical evaluation or medical re-evaluation for any employee when:

- The employee reports medical signs or symptoms that are related to the employee's ability to use a respirator.
- A PLHCP, supervisor, or the respirator program administrator observes that the employee is having a medical problem during fit testing or workplace respirator use.
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee re-evaluation.
- A change occurs in workplace conditions (e.g., physical work effort, type of respirator used, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.
- The employee's medical authorization has expired.

The content of such additional medical evaluations will be determined by the PLHCP.

#### **27.5.6 Fit Testing**

Fit testing will be required for all respirators with a tight-fitting face piece. Fit testing will be performed:

- After an employee has completed their medical evaluation and prior to being allowed to wear any respirator with a tight-fitting face piece in the work environment.

- Whenever a different respirator face piece is used.
- At least annually thereafter.
- When there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).
- If the employee is observed not wearing their respirator correctly.

Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find the optimal fit.

Fit testing of tight-fitting PAPRs is to be conducted in negative pressure mode (i.e., with the fan motor turned off).

Fit testing of tight-fitting airline respirators will be conducted using an identical negative pressure air purifying respirator face piece as a substitute test mask.

If for any reason an employee finds that the respirator fit is unacceptable, a reasonable opportunity to select a different face piece and to be retested will be provided.

The form Respirator Fit Test & Training Record will be used to document respirator fit testing.

#### **27.5.6.1 Fit Testing Procedure**

Fit testing will be conducted by a person selected by the program administrator. If employee exposures will not exceed airborne concentrations in excess of 10 times the Permissible Exposure Limit (PEL), qualitative fit tests can be conducted on all negative pressure respirators. If conditions create risk of exposure in excess of 10 times the PEL, the program administrator will evaluate whether quantitative fit testing is required.

Fit testing will be administered by using the OSHA-accepted qualitative fit test protocols found in 1910.134 Fit Test Procedures (Mandatory). The qualitative fit test protocol that will be used is the Irritant Smoke (Stannic Chloride) Protocol.

#### **27.5.6.2 Fit Testing Exercises**

When qualitative fit tests are to be conducted, the program administrator will ensure that the test exercises described in 1910.134 Part 1 A-14 are performed.

While a fit test is in progress, the respirator must not be adjusted.

Employees will perform fit test exercises in the test environment while wearing other safety equipment that will be worn during actual respirator use that could interfere with respirator fit.

If the employee exhibits breathing difficulty during the fit test, he/she will be referred to the PHLCP to determine whether a respirator can be worn while performing his or her duties.

#### **27.5.7 Respirator Use**

The program administrator will monitor the work area in order to be aware of changing conditions where employees are using respirators.

##### **27.5.7.1 Monitoring Respirator Effectiveness**

The program administrator and/or supervisors (lead, department head, etc.) will be responsible for maintaining appropriate surveillance of changes in work area conditions that may increase employee exposure or stress.

Employees (respirator users) are required to leave the respirator use area when:



- They experience severe discomfort in wearing the respirator or if the employee experiences sensations of dizziness, nausea, weakness, breathing difficulty, coughing, sneezing, vomiting, fever, and chills.
- They can detect:
  - vapor, gas, or particulate breakthrough (by odor, taste, and/or irritant effects);
  - a change in breathing resistance; or
  - leakage of the face piece
- They need to wash their faces and respirator face pieces as needed to prevent skin or eye irritation associated with respirator use.
- They are replacing filter cartridge, or canister elements according to the established replacement schedule.
- The respirator is not properly functioning and must be replaced, repaired, or discarded.

The employee will be allowed back into the respirator use area only after the respirator has been replaced or repaired.

#### **27.5.7.2 Face Piece Seal Protection**

The company will not permit respirators with tight-fitting face pieces to be worn by employees who have conditions that would compromise the face piece-to-face seal. Examples of these conditions include facial hair (e.g., stubble, bangs) that interferes with the face piece seal or valve function, absence of normally worn dentures, facial deformities (e.g., scars, deep skin creases, prominent cheekbones), or the use of jewelry or headgear that projects under the face piece seal.

Corrective glasses or goggles, or other personal protective equipment, must be worn in such a way that they do not interfere with the seal of the face piece to the face. Full-face piece respirators will be provided where either corrective glasses or eye protection is required, since corrective lenses can be mounted inside a full-face piece respirator. The use of contact lenses with respirators where the wearer has successfully worn such lenses before will be allowed.

A user seal check will be performed every time a tight-fitting respirator is put on or adjusted to ensure proper seating of the respirator to the face. The user seal check conducted must be either the positive and/or negative pressure checks described in 1910.134: User Seal Check Procedures (Mandatory) or the manufacturer's recommended procedures when equally protective.

#### **27.5.7.3 Inspection**

Respirators used in routine situations will be inspected before each use, during cleaning, and at least monthly. Inspections shall be done according to manufacturer recommendations.

Respirator inspections will include a check of respirator function, tightness of connections, and the condition of the various parts including but not limited to: The face piece, head straps, valves, connecting tube, and cartridges, canisters, or filters. In addition, the electrometric parts must be evaluated for pliability and signs of deterioration.

#### **27.5.7.4 Maintenance and Care**

The program administrator will oversee the maintenance and care program including:

- Cleaning and disinfecting procedures.
- Proper storage.
- Regular inspections for defects.

Respirators issued for the exclusive use of the employee shall be cleaned and disinfected as often as necessary to maintain them in a sanitary condition.

Respirators issued for the use of more than one employee shall be cleaned and disinfected before use by a different individual.

Respirators maintained for emergency use or used in fit testing and training shall be cleaned and disinfected after each use.

#### **27.5.7.5 Cleaning and Disinfecting**

Respirators will be cleaned using the procedures in 1910.134 Respirator Cleaning Procedures (Mandatory). The respirator manufacturer's cleaning procedures may be used if they are equivalent in effectiveness as 1910.134.

Respirators will be cleaned and disinfected as follows:

- Respirators that are issued for the exclusive use of an employee will be cleaned and disinfected as often as necessary to be maintained in a sanitary condition. Employees will be responsible to clean and disinfect respirators issued for their exclusive use.
- Respirators used by more than one employee will be cleaned and disinfected prior to being used by a different individual.
- Respirators maintained for emergency use, as well as respirators used in fit testing and training, will be cleaned, and disinfected after each use.
- During fit-tests, disinfectant wipes can be used in between respirator wearers to minimize the risk for spreading cold, influenza or other respiratory illness. Note: The person cleaning respirators with disinfectant wipes must be trained to do so.

#### **27.5.7.6 Storage**

Respirators will be stored so that they are protected against damage, contamination, dust, sunlight, temperature extremes, excessive moisture, and damaging chemicals. When respirators are packed or stored, the face piece and exhalation valve will be stored in a manner that prevents deformation. Each respirator should be positioned so that it retains its natural configuration.

The program administrator will ensure that an adequate number of respirators are provided to each work area where they are needed.

#### **27.5.7.7 Repairs**

The program administrator or designee will ensure that respirators that fail to pass inspection, or are otherwise found to be defective, will be returned to the inventory room for replacement. The inventory personnel will remove defective units from service and discarded or repaired immediately.

Repairs shall be made only by qualified persons appropriately trained to perform repairs. Repairs shall be done using only the respirator manufacturer's NIOSH-approved parts designed for the respirator.

Repairs shall be made according to the manufacturer's recommendations and specifications of the type and extent of repairs to be performed.

Reducing and admission valves, regulators, and alarms shall be adjusted and repaired only by the manufacturer, or a technician trained by the manufacturer.

#### **27.5.8 Compressors**

Compressors used for supplying breathing air must be constructed and situated so contaminated air cannot enter the air-supply system. The location of the air intake will be in an uncontaminated area where exhaust gases from nearby vehicles, the internal combustion engine that is powering the compressor itself (if applicable), or other exhaust contaminants being ventilated will not be picked up by the compressor air intake.

Compressors will be equipped with suitable in-line, air-purifying sorbent beds and filters to further ensure breathing air quality and to minimize moisture content so that the dew point at 1 atmosphere pressure is 10°F (5.56°C) below the ambient temperature. Sorbent beds and filters will be maintained and replaced or

refurbished periodically according to the manufacturer's recommendations. An inspection tag will be kept at the compressor indicating the most recent change date and the signature of the program administrator or designee authorized to perform the maintenance.

The program administrator will ensure that the compressor intake will not allow the introduction of carbon monoxide greater than 10 parts per million (ppm) into the system.

Breathing air couplings must be incompatible with outlets for non-respirable air or other gas systems to prevent accidental servicing of airline respirators with non-respirable gases or oxygen. No asphyxiating substance (e.g., nitrogen) will be allowed in the breathing airlines.

### **27.5.9 Program Evaluation**

The program administrator is responsible to conduct evaluations of the workplace, as necessary. Periodic program evaluation is required to ensure that the provisions of the respiratory protection program are being implemented for all employees using respirators. In addition, evaluations will be conducted to ensure the continued effectiveness of the program. Evaluations of the workplace will determine whether the correct respirators are being used and worn properly and will also serve to determine whether the training program is effective.

Supervisors are responsible to periodically monitor employee use of respirators to ensure that they are being used and worn properly.

The program Administrator will regularly consult with employees wearing respirators to ascertain the employees' views on program effectiveness and to identify any problems so that corrective action can be taken.

The following factors will be evaluated to determine program effectiveness:

- Respirators are properly fitted and if employees are able to wear respirators without interfering with effective workplace performance.
- Respirators are correctly selected for the hazards encountered.
- Respirators are used properly depending on the workplace conditions encountered.
- Respirators are being maintained and stored properly.

The program Administrator will be responsible to correct any problems associated with wearing a respirator that are identified by employees or that are revealed during any other part of this evaluation.

### **27.5.10 Recordkeeping**

The program Administrator will retain a copy of the PLHCP's written recommendation for each employee subject to medical evaluation. Each employee's completed medical questionnaire, results of relevant medical tests, examinations, and diagnosis, etc., will be maintained for a period of 30 years by the PLHCP.

The program Administrator will retain fit test records for respirator users until the next fit test is administered. These records consist of:

- Name or identification of the employee tested.
- Type of fit test performed (QLFT, QNFT -- irritant smoke, saccharin, etc.).
- Make, model, and size of the respirator fitted.
- Date of the fit test.
- Pass/fail results if a QLFT is used.
- Fit factor and strip chart recording or other record of the test results if quantitative fit testing was performed.

The form Respirator Fit Test & Training Record will be used to document employee fit testing.

The program Administrator will retain employee-training records that include the names of employees trained and the dates when training was conducted.

The program Administrator will keep a current copy of the company's written respiratory protection program in his office. All written materials required to be maintained under the recordkeeping requirements will be made available, upon request, to the employee who is subject of the records and to the Assistant Secretary or designee of the for examination and copying.

## **27.6 Training**

Management will provide training to respirator users, supervisors, and any person issuing respirators on the contents of the company's Respiratory Protection Program and their responsibilities under it, and on the OSHA respiratory protection standard.

Employees will be trained prior to using a respirator in the workplace. Supervisors will be trained prior to using a respirator in the workplace or prior to supervising employees who wear respirators.

Employees who voluntarily use filtering face piece (dust mask) respirators are exempt from the training requirements. However, the information specified in 1910.134, "Information for employees using respirators when not required under the standard" will still be provided.

The Respiratory Protection Training course materials will cover the following information:

- Information regarding the consequences of improper fit, usage, or maintenance on respirator effectiveness will be provided to employees. Inadequate attention to any of these program elements would obviously defeat the effectiveness of the respirator. Proper fit, usage, and maintenance of respirators are critical to ensure employee protection.
- Employees will be provided an explanation of the limitations and capabilities of the respirator selected for employee use. A discussion of the limitations and capabilities of the respirator will address how the respirator operates. Training will include an explanation of how the respirator provides protection by either filtering the air, absorbing the vapor or gas, or providing clean air from an uncontaminated source, as applicable. Training will include limitations on the use of the equipment such as prohibitions against using an air-purifying respirator in IDLH atmospheres and an explanation of why such a respirator must not be used in these situations.
- Employees will be provided an explanation to understand how to use the respirator effectively in emergency situations including those in which the respirator malfunctions.
- Training will include the procedures for inspecting the respirator, donning, and removing it, checking the fit and respirator seal, and actually wearing the respirator. Employees will be capable of recognizing any problems that may threaten the continued protective capability of the respirator. The training will include the steps employees are to follow if they discover any problems during inspection, including who must receive reports of problems with PPE and where they can obtain replacement equipment if necessary.
- Instructions will be given to respirator users regarding the proper procedures for maintenance and storage of respirators.
- Employees will be provided with medical information that is sufficient for them to recognize the signs and symptoms of medical conditions (e.g., shortness of breath, dizziness) that may limit or prevent the effective use of respirators.
- Employees will be informed of the general requirements of the OSHA respiratory protection standard. This discussion will inform employees that employers are obligated to develop a written program, properly select respirators, evaluate respirator use and correct deficiencies in use, conduct medical evaluations, provide for the maintenance, storage, and cleaning of respirators, and retain and provide access to specific records.

Employees will demonstrate their understanding of the information covered in the training through hands-on exercises and a written test. The program administrator will document respirator training and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested.

### **27.6.1 Initial**

New employees will be provided respirator training prior to using a respirator in the workplace.

### **27.6.2 Refresher**

Employees will be retrained annually and when the following situations occur:

- Changes in equipment, the workplace, or the type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

### **27.7 Reference**

OSHA Standard 29 CFR 1910.134

### **27.8 Appendix**

- Instructions for Administration of Respiratory Medical Evaluation Questionnaire
- Mandatory Respiratory Medical Evaluation Questionnaire – English
- Mandatory Respiratory Medical Evaluation Questionnaire – Spanish
- Respirator Fit Test and Training Record
- Fit Test Procedures
- OSHA 1910.134 Appendix D: Mandatory Information for Employees Using Respirators When Not Required Under the Standard – English
- OSHA 1910.134 Appendix D: Mandatory Information for Employees Using Respirators When Not Required Under the Standard – Spanish
- Mandatory Provision to the PLHCP

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**Instructions for Administration of Respiratory Medical Evaluation Questionnaire**

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**Instructions for Administrative Staff:**

- Fill in the employee's name and other information in the fields below.
- Print this document.
- Staple this cover letter and Respiratory Evaluation (Page 2 of this document) to the front of a self-sealing large envelope.
- Paper clip the stapled Questionnaire to the back of the envelope.
- Give to the employee making certain that they understand the information below.
- Schedule an appointment for the employee at the medical clinic for the appropriate testing (Evaluation of questionnaire, PFT & X-ray).

**Instructions for Administration of  
Respiratory Medical Evaluation Questionnaire**

(OSHA Standard 1910.134)

Employee Name: \_\_\_\_\_

Upon reading the following instructions, please complete the enclosed questionnaire prior to attending your scheduled medical appointment. Place the questionnaire into the envelope and seal it. The completed questionnaire is to be given to the doctor at the time of your scheduled medical appointment.

To maintain confidentiality during the administration of the Mandatory Respiratory Medical Evaluation Questionnaire, the company;

- Will provide a convenient time and place during working hours for you to complete the Respirator Questionnaire.
- Will only provide assistance in understanding the nature of the questions but will not assist you with your answers to the questions.
- Will at no time review completed questions or interact with you about your answers.
- Will send you to the doctor for medical evaluation if confidentiality cannot be maintained during the administration of the questionnaire.
- Will provide you with the name and phone number of the clinic to discuss the content of the questionnaire and/or results of the examination. You may call Dreyer Medical Clinic at (630) 859-6822 at any time from the office.
- Will only obtain a written recommendation from the Doctor on whether/or not you are medically able to wear a respirator.

**ALL RECORDS, INCLUDING COMPLETED QUESTIONNAIRE AND MEDICAL EVALUATION, WILL REMAIN CONFIDENTIAL BETWEEN YOU AND THE DOCTOR**

**Remember that you must not wear a respirator until you have your helmet sticker signifying you as respirator authorized.**

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**Respiratory Evaluation: Employer Authorization & Information**


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Employer will complete the following:

Employer Name:

Employer Address:

Employee Name:

Employee SSN:

**Check Type(s) of Respirator(s) To Be Used (Mark all that apply)**

<input type="checkbox"/> Air-purifying (non-powered)	<input type="checkbox"/> Continuous-Flow Respirator	<input type="checkbox"/> Dust Mask
<input type="checkbox"/> Air-purifying (powered)	<input type="checkbox"/> Supplied-Air Respirator	<input type="checkbox"/> 1/2 Face with canisters
<input type="checkbox"/> Atmosphere Supplying Respirator	<input type="checkbox"/> Open Circuit SCBA	<input type="checkbox"/> Full Face with canisters
<input type="checkbox"/> Combination Air-line and SCBA	<input type="checkbox"/> Closed Circuit SCBA	

Make \_\_\_\_\_ Model \_\_\_\_\_ Cartridge \_\_\_\_\_

**Special Work Considerations (Mark all that apply while using Respirator)**

<input type="checkbox"/> Protective Clothing	<input type="checkbox"/> Temperature Extremes	<input type="checkbox"/> Mostly Hot
<input type="checkbox"/> Enclosed Spaces	<input type="checkbox"/> High Places	<input type="checkbox"/> Mostly Cold
<input type="checkbox"/> Other: _____		

**Exposure to Hazardous Materials (Mark all that apply)**

<input type="checkbox"/> Arsenic	<input type="checkbox"/> Cadmium	<input type="checkbox"/> Coke Oven
<input type="checkbox"/> Formaldehyde	<input type="checkbox"/> Methylene Chloride	<input type="checkbox"/> Benzene
<input type="checkbox"/> Chromium	<input type="checkbox"/> Cotton Seed/Dust	<input type="checkbox"/> Lead
<input type="checkbox"/> Textiles	<input type="checkbox"/> Silica	Other(s): _____

**Extent of Usage**

☐ Daily; Total Hours \_\_\_\_\_  
Heavy

☐ Occasionally (Twice a week or less); Total Hours \_\_\_\_\_

☐ Rarely or in case of Emergency; Total Hours \_\_\_\_\_

**Expected Physical Effort Required**

☐ Light ☐ Moderate ☐

**EVALUATION AUTHORIZED BY:** \_\_\_\_\_

Questionnaire will be ☐ Mailed ☐ Hand Carried ☐ Other

RPPRESPONSIBLEPERSON, Program Administrator

DO NOT WRITE BELOW THIS LINE. PLHCP WRITTEN STATEMENT FOR RESPIRATORS

**Physician Will Complete the Following: (Mark all that apply)**

☐ The above individual HAS been examined for respirator fitness in accordance with 29 CFR 1910.134. This limited evaluation is specific to respirator use only. Employees should be instructed to report and difficulties in using respirators or change of any physical status to their supervisor or physician. This evaluation included the Respiratory Questionnaire outlined in 29 CFR 1910.134.

☐ The above individual HAS NOT been examined by me for respirator fitness. The employee's medical evaluation consisted of a review of OSHA's Medical Evaluation Questionnaire Part A Section 2. In accordance with 29 CFR 1910.134, this limited evaluation is specific to respirator use only. Employees would be instructed to report any difficulties in using respirators or change of any physical status to their supervisor or physician. This evaluation included the Respiratory Questionnaire outlined in 29 CFR 1910.134.

In accordance with specific OSHA requirements, I have informed the above-named individual of the results of this evaluation and of any medical conditions resulting from exposures that may require further explanation or treatment. Where applicable, the above-named Individual has been informed of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos, lead, and/or other chemical exposure(s).

\_\_\_\_\_  
Physician's Name (Print)

\_\_\_\_\_  
Physician's Signature

\_\_\_\_\_  
Physician's License Number

\_\_\_\_\_  
Exam Date

\_\_\_\_\_  
Expiration Date

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**Mandatory Respiratory Medical Evaluation Questionnaire – English**

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(OSHA Standard 1910.134)

**To the employer:** Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

**To the employee:** Can you read (circle one): Yes/No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

**Part A. Section 1. (Mandatory)** The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: \_\_\_\_\_
2. Your name: \_\_\_\_\_
3. Your age (to nearest year): \_\_\_\_\_
4. Sex (circle one):     Male / Female
5. Your height:         \_\_\_\_\_ ft. \_\_\_\_\_ in.
6. Your weight:        \_\_\_\_\_ lbs.
7. Your job title: \_\_\_\_\_
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): \_\_\_\_\_
9. The best time to phone you at this number: \_\_\_\_\_
10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No
11. Check the type of respirator you will use (you can check more than one category):  
\_\_\_\_\_ N, R, or P disposable respirator (filter-mask, non- cartridge type only).  
\_\_\_\_\_ Other type (for example, half- or full-face piece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator (circle one): Yes/No If "yes," what type(s)? \_\_\_\_\_

**Part A. Section 2. (Mandatory)** Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: Yes/No
2. Have you ever had any of the following conditions?
  - a. Seizures (fits): Yes/No
  - b. Diabetes (sugar disease): Yes/No
  - c. Allergic reactions that interfere with your breathing: Yes/No
  - d. Claustrophobia (fear of closed-in places): Yes/No
  - e. Trouble smelling odors: Yes/No
3. Have you ever had any of the following pulmonary or lung problems?
  - a. Asbestosis: Yes/No
  - b. Asthma: Yes/No
  - c. Chronic bronchitis: Yes/No
  - d. Emphysema: Yes/No



- e. Pneumonia: Yes/No
  - f. Tuberculosis: Yes/No
  - g. Silicosis: Yes/No
  - h. Pneumothorax (collapsed lung): Yes/No
  - i. Lung cancer: Yes/No
  - j. Broken ribs: Yes/No
  - k. Any chest injuries or surgeries: Yes/No
  - l. Any other lung problem that you've been told about: Yes/No
4. Do you currently have any of the following symptoms of pulmonary or lung illness?
- a. Shortness of breath: Yes/No
  - b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
  - c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
  - d. Have to stop for breath when walking at your own pace on level ground: Yes/No
  - e. Shortness of breath when washing or dressing yourself: Yes/No
  - f. Shortness of breath that interferes with your job: Yes/No
  - g. Coughing that produces phlegm (thick sputum): Yes/No
  - h. Coughing that wakes you early in the morning: Yes/No
  - i. Coughing that occurs mostly when you are lying down: Yes/No
  - j. Coughing up blood in the last month: Yes/No
  - k. Wheezing: Yes/No
  - l. Wheezing that interferes with your job: Yes/No
  - m. Chest pain when you breathe deeply: Yes/No
  - n. Any other symptoms that you think may be related to lung problems: Yes/No
5. Have you ever had any of the following cardiovascular or heart problems?
- a. Heart attack: Yes/No
  - b. Stroke: Yes/No
  - c. Angina: Yes/No
  - d. Heart failure: Yes/No
  - e. Swelling in your legs or feet (not caused by walking): Yes/No
  - f. Heart arrhythmia (heart beating irregularly): Yes/No
  - g. High blood pressure: Yes/No
  - h. Any other heart problem that you've been told about: Yes/No
6. Have you ever had any of the following cardiovascular or heart symptoms?
- a. Frequent pain or tightness in your chest: Yes/No
  - b. Pain or tightness in your chest during physical activity: Yes/No
  - c. Pain or tightness in your chest that interferes with your job: Yes/No
  - d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
  - e. Heartburn or indigestion that is not related to eating: Yes/ No
  - f. Any other symptoms that you think may be related to heart or circulation problems: Yes/No
7. Do you currently take medication for any of the following problems?
- a. Breathing or lung problems: Yes/No
  - b. Heart trouble: Yes/No
  - c. Blood pressure: Yes/No
  - d. Seizures (fits): Yes/No
8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space, and go to question 9)
- a. Eye irritation: Yes/No

- b. Skin allergies or rashes: Yes/No
  - c. Anxiety: Yes/No
  - d. General weakness or fatigue: Yes/No
  - e. Any other problem that interferes with your use of a respirator: Yes/No
9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-face piece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): Yes/No
11. Do you currently have any of the following vision problems?
- a. Wear contact lenses: Yes/No
  - b. Wear glasses: Yes/No
  - c. Color blind: Yes/No
  - d. Any other eye or vision problem: Yes/No
12. Have you ever had an injury to your ears, including a broken eardrum: Yes/No
13. Do you currently have any of the following hearing problems?
- a. Difficulty hearing: Yes/No
  - b. Wear a hearing aid: Yes/No
  - c. Any other hearing or ear problem: Yes/No
14. Have you ever had a back injury: Yes/No
15. Do you currently have any of the following musculoskeletal problems?
- a. Weakness in any of your arms, hands, legs, or feet: Yes/No
  - b. Back pain: Yes/No
  - c. Difficulty fully moving your arms and legs: Yes/No
  - d. Pain or stiffness when you lean forward or backward at the waist: Yes/No
  - e. Difficulty fully moving your head up or down: Yes/No
  - f. Difficulty fully moving your head side to side: Yes/No
  - g. Difficulty bending at your knees: Yes/No
  - h. Difficulty squatting to the ground: Yes/No
  - i. Climbing a flight of stairs or a ladder carrying more than 25 lbs.: Yes/No
  - j. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

**Part B** Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes/No

If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: Yes/No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No

If "yes," name the chemicals if you know them: \_\_\_\_\_

3. Have you ever worked with any of the materials, or under any of the conditions, listed below?

- a. Asbestos: Yes/No
- b. Silica (e.g., in sandblasting): Yes/No
- c. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No
- d. Beryllium: Yes/No
- e. Aluminum: Yes/No
- f. Coal (for example, mining): Yes/No
- g. Iron: Yes/No
- h. Tin: Yes/No
- i. Dusty environments: Yes/No
- j. Any other hazardous exposures: Yes/No

If "yes," describe these exposures: \_\_\_\_\_

4. List any second jobs or side businesses you have: \_\_\_\_\_

5. List your previous occupations: \_\_\_\_\_

6. List your current and previous hobbies: \_\_\_\_\_

7. Have you been in the military services? Yes/No

If "yes," were you exposed to biological or chemical agents (either in training or combat): Yes/No

8. Have you ever worked on a HAZMAT team? Yes/No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No

If "yes," name the medications if you know them: \_\_\_\_\_

10. Will you be using any of the following items with your respirator(s)?

- a. HEPA Filters: Yes/No
- b. Canisters (for example, gas masks): Yes/No
- c. Cartridges: Yes/No

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?

- a. Escape only (no rescue): Yes/No
- b. Emergency rescue only: Yes/No
- c. Less than 5 hours per week: Yes/No
- d. Less than 2 hours per day: Yes/No
- e. 2 to 4 hours per day: Yes/No
- f. Over 4 hours per day: Yes/No

12. During the period you are using the respirator(s), is your work effort:

- a. Light (less than 200 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: \_\_\_\_\_hrs. \_\_\_\_\_mins.

Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

- b. Moderate (200 to 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: \_\_\_\_\_hrs.\_\_\_\_mins.

Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

- c. Heavy (above 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: \_\_\_\_\_hrs.\_\_\_\_mins.

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes/No

If "yes," describe this protective clothing and/or equipment: \_\_\_\_\_

14. Will you be working under hot conditions (temperature exceeding 77 deg. F): Yes/No

15. Will you be working under humid conditions: Yes/No

16. Describe the work you'll be doing while you're using your respirator(s): \_\_\_\_\_

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases): \_\_\_\_\_

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of the first toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

Name of the second toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

Name of the third toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

The name of any other toxic substances that you'll be exposed to while using your respirator:

\_\_\_\_\_

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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**Mandatory Respiratory Medical Evaluation Questionnaire - Spanish**

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(OSHA Standard 1910.134)

**To the employer:** Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

**Para el empleado:** Puedo usted leer (circule uno): Sí o No

Su patrón debe dejarlo responder estas preguntas durante horas de trabajo o en un tiempo y lugar que sea conveniente para usted. Para mantener este cuestionario confidencial, su patrón o supervisor no debe ver o revisar sus respuestas. Su patrón debe informarle a quien dar o enviar este cuestionario para ser revisado por un profesional de sanidad con licencia autorizado por el estado.

**Parte A. Sección 1. (Mandatorio)** La siguiente información debe de ser proveída por cada empleado que ha sido seleccionado para usar cualquier tipo de respirador (escriba claro por favor).

1. Fecha: \_\_\_\_\_
2. Nombre: \_\_\_\_\_
3. Edad: \_\_\_\_\_
4. Su sexo (circule uno):            Masculino o Femenino
5. Altura:            \_\_\_\_\_ pies            \_\_\_\_\_ pulgadas
6. Peso:            \_\_\_\_\_ libras
7. Su ocupación, título o tipo de trabajo: \_\_\_\_\_
8. Número di teléfono al donde pueda ser Llamarle (incluya el área): \_\_\_\_\_
9. Indique la hora más conveniente para llamarle a este número: \_\_\_\_\_
10. ¿Le ha informado su patrón como comunicarse con el profesional de sanidad con licencia que va a revisar este cuestionario (circule una respuesta)? Si o No
11. Anote el tipo de equipo protector respiratorio que va utilizar (puede anotar mas de una categoría)
  - a. \_\_\_\_\_ Respirador disponible de clase N, R, o P (por ejemplo: respirador de filtro mecánico, respirador sin cartucho)
  - b. \_\_\_\_\_ Otros tipos (respirador con cartucho químico, máscara con cartucho químico, máscara con manguera con soplador (PAPR), máscara con manguera sin soplador (SAR), aparato respiratorio autónomos (SCBA)).
12. ¿Ha usado algún tipo de respirador?.....Si o No  
Si ha usado equipo protector respiratorio, que tipo(s) ha utilizado:  
\_\_\_\_\_  
\_\_\_\_\_

**Parte A. Sección 2. (Mandatorio)** del 1 al 9 deben ser contestadas por cada empleado que fue seleccionado a usar cualquier tipo de respirador. Marque con un círculo para indicar sus repuestas.

1. ¿Corrientemente fuma tabaco, o ha fumado tabaco durante el último mes? Sí o No
2. ¿Ha tenido algunas de las siguientes condiciones médicas?
  - a. Convulsiones: Sí o No
  - b. Diabetes (azúcar en la sangre): Sí o No
  - c. Reacciones alergias que no lo deja respirar: Sí o No
  - d. Claustrofobia (miedo de estar en espacios cerrados): Sí o No
  - e. Dificultad oliendo excepto cuando ha cogido un resfriado: Sí o No
3. ¿Ha tenido algunas de los siguientes problemas pulmonares?
  - a. Asbestosis: Sí o No
  - b. Asma: Sí o No
  - c. Bronquitis crónica: Sí o No
  - d. Enfisema: Sí o No
  - e. Pulmonía: Sí o No
  - f. Tuberculosis: Sí o No
  - g. Silicosis: Sí o No
  - h. Neumotórax (pulmón colapsado): Sí o No
  - i. Cáncer en los pulmones: Sí o No
  - j. Costillas quebradas: Sí o No
  - k. Injuría o cirugía en el pecho: Sí o No
  - l. Algún otro problema de los pulmones que le ha dicho su medico: Sí o No
4. ¿Corrientemente tiene alguno de los siguientes síntomas o enfermedades en sus pulmones?
  - a. Respiración dificultosa Sí o No
  - b. Respiración dificultosa cuando camina rápido sobre terreno plano o subiendo una colina: Sí o No
  - c. Respiración dificultosa cuando camina rápido sobre terreno plano: Sí o No
  - d. ¿Cuándo camina normalmente en terreno plano se encuentra corto de resuello? Sí o No
  - e. Respiración dificultosa cuando se esta bañando o vistiendo: Sí o No
  - f. Respiración dificultosa que lo impide trabajar: Sí o No
  - g. Tos con flema: Sí o No
  - h. Tos que lo despierta temprano en la mañana: Sí o No
  - i. Tos que ocurre cuando esta acostado: Sí o No
  - j. Ha tosido sangre en el último mes: Sí o No
  - k. Silbar o respirar con mucha dificultad: Sí o No
  - l. Silbar que lo impide trabajar: Sí o No
  - m. Dolor del pecho cuando respira profundamente: Sí o No
  - n. Otros síntomas que crea usted estar relacionados a los pulmones: Sí o No
5. ¿Ha tenido algunos de los siguientes problemas con el corazón?
  - a. Ataque cardíaco: Sí o No
  - b. Ataque cerebro vascular: Sí o No
  - c. Dolor en el pecho: Sí o No
  - d. Falla de corazón: Sí o No
  - e. Hinchazón en las pernas o pies (que no sea por caminar): Sí o No
  - f. Latidos irregulares del corazón: Sí o No
  - g. Alta presión: Sí o No
  - h. Algún otro problema cardiovascular o cardíaco: Sí o No

6. ¿Ha tenido algunos de los siguientes síntomas causados por su corazón?

- a. Dolor de pecho frecuente o pecho apretado: Sí o No
- b. Dolor o pecho apretado durante actividad física: Sí o No
- c. Dolor o pecho apretado que no lo deja trabajar normalmente: Sí o No
- d. En los últimos dos años ha notado que su corazón late irregularmente: Sí o No
- e. Dolor en el pecho o indigestión que no es relacionado a la comida: Sí o No
- f. Algunos otros síntomas que usted piensa ser causado por problemas de su corazón o de su circulación: Sí o No

7. ¿Esta tomando medicina por alguno de los siguientes problemas?

- a. Respiración dificultosa: Sí o No
- b. Problemas del corazón: Sí o No
- c. Alta presión: Sí o No
- d. Convulsiones: Sí o No

8. ¿Le ha causado alguno de los siguientes problemas usando el respirador? (si no ha usado un respirador, deje esta pregunta en blanco y continúe con pregunta 9).

- a. Irritación de los ojos: Sí o No
- b. Alergias del cutis o sarpullido: Sí o No
- c. Ansiedad que ocurre solamente cuando usa el respirado: Sí o No
- d. Debilidad, falta de vigor o fatiga desacostumbrada: Sí o No
- e. Algún otro problema que le impida utilizar su respirador: Sí o No

9. ¿Le gustaría hablar con el profesional de sanidad con licencia autorizado por el estado que revisara este cuestionario sobre sus respuestas? Sí o No

Las preguntas del 10 al 15 deben ser contestadas por los empleados seleccionados para usar una máscara con cartucho químico o aparato respiratorio autónomo (SCBA). Los empleados que usan otro tipo de respirador no tienen que contestar estas preguntas.

10. ¿Ha perdido la vista en cualquiera de sus ojos (temporalmente o permanente): Sí o No

11. ¿Corrientemente tiene algunas de los siguientes problemas para oír?

- a. Usa lentes de contacto: Sí o No
- b. Usa lentes: Sí o No
- c. Daltoniano (dificultad distinguiendo colores): Sí o No
- d. Tiene algún problema con sus ojos o su vista: Sí o No

12. ¿Ha tenido daño en sus oídos incluyendo rotura del tímpano: Sí o No

13. ¿Corrientemente tiene uno de los siguientes problemas de oído?

- a. Dificultad oyendo: Sí o No
- b. Usa un aparato para oír: Sí o No
- c. Tiene algún otro problema con sus ojos o su vista: Sí o No

14. ¿Se ha dañado o lastimado su espalda? Sí o No

15. ¿Tiene uno de los siguientes problemas de su aparato muscular o esqueleto?

- a. Debilidad en sus brazos, manos, piernas o pies: Sí o No
- b. Dolor de espalda: Sí o No
- c. Dificultad para mover sus brazos y piernas completamente: Sí o No
- d. Dolor o engarrotamiento cuando se inclina para adelante o para atrás: Sí o No
- e. Dificultad para mover su cabeza para arriba o para abajo completamente: Sí o No
- f. Dificultad para mover su cabeza de lado a lado: Sí o No
- g. Dificultad para agacharse doblando sus rodillas: Sí o No
- h. Dificultad para agacharse hasta tocar el piso: Sí o No
- i. Dificultad subiendo escaleras cargando más de 25 libras: Sí o No
- j. Alguno problema muscular o con sus huesos que le evite usar un respirador: Sí o No

**Parte B**-Las siguientes preguntas pueden ser agregadas al cuestionario a discreción del profesional de salud con licencia autorizado por el estado.

1. ¿Esta trabajando en las Alturas arriba de 5,000 pies o en sitios que tienen menos oxígeno de lo normal? Sí o No

Si la respuesta es "Sí", se ha sentido mareado, o ha tenido dificultad respirando, palpitaciones, o cualquier otro síntoma que usted no tiene cuando no está trabajando bajo estas condiciones: Sí o No

2. ¿En el trabajo o en su casa, ha estado expuesto a solventes o contaminantes peligrosos en el aire (por ejemplo, humos, neblina o polvos) o ha tenido contacto del cutis con químicas peligrosas? Sí o No

Escriba las químicas y productos con las que ha estado expuesto, si sabe cuales son:

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3. ¿Ha trabajado con los siguientes materiales o las condiciones anotadas abajo?:

- a. Asbestos: Sí o No
- b. Sílice (Limpiar mediante un chorro de arena): Sí o No
- c. Tungsteno/Cobalto (pulverizar o soldadura): Sí o No
- d. Berilio: Sí o No
- e. Aluminio: Sí o No
- f. Carbón de piedra (minando): Sí o No
- g. Hierro: Sí o No
- h. Estaño: Sí o No
- i. Ambiente polvoriento: Sí o No
- j. Otra exposición peligrosa: Sí o No

Describe las exposiciones peligrosas: \_\_\_\_\_

4. ¿Tiene usted otro trabajo o un negocio aparte de este? \_\_\_\_\_

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5. Apunte sus previos trabajos: \_\_\_\_\_

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6. Apunte sus pasatiempos: \_\_\_\_\_

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7. ¿Tiene servicio militar? Sí o No

Si la respuesta es "Sí", ha estado expuesto a agentes químicos o biológicos durante entrenamiento o combate: Sí o No.

8. ¿Alguna vez ha trabajado en un equipo de HAZMAT (equipo respondedor a incidentes de materiales peligrosos con emergencia)? Sí o No

9. ¿Esta tomando alguna medicina que no haya mencionado en este cuestionario (incluyendo remedios caseros o medicinas que compra sin receta)? Sí o No

Si la respuesta es: Si:, cuales son\_\_\_\_\_

10. ¿Va a usar algunas de las siguientes partes con su respirador?

- a. filtros HEPA (filtro de alta eficiencia que remueve partículas tóxicas en la atmósfera): Sí o No
- b. Canastillo (por ejemplo, máscara para gas): Sí o No
- c. Cartuchos: Sí o No

11. ¿Cuántas veces espera usar un respirador?

- a. Para salir de peligro solamente (no rescates): Sí o No
- b. Rescates de emergencia solamente: Sí o No
- c. Menos de 5 horas por semana: Sí o No
- d. Menos de 2 horas por semana: Sí o No
- e. 2 a 4 horas por día: Sí o No
- f. Más de 4 horas por día: Sí o No

12. ¿Durante el tiempo de usar el respirador, su trabajo es...?

- a. Ligero (menos de 200 Kcal. por hora): Sí o No

Si la respuesta es "Sí" cuanto tiempo dura la obra\_\_\_\_\_horas\_\_\_\_\_minutos

Ejemplos de trabajos ligeros: estar sentado escribiendo, escribiendo a máquina, diseñando, trabajando la línea de montaje, o estar parado gobernando un taladro o máquinas:

- b. Moderado (200-350 Kcal. por hora): Sí o No

Si la respuesta es "Sí" cuanto tiempo dura en promedio por jornada\_\_\_\_\_horas\_\_\_\_\_minutos

Ejemplos de trabajos moderados: sentado clavando o archivando; manejando un camión o autobús en trafico pesado: estar de pie taladrando, clavando, trabajando la línea de montaje, o transfiriendo una carga (de 35 libras) a la altura de la cintura; caminando sobre tierra plana a 2 millas por hora o bajando a 3 millas por hora; empujando una carretilla con una carga pesada (de 100 libras) sobre terreno plano.

- c. Pesado (mas de 350 Kcal. por hora): Si o No

Si la respuesta es "Sí" cuanto tiempo dura en promedio por jornada\_\_\_\_\_horas\_\_\_\_\_minutos

Ejemplos de trabajos pesados: levantando cargas pesadas (mas de 50 libras) desde el piso hasta la altura de la cintura o los hombros; trabajando, cargando o descargando; traspalear; estar de pie trabajando de albañil o desmenuzando moldes; subiendo a 2 millas por hora; subiendo la escalera con una carga pesada (mas de 50 libras).

13. ¿Va a estar usando ropa o equipo protector cuando use el respirador? Sí o No

Si la respuesta es "Sí" describa que va a estar usando: \_\_\_\_\_

14. ¿Va a estar trabajando en condiciones calurosas (temperatura mas de 77 grados F)? Sí o No

15. ¿Va a estar trabajando en condiciones húmedas? Sí o No

16. Describa el tipo de trabajo que va a estar usted haciendo cuando use el respirador. \_\_\_\_\_

17. Describa cualquier situación especial o peligrosa que pueda encontrar cuando este usando el respirador (por ejemplo, espacios encerrados, gases que lo puedan matar, etc.) \_\_\_\_\_

18. Provea la siguiente información si la sabe, por cada sustancia tóxica que usted va a estar expuesto cuando este usando el respirador(s):

Nombre de la primera sustancia tóxica: \_\_\_\_\_

Máximo nivel de exposición por jornada: \_\_\_\_\_

Tiempo de exposición por jornada de trabajo: \_\_\_\_\_

Nombre de la segunda sustancia tóxica: \_\_\_\_\_

Máximo nivel de exposición por jornada de trabajo: \_\_\_\_\_

Tiempo de exposición por jornada: \_\_\_\_\_

Nombre de la tercera sustancia tóxica: \_\_\_\_\_

Máximo nivel de exposición por jornada de trabajo: \_\_\_\_\_

Tiempo de exposición por jornada: \_\_\_\_\_

El nombre de cualquier sustancia tóxica que usted va a estar expuesto cuando este usted usando el respirador: \_\_\_\_\_

\_\_\_\_\_

19. Describa alguna responsabilidad especial que usted va a tener cuando usted este usado el respirador(s) que pueda afectar la seguridad o la vida de otros (por ejemplo, rescate, seguridad).

## Respirator Fit Test and Training Record

### PROGRAM ADMINISTRATOR

Employee Name: \_\_\_\_\_ Employee #: \_\_\_\_\_ Date: \_\_\_\_\_

Is a current PLHCP written statement for respirators on file for this employee? ..... **Yes / No**

Is this employee cleared for fit testing? ..... **Yes / No**

Is the employee's first time Fit Test? ..... **Yes / No**

Is the operator authorized to proceed with Fit Testing? ..... **Yes / No**

\_\_\_\_\_  
Program Administrator

### FIT TEST OPERATOR

Operator: Do not fit test this employee unless authorized.

Name of Test Operator: \_\_\_\_\_ Signature: \_\_\_\_\_

Operator: The following questions must be asked of the employee prior to fit testing if it is not the first test. It is your responsibility to make certain that the employee understands the question. We can provide translation assistance if necessary.

1. Are you experiencing any medical signs, symptoms or problems related to your use of a respirator while at work? ..... **Yes / No**

2. Are you aware of any changes in your workplace conditions such as physical work effort, type of respirator used, temperature, or other variation that may result in a substantial increase in the physical burden to you wearing a respirator? ..... **Yes / No**

3. Do you feel the need to speak with a doctor regarding your use of a respirator? ..... **Yes / No**

If the employee answers "yes" to any of the questions, stop and contact the Program Administrator.

### FIT TEST RESULT

Negative Pressure ..... **Pass / Fail**

Positive Pressure ..... **Pass / Fail**

Type of qualitative/quantitative fit test used: QLFT - Irritant Smoke

#### Respirator Make/Model/Style

1. \_\_\_\_\_ **Small - Medium - Large** **Pass / Fail**

2. \_\_\_\_\_ **Small - Medium - Large** **Pass / Fail**

Did the employee have any medical difficulties using the respirator during this fit test? **Yes / No**

If **yes**, please describe: \_\_\_\_\_

#### Respirator Make/Model/Style

1. \_\_\_\_\_ **Small - Medium - Large** **Pass / Fail**

2. \_\_\_\_\_ **Small - Medium - Large** **Pass / Fail**

Did the employee have any medical difficulties using the respirator during this fit test? **Yes / No**

If **yes**, please describe: \_\_\_\_\_

***See reverse side for Respirator Quiz & Training Certification.***

### Respirator Quiz

1. The best respirator to use in an oxygen deficient atmosphere is a Single Use dust mask. • True • False
2. The best place to store a respirator is in the worker's toolbox where it will always be readily available. • True • False
3. If you are told to wear a respirator in a designated area, you should wear it whenever you:
  - A. Enter the area.
  - B. Will be in the area for 10 minutes or longer.
  - C. Can see, smell, or taste the hazard.
  - D. Begin to feel any discomfort as you work in the area.
4. You need to have a fit test and training in respirator use:
  - A. at least annually.
  - B. if changes in operations require a different respirator.
  - C. if you are not using the respirator correctly.
  - D. all of the above.
5. This must be performed each time a respirator is put on:
  - A. Fit test
  - B. Medical Questionnaire
  - C. User seal check
  - D. Exercises
6. Respirators are required:
  - a. When engineering controls are not able to lower exposures to permissible limits.
  - b. if you can smell or taste a contaminant.
  - c. during any confined space entry.
  - d. none of the above

### Training Certification

I have been trained in the respirator program elements that included at least the following:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise its' protective effect.
- What the limitations and capabilities of the respirator are.
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- How to inspect, put on and remove, use, and check the seals of the respirator.
- What the procedures are for maintenance and storage of the respirator.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

### Examen Respiratorio

1. En un ambiente donde hay poco oxígeno, lo mejor es usar un respirador. • Verdadero • Falso
2. El mejor lugar para guardar un respirador es la caja de herramientas, donde estará fácilmente disponible. • Verdadero • Falso
3. Si usted va a entrar en un área donde es obligatorio usar respirador, cuándo se lo debe poner?
  - A. Se lo pone cada vez que va a entrar al área.
  - B. Se lo pone sólo si va a estar en el área por 10 minutos o más.
  - C. Se lo pone si puede ver, oler o sentir el sabor de la causa de la contaminación.
  - D. Se lo pone cuando empiece a sentirse mal mientras está trabajando en el área.
4. Se requiere hacer evaluación ("Fit Test") y entrenamiento en el uso de respiradores:
  - A. Al menos una vez al año.
  - B. Si hay cambios en las condiciones de trabajo que requieran el uso de un respirador diferente.
  - C. Si no se está usando el respirador correctamente.
  - D. Todas las anteriores.
5. Qué se debe hacer cada vez que se pone un respirador?
  - A. Una evaluación ("Fit test").
  - B. Cuestionario Médico.
  - C. Revisar los empaques.
  - D. Ejercicios.
6. Se requieren respiradores:
  - A. Cuando los controles de ingeniería NO pueden reducir la contaminación a límites permisibles.
  - B. Si la contaminación se puede oler o probar.
  - C. Cuando entre a un área cerrada.
  - D. Ninguno de los anteriores.

### Certificación de Entrenamiento

Certifico que he sido entrenado en el programa de respiradores, el cual incluye, al menos, los siguientes aspectos:

- Por qué es necesario el respirador y cómo se pone en riesgo su efectividad si no se usa correctamente o si se le da un mantenimiento inapropiado.
- Limitaciones y capacidades de los respiradores.
- Cómo usar el respirador efectivamente en situaciones de emergencia, incluyendo situaciones en que el respirador no funciona bien.
- Cómo poner, usar y quitar el respirador. Cómo revisar los sellos y empaques del respirador.
- Cuáles son los procedimientos de mantenimiento y almacenamiento del respirador.

Cómo reconocer signos médicos y síntomas que pueden limitar o prevenir el uso efectivo del respirador.

Firma: \_\_\_\_\_ Fecha: \_\_\_\_\_

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**Fit Test Procedures**

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**1910.134 Appendix A Part 1 A-14**

## 14. Test Exercises.

- (a) The following test exercises are to be performed for all fit testing methods prescribed in this appendix, except for the CNP method. A separate fit testing exercise regimen is contained in the CNP protocol. The test subject will perform exercises, in the test environment, in the following manner:
- (1) Normal breathing. In a normal standing position, without talking, the subject will breathe normally.
  - (2) Deep breathing. In a normal standing position, the subject will breathe slowly and deeply, taking caution so as not to hyperventilate.
  - (3) Turning head side to side. Standing in place, the subject will slowly turn his/her head from side to side between the extreme positions on each side. The head will be held at each extreme momentarily so the subject can inhale at each side.
  - (4) Moving head up and down. Standing in place, the subject will slowly move his/her head up and down. The subject will be instructed to inhale in the up position (i.e., when looking toward the ceiling).
  - (5) Talking. The subject will talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

**Rainbow Passage**

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

- (6) Grimace. The test subject will grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
  - (7) Bending over. The test subject will bend at the waist as if he/she were to touch his/her toes. Jogging in place will be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.
  - (8) Normal breathing. Same as exercise (1).
- (b) Each test exercise will be performed for one minute except for the grimace exercise, which s will hall be performed for 15 seconds. The test subject s will hall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator will be tried. The respirator will not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

**1910.134 Appendix A Part 1 B-5**

5. Irritant Smoke (Stannic Chloride) Protocol. This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.
- (a) General Requirements and Precautions
- (1) The respirator to be tested will be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).

- (2) Only stannic chloride smoke tubes will be used for this protocol.
- (3) No form of test enclosure or hood for the test subject will be used.
- (4) The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor will take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care will be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.
- (5) The fit test will be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

(b) Sensitivity Screening Check

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

- (1) The test operator will break both ends of a ventilation smoke tube containing stannic chloride and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator will cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
- (2) The test operator will advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.
- (3) The test subject will be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator will carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

(c) Irritant Smoke Fit Test Procedure

- (1) The person being fit tested will don the respirator without assistance and perform the required user seal check(s).
- (2) The test subject will be instructed to keep his/her eyes closed.
- (3) The test operator will direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator will begin at least 12 inches from the face piece and move the smoke stream around the whole perimeter of the mask. The operator will gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
- (4) If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
- (5) The exercises identified in section I.A. 14. of this appendix will be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
- (6) If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.
- (7) Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) will be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response will void the fit test.
- (8) If a response is produced during this second sensitivity check, then the fit test is passed.

**OSHA Standard 1910.134, Appendix B-1**

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix, or the respirator manufacturers recommended user seal check method will be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

**I. Face piece Positive and/or Negative Pressure Checks**

- A. Positive pressure check. Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.
- B. Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

**II. Manufacturer's Recommended User Seal Check Procedures**

The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.

**OSHA Standard 1910.134, Appendix B-2**

These procedures are provided for employer use when cleaning respirators. They are general in nature, and the employer as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here in Appendix B-2. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in Appendix B-2, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

**I. Procedures for Cleaning Respirators**

- A. Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand, and pressure- demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- B. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- C. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.
- D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
  - 1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,
  - 2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,

3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
- E. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
- F. Components should be hand-dried with a clean lint-free cloth or air-dried.
- G. Reassemble face piece, replacing filters, cartridges, and canisters where necessary.
- H. Test the respirator to ensure that all components work properly.



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**OSHA 1910.134 Appendix D: Mandatory Information for Employees  
Using Respirators When Not Required Under the Standard – English**

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(OSHA Standard 1910.134, Appendix D)

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Employee Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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**OSHA 1910.134 Appendix D: Mandatory Information for Employees  
Using Respirators When Not Required Under the Standard – Spanish**

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(Norma de OSHA 1910.134, Apéndice D)

Los respiradores son un método efectivo de protección contra peligros designados cuando son seleccionados y usados adecuadamente. El uso del respirador es fomentado, incluso cuando las exposiciones están por debajo del límite de exposición, para proveer un nivel adicional de comodidad y protección para los trabajadores. Sin embargo, si un respirador se utiliza incorrectamente o no se mantiene limpio, el respirador mismo puede ser un peligro para el trabajador. A veces, los trabajadores pueden usar respiradores para evitar exposiciones a peligros, incluso si la cantidad de la sustancia peligrosa no excede a los límites establecidos por la norma de OSHA. Si su empleador provee respiradores para uso voluntario, o si usted provee su propio respirador, necesita tener ciertas precauciones para asegurar que el respirador mismo no presenta un peligro.

Debe hacer lo siguiente:

1. Lea y siga todas las instrucciones provistas por el fabricante en el uso, mantenimiento, limpieza, cuidado, y advertencias de acuerdo a las limitaciones de los respiradores.
2. Escoja respiradores certificados para usar, y proteger contra el contaminante en cuestión. NIOSH, (siglas en inglés) El Instituto Nacional de Seguridad y Salud en el Trabajo del Departamento de Salud y Servicios Humanos de los U.S.A. Una etiqueta o una declaración de certificación debe aparecer en el respirador o en el empaque del respirador. Esto dirá que el respirador está diseñado para y cuanto lo protegerá.
3. No use su respirador dentro de atmósferas que contenga contaminantes para el cual su respirador no está diseñado para protegerlo. Por ejemplo, un respirador diseñado para filtrar partículas de polvo no lo protegerá contra gases, vapores, o muy pequeñas partículas sólidas de humo o vapores.
4. Mantenga un seguimiento a su respirador para que no use el respirador de otro por error.

Nombre del Empleado: \_\_\_\_\_

Firma del Empleado: \_\_\_\_\_ Fecha: \_\_\_\_\_

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**Mandatory Provision to the PLHC**

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This excerpt from the OSHA CFR is provided as a mandatory provision to the PLHCP as part of this Respiratory Protection Program

**1910.134(d)**

**Selection of respirators.** This paragraph requires the employer to evaluate respiratory hazard(s) in the workplace, identify relevant workplace and user factors, and base respirator selection on these factors. The paragraph also specifies appropriately protective respirators for use in IDLH atmospheres and limits the selection and use of air-purifying respirators.

**1910.134(d)(1)****General requirements.****1910.134(d)(1)(i)**

The employer will select and provide an appropriate respirator based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.

**1910.134(d)(1)(ii)**

The employer will select a NIOSH-certified respirator. The respirator will be used in compliance with the conditions of its certification.

**1910.134(d)(1)(iii)**

The employer will identify and evaluate the respiratory hazard(s) in the workplace; this evaluation will include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Where the employer cannot identify or reasonably estimate the employee exposure, the employer will consider the atmosphere to be IDLH.

**1910.134(d)(1)(iv)**

The employer shall select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

**1910.134(d)(2)****Respirators for IDLH atmospheres.****1910.134(d)(2)(i)**

The employer shall provide the following respirators for employee use in IDLH atmospheres:

**1910.134(d)(2)(i)(A)**

A full-face piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or

**1910.134(d)(2)(i)(B)**

A combination full face piece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

**1910.134(d)(2)(ii)**

Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

**1910.134(d)(2)(iii)**

All oxygen-deficient atmospheres shall be considered IDLH. Exception: If the employer demonstrates that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of this section (i.e., for the altitudes set out in the table), then any atmosphere-supplying respirator may be used.

**1910.134(d)(3)****Respirators for atmospheres that are not IDLH.****1910.134(d)(3)(i)**

The employer shall provide a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.

**1910.134(d)(3)(i)(A)****Assigned Protection Factors (APFs) [Reserved]****1910.134(d)(3)(i)(B)****Maximum Use Concentration (MUC) [Reserved]****1910.134(d)(3)(ii)**

The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.

**1910.134(d)(3)(iii)**

For protection against gases and vapors, the employer shall provide:

**1910.134(d)(3)(iii)(A)**

An atmosphere-supplying respirator, or

**1910.134(d)(3)(iii)(B)**

An air-purifying respirator, provided that:

**1910.134(d)(3)(iii)(B)(1)**

The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or

**1910.134(d)(3)(iii)(B)(2)**

If there is no ESLI appropriate for conditions in the employer's workplace, the employer implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. The employer shall describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.

**1910.134(d)(3)(iv)** - For protection against particulates, the employer shall provide:

**1910.134(d)(3)(iv)(A)**

An atmosphere-supplying respirator; or

**1910.134(d)(3)(iv)(B)** - An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or

**1910.134(d)(3)(iv)(C)** - For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

## **Chapter 28 Respirable Crystalline Silica Exposure Program**

### **28.1 Purpose, Scope, and Policy**

#### **28.1.1 Purpose**

COMPANYNAME has recognized a potential exposure to silica for its employees any time that they must perform work that generates respirable crystalline silica dust or when employees work in areas where respirable crystalline silica dust is present. The Company also recognizes that engineering controls, used when possible, are the best way to protect its employees from the hazards related to respirable crystalline silica.

#### **28.1.2 Scope**

This program relates to all exposures to respirable silica dust that employees may encounter in their work, including those created by employees of other companies.

#### **28.1.3 Policy**

The company will comply with the guidelines set forth in 29 CFR 1926.1153 by fully and properly implementing control measures listed in Table 1 (see appendix) or maintain levels at, or below the Permissible Exposure Limit (PEL) of 50 micrograms per cubic meter (50  $\mu\text{g}/\text{m}^3$ ), calculated as an 8-hour time-weighted average (TWA). In the event that levels cannot be maintained at or below the PEL, or when Table 1 specifically identifies, employees will be required to wear the proper type of respiratory protection.

### **28.2 Roles & Responsibilities**

#### **28.2.1 Management**

Ensure that employees exposed to silica are trained on the health hazards associated with silica, tasks that could result in exposure to silica, measures to reduce exposure from silica, the identity of the competent person and the medical surveillance program.

Ensure that each employee who uses a respirator due to silica exposure for thirty (30) or more days per year are included in the medical surveillance program.

Maintain an accurate record of exposure measurements (air monitoring), objective data and each employee covered by medical surveillance in accordance with 29 CFR 1910.1020 and this program.

##### **28.2.1.1 Supervisors**

Conduct frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan and make corrective measures when necessary. Supervisors are responsible for ensuring that the policies and procedures of the company are followed.

##### **28.2.1.2 Safety Coordinator**

The Safety Coordinator will ensure that tasks are evaluated for possible employee exposure to silica hazards and Written Exposure Control Plans are developed for tasks where employees are exposed to silica. The Safety Coordinator will ensure that Written Exposure Control Plans are evaluated for effectiveness at least annually and updated as necessary.


##### **28.2.2 Employee**

Know, understand, and adhere to the Written Exposure Control Plans for the silica producing task they are involved in. Follow the policies of the respiratory protection program when required to wear respirators. Each employee has the responsibility to follow the policy or procedure intended to control exposure to silica hazards.

## 28.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.<sup>xii</sup>

### 28.3.1 Global Harmonization Labeling (example)

Product Identifier:	Silica Sand, Ground Silica, and Fine Ground Silica
Signal word:	<b>DANGER</b>
Hazard Statement(s):	May cause cancer by inhalation. Causes damage to lungs through prolonged or repeated exposure by inhalation.
Precautionary Statement(s):	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Do not eat, drink, or smoke when using this product. Wear protective gloves and safety glasses or goggles. In case of inadequate ventilation wear respiratory protection.
Hazard Pictogram(s):	

## 28.4 Hazards

Activities that can lead to exposure include but are not limited to:

- Chipping, hammering, and drilling
- Saw cutting and grinding
- Crushing, loading, and dumping rock and concrete
- Abrasive blasting using sand
- Abrasive blasting on concrete or stone surfaces
- Dry sweeping

Silica exposure can lead to the following health hazards:

- Silicosis
- Lung Cancer
- Tuberculosis
- Autoimmune Disease
- Kidney Disease
- Stomach and other cancers

## 28.5 Hazard Control Measures

### 28.5.1 Exposure Control Methods

Engineering controls, work practices and respiratory protection measures will be fully and properly implemented to minimize or eliminate exposure to respirable crystalline silica. Each employee that will be engaged in tasks that create, or have the potential to create, an exposure must utilize identified engineering controls, work practices and respiratory protection accordingly.

#### 28.5.1.1 Specified Exposure Control Methods

OSHA has identified 18 common tasks performed in the construction industry that are known to produce respirable crystalline silica. OSHA has established the acceptable engineering controls, work practice controls and respiratory protection to follow when performing these 18 tasks, referred to as "Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica".

Respirable crystalline silica exposure monitoring is not required when the specified exposure control methods in Table 1 are fully and properly implemented.

When implementing the specified exposure control methods in Table 1 visible airborne dust must be minimized by:

- means of exhaust for tasks performed indoors or in enclosed areas
- sufficient flow rates when using wet methods

Additionally, the following measures must be implemented when working in an enclosed cab or booth:

- maintained free of settled dust
- door seals and closing mechanisms work properly
- gaskets and seals must be in good condition and work properly
- positive pressure with continuous delivery of fresh air
- air intake with 95 percent efficient filter
- heating and cooling capabilities

When performing multiple tasks on Table 1 during a shift the corresponding respiratory protection will be required for the total duration of all tasks.

### **28.5.1.2 Alternative Exposure Control Methods**

Exposure assessments will be conducted for alternative tasks that may expose employees to respirable crystalline silica at or above the AL. Alternative tasks include:

- Tasks that are not addressed in Table 1, or
- Tasks where the exposure control methods prescribed in Table 1 are not fully and properly implemented

Additionally, proper controls will be implemented to ensure employees are not exposed to respirable crystalline silica in excess of the PEL.

When following the alternative exposure control methods approach, OSHA allows two exposure assessment options; the performance option or the scheduled monitoring option.

#### **28.5.1.2.1 Exposure Assessment – Performance Option**

This option will assess the 8-hour TWA exposure for each employee based on a combination of air monitoring data or objective data that can accurately characterize employee exposures to respirable crystalline silica.

Objective data may consist of air monitoring data from industry surveys, calculations based on the composition of a substance, area sampling results and exposure mapping profile approaches, and historic data.

When using the performance option:

- exposure assessment will be conducted before work begins;
- exposures will be reassessed whenever a change in production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or higher exposures at or above the AL;
- exposures will be reassessed when it is believed that new or additional exposures at or above the AL have occurred;
- employee exposures will be accurately characterized; and
- the exposure assessment will reflect the exposures of employees on each shift, for each job classification, in each work area.

Each affected employee will be notified in writing of the assessment results within five (5) working days after completing the exposure assessment. The Exposure Assessment Notification Letter found in the appendix of this chapter will be used.

#### **28.5.1.2.2 Exposure Assessment – Scheduled Monitoring Option**

This option will assess the exposure through air monitoring to measure employee exposure at specific intervals determined by OSHA's standard. Air monitoring will be performed initially and as follows:

- If the employee exposure is determined to be identified below the Action Level ( $<25 \mu\text{g}/\text{m}^3$ ), personal air monitoring will be discontinued.
- If the monitoring results are found to be at or above the Action Level, but less than the PEL ( $50 \mu\text{g}/\text{m}^3$ ), personal air monitoring will be repeated every six (6) months.
- If the monitoring results are at or above the PEL, air monitoring will be repeated every three (3) months

If two (2) consecutive exposure monitoring results performed within six (6) months, but seven (7) or more days apart, drop below the Action Level, monitoring will be discontinued.

Whenever there is a change in production, process, control equipment or work practices, exposure monitoring for that task will be reassessed.

All samples taken will be evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with the procedures in 29 CFR 1926.1153 Appendix A.

Each affected employee will be notified in writing of the assessment results within five (5) working days after receiving laboratory results. If the exposure is above the PEL, affected employees will be notified in writing of the corrective measure that will be taken. The Exposure Assessment Notification Letter found in the appendix of this chapter will be used.

Affected employees, or their designated representatives, will be notified and allowed to observe any air monitoring of employee exposure to respirable crystalline silica. If the process takes place in an area that requires protective clothing, it will be required and provided to those observing.

### 28.5.2 Methods of Compliance

Engineering and work practice controls will be put into place to reduce and maintain employee exposure below the PEL or to the lowest feasible level.

When all feasible engineering and work practice controls are in place and the exposure remains at or above the PEL, proper respiratory protection will be required and provided to protect from respirable crystalline silica hazards (see Respiratory Protection chapter).

When using wet methods in freezing temperatures, Propylene Glycol antifreeze may be added to the water to prevent freezing. Concentrations will vary based on the freezing point desired (See Manufacturer for specifics). One commercially available brand of antifreeze which contains Propylene Glycol is outlined below. It is sold under the following trade names:

Trade Name	Propylene Glycol % by Weight	Freeze Point
PEAK® -50 F RV & Marine Antifreeze	25-30	No Data Available
SIERRA® Concentrate Antifreeze & Coolant	94-96	No Data Available
SIERRA® Concentrate Antifreeze & Coolant	50	-26° F
SIERRA® Concentrate Antifreeze & Coolant	60	-54° F
SIERRA® Concentrate Antifreeze & Coolant	66	-76° F

Data related to concentrations and freeze points has been taken from the SDS and conversations with the manufacturer. Whichever antifreeze is used, its SDS should be consulted and strictly followed.

**WARNING:** Propylene Glycol is an "environmentally friendly" antifreeze typically used in marine and RV applications. It is "generally recognized as safe" by the FDA and is used in food additives, etc. This antifreeze is not to be confused with Ethylene Glycol which is the primary ingredient found in everyday



automotive antifreeze. Ethylene Glycol is not to be used under any circumstances as it has negative health consequences.

Safety Data Sheets for products containing silica will be located in the SDS book. All employees will have access to these SDSs and be provided training in accordance with the Hazard Communication Program requirements.

### **28.5.2.1 Housekeeping**

When performing housekeeping duties in locations where silica is present, dry sweeping, dry brushing or use of compressed air will not be allowed. Additionally, compressed air may not be used to clean clothing.

Contaminated surfaces must be cleaned by wet sweeping, wet wiping, or the use of a HEPA-filtered vacuum. In addition, tasks that produce slurry must be cleaned prior to drying.

### **28.5.2.2 Written Exposure Control Plan**

Each task involving an exposure to respirable crystalline silica will be assessed. An exposure control plan will be developed for each task to include:

- Engineering controls that will be utilized;
- Work practice controls;
- Required respiratory protection;
- Housekeeping measures;
- Procedures to restrict access to work areas; and
- Procedures when exposures are generated by other employers.

The Written Exposure Control Plan will be evaluated for effectiveness on an annual basis and updated as needed. The Competent Person will make frequent and regular inspections of job sites, equipment, and materials to implement the Written Exposure Control Plan.

A template for the Written Exposure Control Plan is found in in the appendix of this chapter.

### **28.5.3 Medical Surveillance**

To ensure the health of all exposed company employees, medical surveillance will be offered. Each employee that is required to use a respirator for protection from respirable crystalline silica exposure for thirty (30) days or more per year will undergo this evaluation. This medical surveillance will be provided at no cost to the employee and performed by a Physician or other Licensed Health Care Professional (PLHCP).

An initial examination will be conducted to establish a baseline medical exam within thirty (30) days of initial assignment, unless the employee has already received a medical exam that meets the requirements of this section within the last three (3) years. The medical exam is to include:

- Review of medical and work history emphasizing on past, present, and anticipated exposure to respirable crystalline silica, dust, and other agents affecting the respiratory system;
- Review of any history of respiratory system dysfunction;
- History of tuberculosis;
- Smoking status, past and present;
- Physical exam;
- Chest x-ray interpreted by a NIOSH-certified B reader;
- Pulmonary function test;
- Testing for latent tuberculosis infection; and
- Any other test deemed appropriate by the PLHCP.

Periodic medical examinations will be made available at least every three (3) years, or more frequently if recommended by the PLHCP.

Specific information will be communicated to the PLHCP for the medical surveillance. The form 'Information to Physician or other Licensed Health Care Professional' located in the appendix of this chapter identifies all of the required information. This information includes:

- A copy of the OSHA standard pertaining to respirable crystalline silica (29 CFR 1926.1153), including Appendix B;
- Description of employee's former, current, and anticipated duties related to respirable crystalline silica exposure;
- The employee's former, current, and anticipated levels of occupational exposure to respirable crystalline silica;
- A description of any PPE used, including when and duration of use; and
- Information from records of employment-related medical examinations previously provided to the employee by the Company.

COMPANYNAME will ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within thirty (30) days of the medical exam. The report shall contain:

- A statement indicating the results of the exam;
- Medical condition(s) that place the employee at an increased risk of exposure to respirable crystalline silica;
- Medical conditions that require further evaluation or treatment;
- Recommended limitations on the use of respirators;
- Recommended limitation on exposure to silica; and
- A statement that the employee may need further examination by a specialist based on the chest X-ray results.

A written medical opinion will be obtained from the PLHCP. Each employee will be provided with a copy within thirty (30) days of the exam. The written opinion will include:

- The date of the exam;
- A statement confirming that the exam met the requirements of the standard;
- Recommended limitations on the use of a respirator;
- Recommended limitation on exposure to silica (if employee provided written authorization); and
- A statement for the employee to be examined by a specialist based on the results of the chest X-ray (if employee provided written authorization).

If the PLHCP's written medical opinion indicates that the employee should be examined by a specialist, arrangements for a medical exam by a specialist will be made within thirty (30) days after receiving the written opinion. The specialist will be provided with the following information:

- A copy of the OSHA standard pertaining to respirable crystalline silica (29 CFR 1926.1153);
- Description of employee's former, current, and anticipated duties related to respirable crystalline silica exposure;
- The employee's former, current, and anticipated levels of occupational exposure to respirable crystalline silica;
- A description of any PPE used, including when and duration of use; and
- Information from records of employment-related medical examinations previously provided to the employee by the Company.

COMPANYNAME will ensure that the specialist explains the results of the medical exam to the employee and provides a written medical report within thirty (30) days of the medical exam. The written medical report will include:

- A statement indicating the results of the exam;
- Medical condition(s) that place the employee at an increased risk of exposure to respirable crystalline silica;
- Medical conditions that require further evaluation or treatment;

- Recommended limitations on the use of respirators;
- Recommended limitation on exposure to silica; and
- A statement that the employee may need further examination by a specialist based on the chest X-ray results.

A written opinion from the specialist will be obtained by the Company within 30 days of the medical examination. The written opinion must include:

- The date of the exam;
- A statement confirming that the exam met the requirements of the standard;
- Recommended limitations on the use of a respirator;
- Recommended limitation on exposure to silica (if employee provided written authorization); and
- A statement for the employee to be examined by a specialist based on the results of the chest X-ray (if employee provided written authorization).

#### **28.5.4 Recordkeeping**

##### **28.5.4.1 Air Monitoring Data**

Accurate records of all exposure measurements taken to assess employee exposure to respirable crystalline silica will be maintained for a minimum of thirty (30) years. These records will consist of:

- Dates of each sample taken;
- Tasks monitored;
- Sampling and analytical methods used;
- Number, duration, and results of samples;
- Identity of the laboratory that performed analysis;
- Type of PPE worn by the employees monitored; and
- Name, social security number, and job classification of all employees represented by the monitoring.

Records will be made available within fifteen (15) working days upon request at no cost to the employee.

##### **28.5.4.2 Objective Data**

Accurate records of all objective data relied upon to comply with the requirements set forth in the Alternate Exposure Control Methods section will be maintained for a minimum of thirty (30) years. These records will consist of:

- The crystalline silica-containing material in question;
- The source of the objective data;
- The testing protocol and results of testing;
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposure on which the objective data were based.

Records will be made available within fifteen (15) working days upon request at no cost to the employee.

##### **28.5.4.3 Medical Surveillance**

Accurate records for each employee covered by the medical surveillance section will be maintained for the duration of employment plus thirty (30) years. These records shall include:

- Name and Social Security Number;
- A copy of the PLHCPs' and specialists' written medical opinions; and
- A copy of the information provided to the PLHCPs and specialists.

Records will be made available within fifteen (15) working days upon request at no cost to the employee.

## **28.6 Training**

### 28.6.1 Initial

Every employee at the Company who faces risk of respirable crystalline silica exposure will be provided with training prior to initial assignment of silica related duties so that they will be able to demonstrate knowledge and understanding in:

- The health hazards associated with exposure to respirable crystalline silica, including cancer, lung effects, immune system effects, and kidney effects;
- The specific tasks that are performed by the Company that potentially result in exposure to respirable crystalline silica;
- The controls and measures that the Company has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respiratory protection to be utilized;
- The contents of the Silica Exposure Control Program;
- The identity of the Competent Person pertaining to the Silica Exposure Control Program designated by the Company; and
- The purpose and a description of the medical surveillance program required by the Silica Exposure Control Program.

Employees will be notified that the Company will make a copy of this program readily available, upon request.

In addition, employees will be properly trained in accordance to the Hazard Communication Program.

Upon successful completion of the Silica Exposure Control Program training, each participant receives a certificate, which they sign, verifying that they understand the material presented, and that they will follow all company policies and procedures regarding respirable crystalline silica exposure.

### 28.6.2 Refresher

Refresher training will be conducted if there is reason to believe that an employee has deviated from a previously trained upon plan or that their knowledge seems inadequate. These employees will be retrained and/or removed from operations that potentially result in exposure to respirable crystalline silica.

## 28.7 Reference

OSHA Standard 29 CFR 1926.1153, 1910.134, 1910.1020, 1910.1200 and 1926.57

## 28.8 Appendix

- Table 1: Specified Exposure Control Methods - Respirable Crystalline Silica
- Written Exposure Control Plan Form
- RCS Exposure Assessment Notification Letter – Over the Permissible Exposure Limit
- RCS Exposure Assessment Notification Letter – Under the Permissible Exposure Limit & Over the Action Level
- RCS Exposure Assessment Notification Letter – Under the Action Level
- Medical Surveillance Documentation
  - Information to Physician or other Licensed Health Care Professional
  - Written Medical Report for Employee
  - Written Medical Opinion for Employer
  - Authorization for Crystalline Silica Opinion to Employer

**TABLE 1: Specified Exposure Control Methods**

For each employee engaged in a task identified on Table 1, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless the employer assesses and limits the exposure of the employee to respirable crystalline silica in accordance with paragraph (d) of 29 CFR 1926.1153 (Alternative Exposure Control Methods).

Equipment/Task	Engineering & Work Practice Control Methods	Required Respiratory Protection & Minimum Assigned Protection Factor (APF)	
		≤4 hours/shift	>4 hours/shift
i. Stationary Masonry Saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
ii. Handheld Power Saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	-When used outdoors.	None	APF 10
	-When used indoors or in an enclosed area.	APF 10	APF 10
iii. Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only: Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide air flow recommended by the tool manufacturer, or greater, and have a filter with 99 percent or greater efficiency.	None	None
iv. Walk-Behind Saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	- When used outdoors.	None	None
	- When used indoors or in an enclosed area.	APF 10	APF 10
v. Drivable Saws	For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
vi. Rig-Mounted Core Saw or Drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None

Equipment/Task	Engineering & Work Practice Control Methods	Required Respiratory Protection & Minimum Assigned Protection Factor (APF)	
		≤4 hours/shift	>4 hours/shift
vii. Handheld & Stand-Mounted Drills (including impact & rotary hammer drills)	Use drill equipped with commercially available shroud or cowl with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99 percent or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	None	None
viii. Dowel Drilling Rigs for Concrete	For tasks performed outdoors only: Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99 percent or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10
ix. Vehicle-Mounted Drilling Rigs for Rock & Concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
	OR		
	Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
x. Jackhammers & Handheld Powered Chipping Tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact:		
	-When used outdoors	None	APF 10
	-When used indoors or in an enclosed area	APF 10	APF 10
	OR		
	Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99 percent or greater efficiency and a filter-cleaning mechanism:		
	-When used outdoors	None	APF 10
	-When used indoors or in an enclosed area	APF 10	APF 10

Equipment/Task	Engineering & Work Practice Control Methods	Required Respiratory Protection & Minimum Assigned Protection Factor (APF)	
		≤4 hours/shift	>4 hours/shift
xi. Handheld Grinders for Mortar Removal (Tuckpointing)	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99 percent or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 25
xii. Handheld Grinders for uses other than Mortar Removal	For tasks performed outdoors only: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions	None	None
	OR		
	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99 percent or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism:		
	-When used outdoors	None	None
	-When used indoors or in an enclosed area	None	APF 10
xiii. Walk-Behind Milling Machines & Floor Grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
	OR		
	Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99 percent or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None

Equipment/Task	Engineering & Work Practice Control Methods	Required Respiratory Protection & Minimum Assigned Protection Factor (APF)	
		≤4 hours/shift	>4 hours/shift
xiv. Small Drivable Milling Machines (less than ½ lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
xv. Large Drivable Milling Machines (1/2 lane & larger)	For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions.	None	None
	<b>For cuts of four inches in depth or less on any substrate:</b> Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions.	None	None
	OR		
	Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
xvi. Crushing Machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station.	None	None
xvii. Heavy Equipment and Utility Vehicles used to Abrade or Fracture Silica-Containing Materials or used during Demolition Activities Involving Silica-Containing Materials	Operate equipment from within an enclosed cab.  When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions	None None	None None



Equipment/Task	Engineering & Work Practice Control Methods	Required Respiratory Protection & Minimum Assigned Protection Factor (APF)	
		≤4 hours/shift	>4 hours/shift
xviii. Heavy Equipment and Utility Vehicles for tasks such as Grading and Excavating but not including: Demolishing, Abrading, or Fracturing Silica-Containing Materials	Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
	OR When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

When implementing the control measures specified in Table 1, each employer shall:

- For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
- For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
- For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
  - Is maintained as free as practicable from settled dust;
  - Has door seals and closing mechanisms that work properly;
  - Has gaskets and seals that are in good condition and working properly;
  - Is under positive pressure maintained through continuous delivery of fresh air;
  - Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); AND
  - Has heating and cooling capabilities.

Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift.

If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

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**Written Exposure Control Plan**

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<b>Developed by:</b>		<b>Date:</b>	
<b>Task:</b>			
<b>Engineering Controls</b>			
<b>Work Practice Controls</b>			
<b>Respiratory Protection</b>			
<b>Housekeeping Measures</b>			
<b>Procedures to Restrict Access</b>			
<b>Reviewed by:</b>		<b>Date:</b>	

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**RCS Exposure Assessment Notification Letter**

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**Over the Permissible Exposure Limit****Notice Date:** \_\_\_\_\_

Air sampling for respirable crystalline silica was performed on \_\_\_\_\_. The task(s) performed during air sampling included:

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We have received the laboratory results for the recent air sampling indicating a reading of \_\_\_\_\_  $\mu\text{g}/\text{m}^3$ . According to OSHA, the Permissible Exposure Limit is 50  $\mu\text{g}/\text{m}^3$  as an 8-hour Time-Weighted Average (TWA). Based on these results, exposure to respirable crystalline silica while performing the above listed task(s) was **in excess** of this limit.

The following control measure(s) will be implemented to reduce your exposure:

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At this time, please continue to wear your respiratory protection while performing the above listed task(s). This operation will be subject to air monitoring within the next three (3) months.

**Employee Name:** \_\_\_\_\_**Employee Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

***This notification must be issued to each affected employee and/or posted in a location where all affected employees have access.***

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**RCS Exposure Assessment Notification Letter**

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**Under the Permissible Exposure Limit and Over the Action Level****Notice Date:** \_\_\_\_\_

Air sampling for respirable crystalline silica was performed on \_\_\_\_\_. The task(s) performed during air sampling included:

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We have received the laboratory results for the recent air sampling indicating a reading of \_\_\_\_\_  $\mu\text{g}/\text{m}^3$ . According to OSHA, the Permissible Exposure Limit (PEL) is  $50 \mu\text{g}/\text{m}^3$  and the Action Level (AL) is  $25 \mu\text{g}/\text{m}^3$  as an 8-hour Time-Weighted Average (TWA). Based on these results, exposure to respirable crystalline silica while performing the above listed task(s) was **within** the PEL and AL.

At this time, you are no longer required to wear your respiratory protection while performing the above listed task(s). However, since these laboratory results are between the AL and PEL, scheduled air monitoring will be performed every six (6) months.

Employee Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*This notification must be issued to each affected employee and/or posted in a location where all affected employees have access.*

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**RCS Exposure Assessment Notification Letter**

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**Under the Action Level****Notice Date:** \_\_\_\_\_

Air sampling for respirable crystalline silica was performed on \_\_\_\_\_. The task(s) performed during air sampling included:

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We have received the laboratory results for the recent air sampling indicating a reading of \_\_\_\_\_  $\mu\text{g}/\text{m}^3$ . According to OSHA, the Permissible Exposure Limit (PEL) is  $50 \mu\text{g}/\text{m}^3$  and the Action Level (AL) is  $25 \mu\text{g}/\text{m}^3$  as an 8-hour Time-Weighted Average (TWA). Based on these results, exposure to respirable crystalline silica while performing the above listed task(s) was **below** the AL.

At this time, you are no longer required to wear your respiratory protection while performing the above listed task(s). In addition, scheduled air monitoring will not be performed as long as there is no change in the production, process, control equipment, or work practices for the above listed task(s).

Employee Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*This notification must be issued to each affected employee and/or posted in a location where all affected employees have access.*

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**Medical Surveillance Documentation**

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**Information to Physician or other Licensed Health Care Professional****Employee Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

The above-named employee of COMPANYNAME is required to undergo a medical examination to comply with the Respirable Crystalline Silica standard (29 CFR 1926.1153). The examination must conform to the guidelines set forth in this standard. Required information has been provided for reference, in addition to the employee's duties, exposure levels and personal protective equipment worn, per the standard.

**Copies of the following documentation:**

- \_\_\_ §1926.1153 Respirable Crystalline Silica
- \_\_\_ §1926.1153 Appendix B – Medical Surveillance Guidelines
- \_\_\_ Employment-Related Medical Exams

**List of Employee Duties** (include past, current, and anticipated duties related to silica exposure)

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**Employee Exposure Levels** (include past, current, and anticipated levels related to silica exposure)

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**Description of Personal Protective Equipment** (include type, when and duration of use)

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Once complete with the medical examination, per 29 CFR 1926.1153, please complete the 'Written Medical Report for Employee' form and return to the above-named employee for their records. Additionally, please complete the 'Written Medical Opinion for Employer' form and submit to our office for our records.

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**Medical Surveillance Documentation**

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**Written Medical Report for Employee****Employee Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_**Type of Examination:**☐ Initial ☐ Periodic ☐ Specialist ☐ Other: \_\_\_\_\_**Results of Medical Examination:**

Physical Examination	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (See Below)	<input type="checkbox"/> Not Performed
Chest X-Ray	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (See Below)	<input type="checkbox"/> Not Performed
Breathing Test (Spirometry)	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (See Below)	<input type="checkbox"/> Not Performed
Test for Tuberculosis	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (See Below)	<input type="checkbox"/> Not Performed
Other: _____	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (See Below)	<input type="checkbox"/> Not Performed

Results Reported as Abnormal: \_\_\_\_\_

☐ Your health may be at increased risk from exposure to respirable crystalline silica due to the following: \_\_\_\_\_**Recommendations:**☐ No limitations on respirator use  
☐ Recommended limitations on use of respirator: \_\_\_\_\_☐ Recommended limitations on exposure to respirable crystalline silica: \_\_\_\_\_

Dates for recommended limitations, if applicable: \_\_\_\_\_

☐ I recommend that you be examined by a Board-Certified Specialist in Pulmonary Disease or Occupational Medicine☐ Other Recommendations\*: \_\_\_\_\_Your next periodic examination for silica exposure should be in ☐ 3 years ☐ Other: \_\_\_\_\_

Examining Provider: \_\_\_\_\_ Date: \_\_\_\_\_

(Signature)

Provider Name: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_ Office Phone: \_\_\_\_\_

\* These findings may not be related to respirable crystalline silica exposure or may not be work-related, and therefore may not be covered by the employer. These findings may necessitate follow-up and treatment by your personal physician. Respirable Crystalline Silica standard (1910.1053 or 1926.1153)

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**Medical Surveillance Documentation**

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**Written Medical Opinion for Employer****Employer:** \_\_\_\_\_**Employee Name:** \_\_\_\_\_ **Date of Examination:** \_\_\_\_\_**Type of Examination:**☐ Initial ☐ Periodic ☐ Specialist ☐ Other: \_\_\_\_\_**Recommendations:**☐ No limitations on respirator use☐ Recommended limitations on use of respirator: \_\_\_\_\_☐ Recommended limitations on exposure to respirable crystalline silica: \_\_\_\_\_

Dates for recommended limitations, if applicable: \_\_\_\_\_

The employee has provided written authorization for disclosure of the following to the employer (if applicable):

☐ This employee should be examined by an American Board-Certified Specialist in Pulmonary Disease or Occupational medicine☐ Recommended limitations on exposure to respirable crystalline silica: \_\_\_\_\_Dates for exposure limitations noted above: \_\_\_\_\_ to \_\_\_\_\_  
MM/DD/YYYY MM/DD/YYYY**Next Periodic Evaluation:** ☐ 3 years ☐ Other: \_\_\_\_\_Examining Provider: \_\_\_\_\_ Date: \_\_\_\_\_  
(Signature)

Provider Name: \_\_\_\_\_ Provider Specialty: \_\_\_\_\_

Office Address: \_\_\_\_\_ Office Phone: \_\_\_\_\_

☐ I attest that the results have been explained to the employee.**The following is required to be checked by the Physician or other Licensed Health Care Professional (PLHCP):**☐ I attest that this medical examination has met the requirements of the medical surveillance section of the OSHA Respirable Crystalline Silica standard (1910.1053(h) or 1926.1153(h))



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**Medical Surveillance Documentation**

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**Authorization for Crystalline Silica Opinion to Employer**

This medical examination for exposure to crystalline silica could reveal a medical condition that results in recommendations for (1) limitations on respirator use, (2) limitations on exposure to crystalline silica, or (3) examination by a specialist in pulmonary disease or occupational medicine. Recommended limitations on respirator use will be included in the written opinion to the employer. If you want your employer to know about limitations on crystalline silica exposure or recommendations for a specialist examination, you will need to give authorization for the written opinion to the employer to include one or both of those recommendations.

I hereby authorize the opinion to the employer to contain the following information, if relevant (please check all that apply):

☐ Recommendations for limitations on crystalline silica exposure

☐ Recommendation for a specialist examination

OR

☐ I do not authorize the opinion to the employer to contain anything other than recommended limitations on respirator use.

Please read and initial:

☐ I understand that if I do not authorize my employer to receive the recommendation for a specialist examination, the employer will not be responsible for arranging and covering costs of a specialist examination under the OSHA standard for respirable crystalline silica.

Employee Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Chapter 29 Permit Required Confined Space Program

### 29.1 Purpose, Scope, and Policy

#### 29.1.1 Purpose

The purpose of this program is to inform employees, as well as others who might be affected, that COMPANYNAME is complying with the OSHA Permit-Required Confined Space Standard, Title 29 Code of Federal Regulations 1926 Subpart AA.

#### 29.1.2 Scope

Under this program, we will identify permit-required confined spaces (PRCS) and provide training for our employees according to their responsibilities in the permit space. These employees will receive instructions for safe entry into our specific type of confined spaces, including testing and monitoring, appropriate personal protective equipment, rescue procedures, and attendant responsibilities. This program is designed to ensure that safe work practices are utilized during all activities regarding permit-required confined spaces to prevent personal injuries and illnesses that could occur. Copies of the written program may be obtained from the safety coordinator in the office.

#### 29.1.3 Policy

We have determined that this workplace needs written procedures for the evaluation of permit-required confined spaces, and where permit-required spaces are identified, we have developed and implemented a permit-required confined space entry program. This program applies to all work operations at COMPANYNAME where employees must enter a permit-required confined space as part of their job duties.

### 29.2 Roles & Responsibilities

#### 29.2.1 Employer Responsibilities

COMPANYNAME has overall responsibility for coordinating safety and health programs in this company. The supervisor is the person having overall responsibility for the Permit-Required Confined Space Program. The safety coordinator will review and update the program, as necessary.

#### 29.2.2 Employee Responsibilities

It is ultimately the employee's responsibility to follow management's safety policies and be responsible for their own safety as well as that of their coworkers. Employees must comply with their company's safety requirements as well as those of the Occupational Safety and Health Administration. Employees must report any hazardous conditions seen to management. Employees have the right to refuse unsafe work. Violations of these roles and responsibilities may be grounds for disciplinary action to the employee. Employees will participate in permit-required confined space training prior to performing permit-required confined space roles or activities.

#### 29.2.3 Permit-Required Confined Space Entry Roles

##### 29.2.3.1 Host Employer

Before entry operations begin, the host employer must provide the following information, if it has it, to the controlling contractor:

- the location of each known permit space
- the hazards or potential hazards in each space or the reason it is a permit space
- any precautions that the host employer or any previous controlling contractor or entry employer implemented for the protection of employees in the permit space

### 29.2.3.2 Controlling Contractor

Before entry operations begin, the controlling contractor must:

- obtain the host employer's information about the permit space hazards
- and previous entry operations
- coordinate operations with entry employer(s) when more than one entity performs permit space entry at the same time, or any other activities are performed that could foreseeably result in a hazard within the permit space
- provide the following information to each entity entering a permit space and any other entity at the worksite whose activities could foreseeably result in a hazard in the permit space:
  - the information received from the host employer
  - any additional information the controlling contractor has regarding confined spaces on site
  - the precautions that the host employer, controlling contractor, or other entry employers implemented for the protection of employees in the permit spaces
- the controlling contractor must debrief each entity that entered a permit space regarding the permit space program followed and any hazards confronted or created in the permit space(s) during entry operations

### 29.2.3.3 Entry Employer

Before entry operations begin, each entry employer must:

- obtain all of the controlling contractor's information regarding permit space hazards and entry operations
- inform the controlling contractor of the permit space program that the entry employer will follow, including any hazards likely to be confronted or created in each permit space
- coordinate operations with Controlling Contractor when more than one entity performs permit space entry at the same time, or any other activities are performed that could foreseeably result in a hazard within the permit space
- implement the measures necessary to prevent unauthorized entry
- identify and evaluate the hazards of permit spaces before employees enter them
- develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:
  - specify acceptable entry conditions
  - provide each authorized entrant or that employee's authorized representative with the opportunity to observe any monitoring or testing of permit spaces
  - isolate the permit space and physical hazard(s) within the space
  - purge, inert, flush, or ventilate the permit space as necessary to eliminate or control atmospheric hazards
- determine that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space
- provide pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards
- verify that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry, and ensure that employees are not allowed to enter into, or remain in, a permit space with a hazardous atmosphere unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee
- eliminate any conditions (for example, high pressure) that could make it unsafe to remove an entrance cover

- provide the following equipment at no cost to each employee, maintain that equipment properly, and ensure that each employee uses that equipment properly:
  - testing and monitoring equipment
  - ventilating equipment needed to obtain acceptable entry conditions
  - communications equipment
  - personal protective equipment when engineering or administrative controls do not adequately protect employees
  - lighting equipment that meets the minimum illumination requirements in §1926.56, that is approved for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present, and that is sufficient to enable employees to see well enough to work safely and to exit the space quickly in an emergency
  - barriers and shields as required
  - equipment, such as ladders, needed for safe ingress and egress by authorized entrants
  - rescue and emergency equipment needed, except to the extent that the equipment is provided by rescue services
  - any other equipment necessary for safe entry into, safe exit from, and rescue from, permit spaces
- evaluate permit space and determine if acceptable entry conditions exist, and can be maintained, before entry is made by conducting the following:
  - perform pre-entry testing to the extent feasible before entry is authorized
  - if entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working
  - provide an early-warning system that continuously monitors for no isolated engulfment hazards. The system must alert authorized entrants and attendants in sufficient time for the authorized entrants to safely exit the space
  - provide each authorized entrant or that employee's authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces
  - reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that the employer conduct such reevaluation because there is some indication that the evaluation of that space may not have been adequate
  - immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted
- provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations
  - attendants may be assigned to more than one permit space provided the duties can be effectively performed for each permit space
  - attendants may be stationed at any location outside the permit space as long as the duties described can be effectively performed for each permit space to which the attendant is assigned
- designate each person who is to have an active role (including authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training required
- develop and implement procedures for summoning rescue and emergency services (including procedures for summoning emergency assistance in the event of a failed non-entry rescue), for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue
- develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this standard, including the safe termination of entry operations under both planned and emergency conditions

- the entry employer must inform the controlling contractor in a timely manner of the permit space program followed and of any hazards confronted or created in the permit space(s) during entry operations
- Review the permit space program, using the canceled permits retained within 1 year after each entry and revise the program as necessary to ensure that employees participating in entry operations are protected from permit space hazards.

#### **29.2.3.4 Entry Supervisors**

Those persons who have completed the training and have been designated as permit-required confined space entry supervisors are assigned specific roles and responsibilities that they must perform in permit-required confined space job duties.

The Entry Supervisor will:

- know, understand, and ensure that the training of the authorized entrants and attendants are completed as outlined in their rolls & responsibilities;
- check appropriate permit information, assuring all tests have been made and are recorded;
- terminate the permit if required;
- verify rescue services are available;
- restrict entry to unauthorized individuals;
- determine when responsibility for a permit-required confined space is transferred, including intervals, and that operations remain consistent with permit terms.

#### **29.2.3.5 Attendants**

Those persons who have completed the training and have been designated as permit-required confined space attendants are assigned specific roles and responsibilities that they must perform in permit-required confined space job duties.

The Attendant must:

- know and understand the hazards that may be encountered;
- be aware of the possible behavioral effects of hazard exposure in authorized entrants;
- remain outside of the permit-required confined space;
- effectively communicate with authorized entrants;
- continuously maintain a count and identification of who is in the permit-required confined space;
- monitor activities inside and outside the permit-required confined space to determine if it is safe for entrants;
- summon rescue and other emergency services as soon as entrant needs assistance; and
- NEVER perform duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

#### **29.2.3.6 Authorized Entrants**

Those persons who have completed the training and are authorized to enter permit-required confined spaces are assigned specific roles and responsibilities that they must perform when they work in permit-required confined space job duties.

Authorized Entrants must:

- know and understand the hazards that may be encountered;
- know and understand how to properly use equipment; and
- communicate with the attendant whenever they recognize an exposure to a dangerous situation or detect a prohibited condition;
- exit from the permit-required confined space as quickly as possible whenever an order to evacuate is given, the entrant recognizes any warning sign or a prohibited condition, or if an evacuation alarm is activated.

### 29.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xiii</sup>

### 29.4 Hazards

There are many hazards which must be assessed with each permit-required confined space. Hazards include but are not limited to:

- Toxic Atmosphere
- Oxygen Deficiency
- Oxygen Enrichment
- Flammable or Explosive Atmospheres
- Excessive Heat
- Engulfment
- Entrapment
- Falls

### 29.5 Hazard Control Measures

#### 29.5.1 Hazard Evaluation for Permit Spaces

Before beginning to work at a worksite, the company must ensure that a designated competent person identifies all confined spaces in which one or more employees may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.

If a jobsite contains one or more permit spaces, the company designated competent person who identifies, or who receives notice of, a permit space must:

- Inform all exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space. This can be accomplished by posting a sign reading “DANGER – PERMIT REQUIRED CONFINED SPACE, DO NOT ENTER” or using other similar language that would satisfy the requirement for a sign.
- Inform, in a timely manner and in a manner other than posting, its employees’ authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.

If the designated competent person identifies, or receives notice of, a permit space and will not authorize employees to work in that space, they must take effective measures to prevent employees from entering that permit space, in addition to complying with all other applicable requirements.

In the event employees will be directed to enter a permit space, the written permit space program must be implemented at the construction site. The written program must be made available prior to and during entry operations for inspection by employees and their authorized representative.

#### 29.5.2 Preventing Unauthorized Entry

To provide a safe work environment and to prevent exposed employees from accidentally entering a permit-required confined space, we have implemented the following procedures to inform all employees of the existence, location, and danger posed by permit-required confined spaces.

- To inform employees of the existence of a permit-required confined space, we use placarding and markings.
- To ensure that unauthorized employees do not enter and work in permit-required confined space, we monitor the area.

### 29.5.3 Multiple Employer Entry

The procedures for coordinating entry operations for multi employers so that employees of one employer do not endanger the employees of another employer are as follows:

- All employees of every employer who are not involved with the confined space entry will be kept clear of the confined space by signage and the Entry Supervisor.
- An Entry Supervisor and Attendant will be designated, in writing, as the Senior Entry Supervisor and Senior Attendant who have authority over all entrants regardless of company for whom they work.

### 29.5.4 Safe Permit Space Entry Procedures

The Entry Supervisor is responsible for authorizing entry and issuing entry permits for work in our permit-required confined spaces. The file of permits and related documents are kept in the safety coordinator's office.

### 29.5.5 Permit Required Confined Space Evaluation

To ensure the safety and health of our employees, before allowing authorized workers to enter a permit-required confined space, we evaluate conditions in that space to determine if the conditions are safe for entry. Any employee who enters the space, or that employee's authorized representative, has the opportunity to observe the pre-entry and any subsequent testing. The authorized entrant or that employee's representative also has the option of requesting a reevaluation of the space if they feel that the evaluation was not adequate. The pre-entry evaluation will be documented on the 'Confined Space Entry Permit Checklist'. The file of permits and related documents are kept in the safety coordinator's office.

### 29.5.6 Alternate Entry Evaluation

Our company may allow entry into a permit-required space using alternative entry procedures. Using these procedures, the company does not need to have a written permit, attendant or rescue team, etc., providing that:

- The only hazards in the permit space are atmospheric
- Hazards can be controlled by the use of continuous forced-air ventilation
- Atmosphere is tested periodically during entry

It will be necessary, though, to conduct a full permit-required confined-space entry to test the atmosphere if it cannot be tested from outside. Once the atmosphere has been tested and it is determined that the only hazard is an atmospheric hazard, or potential hazard, that can be controlled through the use of forced-air ventilation, the rest of the requirements are relaxed—the only requirement being that the atmosphere must be tested periodically.

If a hazardous atmosphere is detected at any time during the entry, the following are required:

- Each employee must leave the space immediately.
- The space must be evaluated to determine how the hazardous atmosphere developed.
- Steps must be taken to protect the employees from the hazardous atmosphere before a subsequent entry takes place.

Once our company satisfies the requirements for entering using alternative entry procedures, certification must be completed before anyone enters the confined space. The certification consists of the date, location of the space and signature of the person providing the certification.

### 29.5.7 Reclassification as Non-Permit Space Certification

According to 1910.146(c)(7)(iii), our company documents the basis for determining that all hazards in a permit space have been eliminated, through a certification that contains the date, location of the space,

and signature of the person making the determination. This reclassification will be documented on the 'Confined Space Hazard Assessment' form.

### **29.5.8 Continuous Forced Air Ventilation**

An employee may not enter a confined space until the forced air ventilation has eliminated any hazardous atmosphere. The forced air ventilation must be so directed as to ventilate the immediate areas where an employee is or will be present and must continue until all employees have left the space. The air supply for the forced air ventilation must be from a clean source and may not increase the hazards in the space.

The atmosphere within the space will be periodically tested to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. If a space must be entered for testing of atmosphere conditions, it will be classified as a permit-required confined space.

When changes in the configuration or use of a non-permit space occur that might increase the hazards to entrants, the confined space will be re-evaluated and, if necessary, reclassified as a permit-required confined space.

All hazards in the permit-required confined space will be eliminated through a certification document that contains the date, space location, and signature of the person making the determination. The certification will be made available to each employee entering the space.

If hazards arise within a permit-required confined space that has been de-classified to a non-permit space, each employee must exit this space. The confined space will then be re-evaluated and determined whether it must be re-evaluated as a permit space.

### **29.5.9 Lockout/Tagout Procedures**

All lines, pipes, or other conveyances of flammable and/or toxic materials into a confined space will be positively locked out and tagged in accordance with the lockout/tagout procedures. (See Lockout/Tagout program)

### **29.5.10 Ventilation/Exhaust**

Ventilation/exhaust systems will be designed, constructed, maintained, and operated to ensure the required protection by maintaining volumes and velocities or exhaust air to gather and remove the contaminants. Periodic sampling for flammable and toxic materials and oxygen deficiencies will be performed before, during and after employee work assignments in the permit-required confined space to ensure toxic limits are not exceeded and a safe environment is and has been maintained. The assessments of the air quality in a confined space and the advice to the supervisor, or precautions which must be taken, must be performed by a qualified person.

### **29.5.11 Lighting and Electrical**

Lighting will be provided where sufficient natural light does not meet the work requirements. Explosion proof fixtures and switches will be used in confined spaces where explosive limits of flammable materials may occur. Emergency lighting will be provided at all entrances and exits of the permit-required confined spaces or explosion proof flashlights will be issued to all employees required to enter the permit-required confined space if the area is subject to blackout.

### **29.5.12 Communications**

Communication must be maintained at all times with the employees in the permit-required confined space by the persons assigned to stand by at the entrance. This can be accomplished by visual or voice contact or with explosion proof telephone or two-way radio.



### 29.5.13 Fire Protection

Access and egress will be maintained at all times while work is being performed in a permit-required confined space. Flammable liquids will be stored in approved containers or dispensers. The amount of flammable liquid in the permit-required confined space will not exceed the amount required for the work for the day. Properly rated fire extinguishing equipment must be readily available at all times for immediate use.

### 29.5.14 Rescue and Emergency Services

#### 29.5.14.1 Entry Rescue

Prior to entering any permit-required confined space management will develop and implement procedures for:

- summoning rescue and emergency services (including procedures for summoning emergency assistance in the event of a failed non-entry rescue),
- rescuing entrants from permit spaces,
- providing necessary emergency services to rescued employees, and
- preventing unauthorized personnel from attempting a rescue;

Management will evaluate and select an entry rescue team and emergency services prior to entering any permit-required confined space using appropriate evaluation and selection criteria.

- Evaluate a prospective rescuer's ability:
  - to respond to a rescue summons in a timely manner, considering the hazard(s) identified;
  - **NOTE:** What will be considered timely will vary according to the specific hazards involved in each entry. For example, § 1926.103 (Respiratory protection) requires that employers provide a standby person or persons capable of immediate action to rescue employee(s) wearing respiratory protection while in work areas defined as IDLH atmospheres.
  - in terms of proficiency with rescue-related tasks and equipment,
  - to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified
- Select a rescue team or service from those evaluated that:
  - has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;
  - is equipped for, and proficient in, performing the needed rescue services;
  - agrees to notify the employer immediately in the event that the rescue service becomes unavailable

Once an entry rescue team and emergency services are selected, management will inform them of the hazards they may confront when called on to perform rescue at the site and provide them with access to all permit spaces from which rescue may be necessary so that the rescue team or service can develop appropriate rescue plans and practice rescue operations.

#### 29.5.14.2 Non-Entry Rescue

In addition to the entry rescue procedures, non-entry rescue is required as the preferred method for rescuing an entrant from a permit-required confined space. Employees must use retrieval systems to rescue an entrant unless the equipment would increase the entrant's risk of injury or use of this equipment is infeasible. If the Competent Person determines that non-entry rescue equipment will create a greater hazard or is infeasible during the initial confined space assessment, then Competent Person must clarify and document greater hazard/infeasibility on the Confined Space Entry Permit.

Employees will not enter a permit-required confined space to respond to an emergency unless they have been properly trained in Confined Space Rescue and authorized by the company.

The entry employer must ensure that retrieval systems or methods are used whenever an authorized entrant enters a permit space, and must confirm, prior to entry, that emergency assistance would be available in the event that non-entry rescue fails.

Retrieval systems must meet the following requirements:

- Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which the employer can establish presents a profile small enough for the successful removal of the entrant. Wristlets or anklets may be used in lieu of the chest or full body harness if the employer can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets or anklets is the safest and most effective alternative.
- The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 meters) deep.
- Equipment that is unsuitable for retrieval must not be used, including, but not limited to, retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines used by other authorized entrants, or retrieval lines that will not work due to the internal configuration of the permit space.
- If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be

**If Your Company Does  
Not Have an  
Established PRCS  
Rescue Team Delete  
The Highlighted  
Section  
(and delete this box)**

which rescue is to be performed.

### **29.5.15 Post-Operations Procedures**

Upon completion of work in a permit-required confined space, the Entry Supervisor will close the space as required, then sign and cancel the permit.

### **29.5.16 Review-Procedures**

To ensure that all employees participating in entry operations are protected from permit space hazards, the company reviews the Permit-Required Confined Space Entry Program on a regular basis. Management will perform a single annual review covering all entries performed during a 12-month period using retained cancelled permits. If no entry is performed during a 12-month period, no review will be performed.

### **29.5.17 Enforcement**

Constant awareness of and respect for permit-required confined space entry hazards, and compliance with all safety rules are considered conditions of employment. Supervisors and individuals in the Safety Department reserve the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this permit entry program.

## **29.6 Training**

Every employee at the company who faces the risk of permit-required confined space entry is provided with training so that each designated employee acquires the understanding, knowledge, and skills necessary for the safe performance of the duties assigned to them. All training related materials, documents, and signed certificates are kept in the safety coordinator's office.

When we conduct the training, new employees are always trained before their initial assignment of duties. When changes occur in permit-required confined space areas of our company, we communicate the changes to appropriate personnel and retrain, if necessary. If we have reason to believe that an employee has deviated from a previously trained upon procedure or that their knowledge seems inadequate, we will retrain and/or remove employee from permit-required confined space service.

Upon successful completion of permit-required confined space training program, each participant receives a certificate which they sign verifying that they understand the material presented, and that they will follow all company policies and procedures regarding permit space entry.

### **29.6.1 Initial**

A permit-required confined space training will be conducted prior to an employee performing the duties of an entrant, attendant or entry supervisor. In addition to role specific responsibilities this training will consist of:

- Safe work practices
- Confined space identification and evaluation
- Operation of air monitoring equipment
- Hazard recognition
- Entry equipment and techniques
- Purging and inerting procedures
- Lock out and energy isolation procedures
- Non-entry rescue procedures
- Permit use

#### **29.6.1.1 Authorized Entrants**

Authorized entrants will be trained in:

- An awareness of the hazards that may be encountered during entry, including information on signs, symptoms, and consequences of hazard exposure.

- Proper use of monitoring equipment, ventilation equipment, communications equipment, personal protective equipment, lighting equipment, rescue equipment, entry and egress equipment, barriers to protect entrants from external hazards and other equipment necessary for safe entry into and rescue from permit spaces.
- The skills necessary to communicate with the Attendant should a reason for evacuation is present.
- The requirement to alert the Attendant whenever:
  - The entrant notices a warning sign or symptom of exposure to a dangerous situation.
  - A prohibited condition is detected.
- Exit procedures which include the need to exit the permit space as quickly as possible whenever:
  - An order to evacuate is given by the attendant or the Entry Supervisor
  - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
  - A prohibited condition is recognized.
  - An evacuation alarm is activated.

### 29.6.1.2 Attendants

Attendants will be trained in:

- An awareness of the hazards that may be encountered during entry, including the signs, symptoms, and consequences of the hazard exposure.
- An awareness of possible behavioral effects of hazard exposure in Authorized Entrants.
- The method used to continuously maintain an accurate count of Authorized Entrants in the permit space and the use of a roster on the entry permit to readily identify who is in the permit space.
- The requirement that, while an external rescue attempt may be attempted, they may not attempt to enter a permit-required confined space to attempt rescue under any circumstances unless:
  - They are relieved by a second Attendant **and**
  - They are thoroughly trained and certified in appropriate rescue techniques as required by the Rescue and Emergency Services Plan of this program
- Communication techniques with Authorized Entrants to monitor entrant status and alert entrants of the need to evacuate if one of the following conditions is present:
  - A prohibited condition is detected by the Attendant.
  - The Attendant detects the behavioral effects of hazard exposure in an Authorized Entrant.
  - The Attendant detects a situation outside the space that could endanger the Authorized Entrants.
  - The Attendant realizes that they cannot perform all the required duties of this program.
- The procedures to summon rescue and other emergency services as soon as the Attendant determines that Authorized Entrants need assistance to escape from permit space hazards.
- Taking the following steps when unauthorized persons approach or enter a permit space while entry is underway:
  - Warn the unauthorized persons that they must stay away from the permit space.
  - Advise the unauthorized persons they must exit immediately if they have entered the permit space.
  - Inform the Authorized Entrants and the Entry Supervisor if unauthorized persons have entered the permit space.
- The procedures for safe non-entry rescues as specified by our rescue procedure.
- An awareness that no duties may be performed which might interfere with the Attendant's primary duty to monitor and protect the Authorized Entrants. The Attendant must remain outside the Permit Space during entry operations until relieved by another Attendant.

### 29.6.1.3 Entry Supervisor

Entry Supervisors will be trained in:

- An awareness of the hazards that may be encountered during entry including information of the mode, signs, symptoms, and consequences of the hazard exposure.
- Verification procedures, especially checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted, and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
- Termination procedures:
  - The entry operations covered by the entry permit have been completed [at this point the permit will be canceled], or
  - A condition arises in or near the permit space that is not allowed.
- Verifying that rescue services are available and that means for summoning them are operational.
- An awareness that unauthorized personnel who enter or attempt to enter the permit space must be removed.
- Maintaining entry operations consistent with the terms of the entry permit. Whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, the entry operations must remain consistent with the terms of the entry permit and acceptable entry conditions must be maintained.

### 29.6.2 Refresher

Refresher training will be conducted annually or as needed. Periodic refresher training on entry specifics may be assigned to those employees making infrequent entries throughout the year. Training will be assigned to all affected employees with the purchase of new equipment and the development of new processes or procedures.

## 29.7 Reference

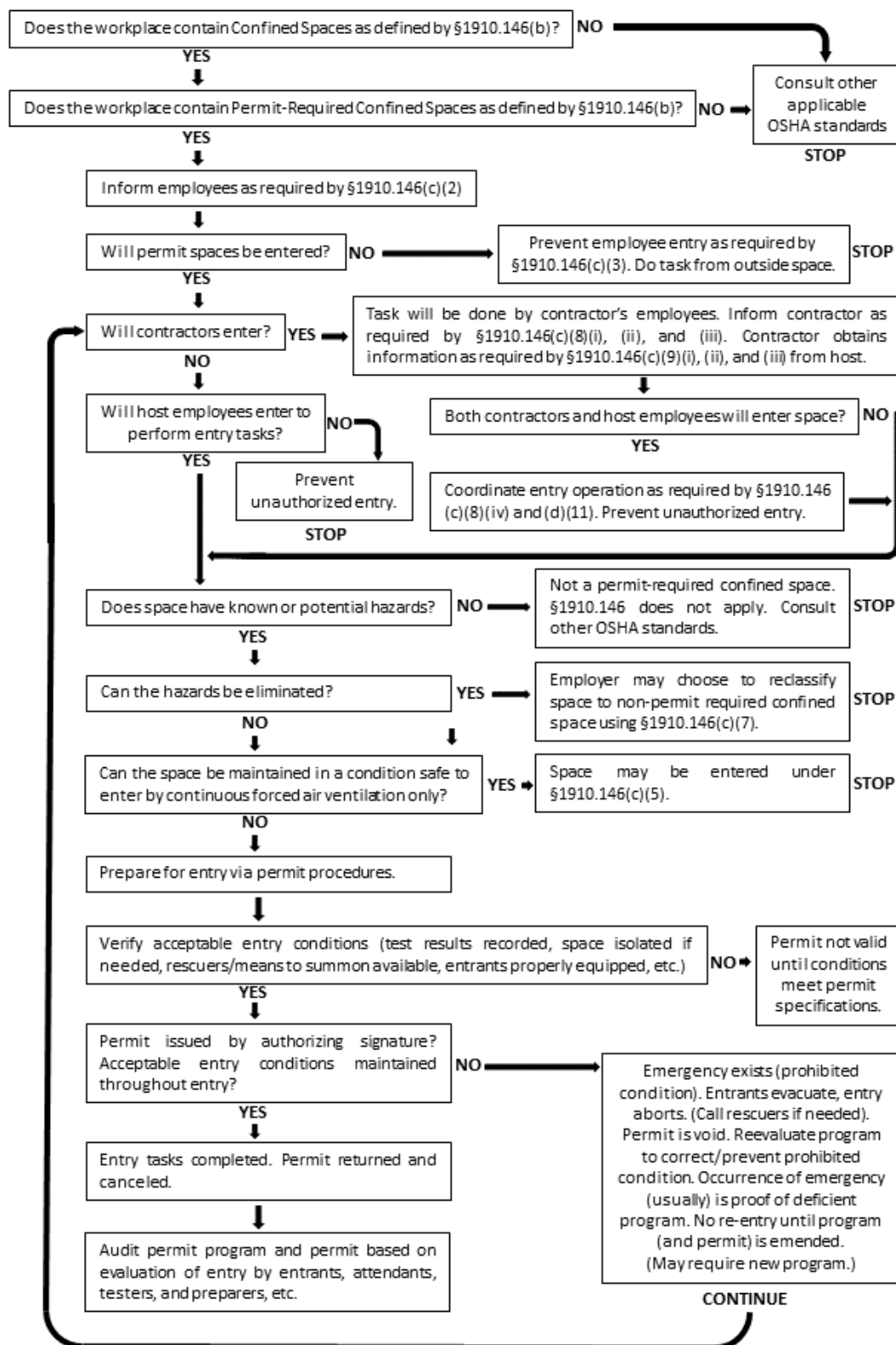
Retraining shall be administered annually and when the following situations occur:

- Changes in equipment, the workplace, or the type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## 29.8 Appendix

- Confined Space Assessment Flowchart
- Confined Space Hazard Assessment
- Confined Space Entry Procedure
- Confined Space Entry Log
- Air Monitoring Log

### Confined Space Assessment Flowchart



### Confined Space Hazard Assessment

Confined Space Location: \_\_\_\_\_ Assessment Date: \_\_\_\_\_

Confined Space Number and Description: \_\_\_\_\_

#### A. Description of Confined Space

1) Describe process performed in space	3) Space Access: <input type="checkbox"/> Below Grade <input type="checkbox"/> Above Grade <input type="checkbox"/> At Grade
2) Describe any chemicals or hazardous materials used in the space:	4) Means of Access into Space <input type="checkbox"/> Portable Ladder <input type="checkbox"/> Fixed Ladder <input type="checkbox"/> Stairs <input type="checkbox"/> Mechanical Means <input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical

#### ASSESSMENT

##### B. Confined Space Determination

	YES	NO	EXPLANATION
1. Is there a limited means of access/egress?	<input type="checkbox"/>	<input type="checkbox"/>	
2. Is the space <b>NOT</b> intended for continuous human occupancy?	<input type="checkbox"/>	<input type="checkbox"/>	
3. Is the space large enough for a worker to enter?	<input type="checkbox"/>	<input type="checkbox"/>	

If the answer to **ANY** of the above questions is '**NO**', the space has not met the criteria for a confined space and entry is not subject to confined space entry requirements.

If the answer to **ALL** of the above questions is '**YES**', the space has met the criteria for a confined space. Please move on to the next section.

##### C. Permit-required Confined Space Determination

	YES	NO	EXPLANATION
1. Does the space have the potential for a hazardous atmosphere?	<input type="checkbox"/>	<input type="checkbox"/>	
If a hazardous atmosphere was detected, please mark the hazard(s) below: <input type="checkbox"/> Oxygen enrichment <input type="checkbox"/> Oxygen Deficient <input type="checkbox"/> Explosive Gas/Vapor <input type="checkbox"/> Explosive Dust <input type="checkbox"/> Chlorine <input type="checkbox"/> Hydrogen Sulfide <input type="checkbox"/> Carbon Monoxide <input type="checkbox"/> Other: _____			
2. Will ventilation be required to enter the space?	<input type="checkbox"/>	<input type="checkbox"/>	
Ventilation System: (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Natural <input type="checkbox"/> Forced Positive <input type="checkbox"/> Forced Negative			

C. Permit-required Confined Space Determination	YES	NO	EXPLANATION
3. Does the space have the potential to engulf the entrant?	<input type="checkbox"/>	<input type="checkbox"/>	
Please mark the engulfment hazard: <input type="checkbox"/> Water <input type="checkbox"/> Sand <input type="checkbox"/> Soil <input type="checkbox"/> Gravel/Loose Rock <input type="checkbox"/> Sewage <input type="checkbox"/> Oil <input type="checkbox"/> Other: _____			
4. Does the space have the potential of entrapping the entrant?	<input type="checkbox"/>	<input type="checkbox"/>	
5. Is there a potential for any other serious safety and/or health hazard?	<input type="checkbox"/>	<input type="checkbox"/>	
If 'YES', please indicate below: <input type="checkbox"/> Electrical <input type="checkbox"/> Moving Parts <input type="checkbox"/> Noise <input type="checkbox"/> Heat <input type="checkbox"/> Cold <input type="checkbox"/> Slips, Trips, and Falls <input type="checkbox"/> Vertical Entry (> 5') <input type="checkbox"/> Skin or Eye Irritants <input type="checkbox"/> Chemicals <input type="checkbox"/> Other: _____			
If the answer to <b>ANY</b> above questions in Section C is 'YES', then the space meets the criteria for classification as a Permit-required Confined Space.			

D. Alternate Entry Procedure Determination			
If the answer to questions <b>3, 4, or 5</b> of Section C is 'YES', the Alternate Entry Procedure <b>CANNOT</b> be used, and the space must be classified as a Permit-required Confined Space.			
If only questions <b>1 and 2</b> of Section C can be answered 'YES', the space may be reclassified as an Alternate Entry Confined Space <b>IF</b> the following two criteria are met:			
	YES	NO	EXPLANATION
1. Is the only hazard an actual or potential hazardous atmosphere?	<input type="checkbox"/>	<input type="checkbox"/>	
2. If 'YES', will ventilation alone maintain safe conditions?	<input type="checkbox"/>	<input type="checkbox"/>	
If the answer to <b>both</b> questions <b>1 and 2</b> in Section D are answered 'YES', Alternate Entry Procedures may be used. If at any time conditions change or other hazards present, the space must be reclassified as a Permit-required Confined Space.			

E. Final Determination	
<input type="checkbox"/> Non-permit-required Confined Space <input type="checkbox"/> Permit-required Confined Space <input type="checkbox"/> Alternate Entry Procedures Permitted	
<b>EVALUATOR</b>	
Name: _____	Title: _____
Signature: _____	Date: _____



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**Confined Space Entry Procedure**

---

Procedure No	Original Date	Developed By	Revision	Space Number

**DANGER****For use by trained and authorized personnel only.****PURPOSE**

This procedure includes the Permit-required Confined Space (PRCS) Checklist and Permit. It identifies the minimum requirements for performing entry into a confined space, the hazards present in the confined space, and establishes acceptable control measures.

**INSTRUCTIONS**

This procedure and entry permit must be fully completed prior to performing the confined space entry. All sections must be completed. If a section does not apply, enter 'does not apply', or 'N/A'.

This document must be posted at the point of entry to the confined space. If conditions change, the scope of the work changes, or any unanticipated condition arises, **STOP** work immediately and report to the supervisor. Failure to comply with the requirements of this procedure will result in disciplinary action.

**PERMIT REQUIRED CONFINED SPACE CHECKLIST****(1) INFORMATION**

Provide the space identification, e.g.: name, confined space inventory number, etc.

Photos may be inserted below.

--	--

**(2) SPECIFIC PURPOSE OF ENTRY**

--

(3) PERSONNEL ASSIGNMENTS		
Assigned Position	Print Name	Training Verified (Entry Supervisor Signature)
Entry Supervisor		
Competent Person		
Attendant		
Attendant (Optional)		
Entrant		
Entrant		
Entrant		

(4) RESCUE and EMERGENCY SERVICES	
<b>Entry Supervisor must establish and document at least one of the following methods</b>	
<input type="checkbox"/> Non-entry Retrieval System	<ul style="list-style-type: none"> <li>Required for all vertical entrance &gt;5' deep</li> <li>Must be equipped with mechanical retrieval device (winch with anti-drop system)</li> </ul>
<input type="checkbox"/> On-site rescue trained personnel	<ul style="list-style-type: none"> <li>Required for entrance into IDLH atmosphere/conditions</li> </ul>
<input type="checkbox"/> Third-party rescue team	<ul style="list-style-type: none"> <li>Emergency Services (911)</li> <li>Must have 'reasonable' response time (qualified rescue personnel on site within fifteen (15) minutes)</li> </ul>

EMERGENCY SERVICES			
<b>Entry Supervisor MUST contact Rescue Service to Confirm Availability for Rescue Service</b>			
Responder	Phone Number (non-emergency)	Contact Person	Approximate Response Time
<b>The Entry Supervisor must inform the rescue service of hazard exposures in the confined space</b>			

(5) ATMOSPHERIC CONDITIONS					
Acceptable Conditions	Oxygen (O <sub>2</sub> ) 19.5% - 23.5%	Carbon Monoxide (CO) <35 ppm	Explosive (LEL) <10%	Toxic (H <sub>2</sub> S) <10 ppm	
<b>Initial Check</b> (upon opening of space)	_____ %	_____ ppm	_____ %	_____ ppm	
<b>Pre-Entry Check</b> (after ventilation)	_____ %	_____ ppm	_____ %	_____ ppm	
	_____ %	_____ ppm	_____ %	_____ ppm	
	_____ %	_____ ppm	_____ %	_____ ppm	
	_____ %	_____ ppm	_____ %	_____ ppm	

(6) KNOWN AND POTENTIAL HAZARDS	
Hazards	Pre-Entry Controls
Atmospheric Conditions	
Engulfment	
Entrapment	
Hazardous Energy	
Thermal Energy	
Residual Materials	
Insufficient Lighting	
Fire	
Respiratory Protection	
Rescue	

(7) ACCEPTABLE ENTRY CONDITIONS			
Hazards Controls Verified by Entry Supervisor	Control Satisfied?		
	YES	NO	N/A
Atmospheric Conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engulfment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entrapment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hazardous Energy Controls - LOTO Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thermal Energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Residual Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space Greater than 5' in Depth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insufficient Lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respiratory Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rescue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task-Specific Personal Protective Equipment (PPE)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOTE: If any control is marked as "No", entry is not permitted until corrected and verified			

**(8) PRE-ENTRY CERTIFICATION AND DURATION OF PERMIT**

The work authorized by this permit and the information provided has been reviewed and understood. All requirements for entry have been satisfied. Permit will remain at the jobsite until work is completed.

Date Issued	Time Issued	Time Expires
Print Name	Signature	
Permit Prepared by		
Entry Supervisor		
Attendant		
Entrant		

**(9) ENTRY LOG**

Name	IN	OUT	IN	OUT	IN	OUT	IN	OUT

**(10) AIR MONITORING RESULTS**

Time (15-minute intervals)	Oxygen (O <sub>2</sub> ) 19.5% - 23.5%	Carbon Monoxide (CO) <35 ppm	Explosive <10% (LEL/LFL)	Toxic (H <sub>2</sub> S) <10 ppm

**(11) PERMIT CLOSURE**

Work has been completed in accordance with this procedure. No further entry is permitted.

Entry Supervisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**(12) RECORDS RETENTION**

I have provided a copy of this document to the Safety Director for retention and annual review of the confined space program.

Entry Supervisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**NOTES:**

Confined Space Entry Log

Check if Entry Log is a: ☐ Stand-alone Log    ☐ Supplemental Log

Procedure #: \_\_\_\_\_ Date of Entry: \_\_\_\_\_ Space #: \_\_\_\_\_

Name	IN	OUT	IN	OUT	IN	OUT	IN	OUT

Attach Entry Log to Confined Space Entry Procedure and Entry Permit used for entry to the confined space.

Check if Air Monitoring Log is a: ☐ Stand-alone Log ☐ Supplemental Log

Procedure #: \_\_\_\_\_ Date of Entry: \_\_\_\_\_ Space #: \_\_\_\_\_

[illegible]

*Attach Air Monitoring Log to Confined Space Entry Procedure and Entry Permit used for entry to the confined space.*

## Chapter 30 Hazard Communication Program

### 30.1 Purpose, Scope & Policy

#### 30.1.1 Purpose

The purpose of this program is to establish a written hazardous communication program to protect employees from hazards of workplace chemicals to which they may be exposed.

#### 30.1.2 Scope

This program applies when employees are exposed to hazardous chemicals during handling or work processes involving such substances.

#### 30.1.3 Policy

- Under the provisions of the Hazard Communication Standard, this company will inform employees of the hazards and the identities of workplace chemicals to which they are exposed.
- Under no circumstances will the company ever accept from a manufacturer or distributor any chemicals or material that is not labeled.
- The chemical manufacturers and importers must evaluate chemicals to determine the health and physical hazard classes and category of each class that apply to the chemical. The chemical manufacturers and importers are responsible for the quality of the hazard classification they perform.
- Also, chemical manufacturers, importers, and distributors must be sure that containers of hazardous chemicals leaving the work place are labeled, tagged, or marked with the product identifier, signal word, hazard statement(s), pictogram(s), precautionary statement(s) and the name, address and telephone number of the chemical manufacturer, importer, or other responsible party. This information must be located together on the tag, label or mark and must be legible, in English (plus other languages, if desired), and prominently displayed.
- This company will maintain a current and accurate inventory of all chemicals/material used at the company (either in the main facility or on the job-site). Our company will conduct periodic inventory control to ensure that the list is updated. In the event that a new chemical/material is used a safety data sheets will be requested from the manufacturer and the inventory list updated.

### 30.2 Roles & Responsibilities

#### 30.2.1 Employer Responsibilities

- Management shall develop, implement, and maintain this written hazard communication program at each workplace. The program will include a written inventory list of all hazardous chemicals authorized for use in the workplace as identified in section 2 of the safety data sheet (SDS) for those chemicals.
- Management shall ensure the inventory list of hazardous substances is maintained up to date
- Management shall ensure that all workers are properly trained at time of initial employment and whenever a new physical or health hazard is introduced into the workplace
- Management shall ensure that data sheets are provided in legible format, and accessible for review by all workers
- Supervisors will periodically review the hazard communication plan with workers to ensure knowledge is fresh and up to date

#### 30.2.2 Employee Responsibilities

- Employees are responsible for understanding how to request safety data sheets; and recognizing the presence of hazardous chemicals and especially anhydrous ammonia

- It is ultimately the employee's responsibility to follow management's safety policies and be responsible for their own safety as well as that of their coworkers.
- Employees must comply with their company's safety requirements as well as those of the Occupational Safety and Health Administration.
- Employees must report any hazardous conditions seen to management.
- Employees have the right to refuse unsafe work.
- Violations of these roles and responsibilities may be grounds for disciplinary action to the employee.

### 30.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xiv</sup>

### 30.4 Hazards

Illnesses and injuries can occur when employees are exposed to hazardous chemicals during handling or work processes involving such substances. To prevent illnesses and injuries due to use of, or exposure to chemicals in the workplace, identities and hazards of chemicals must be both readily available and understandable to the employee.

### 30.5 Hazard Control Measures

#### 30.5.1 Inventory List of Hazardous Substances

- At least annually, management will inventory hazardous substances used within the facility and update the "Hazardous Chemicals Inventory List" to which employees might be exposed.
- Chemicals no longer used, or authorized for use shall be removed from the list.
- As chemicals are added to the workplace the inventory list shall be updated to include the new chemical.

#### 30.5.2 Safety Data Sheets

- Chemical manufacturers and importers must develop an SDS for each hazardous chemical they produce or import and must provide the SDS automatically at the time of the initial shipment of a hazardous chemical to a downstream distributor or user. Distributors also must ensure that downstream employers are similarly provided an SDS.
- A 'Hazardous Chemicals Inventory List' will be created, maintained, and updated by Hazard Communications Coordinator. This list must be reviewed and updated at least annually.
- For each chemical listed on the 'Hazardous Chemicals Inventory List', there shall be a current and updated Safety Data Sheet, with a corresponding product identifier.
- SDS must be obtained from the chemical manufacturer, supplier, or vendor and must be the correct sheet for the product.
- When SDS are more than three (3) years old it is recommended that new sheets should be obtained from the manufacturer, supplier, or vendor.
- SDS are to be maintained in a readily accessible location to employees to provide free access for review, training, and emergency response.
- Where employees must travel between workplaces during a work shift the safety data sheets may be kept at the primary workplace facility. Employers must ensure that employees can immediately obtain the required information in an emergency.
- If there are hazardous chemicals used for which no SDS has been received, the employer must contact the supplier, manufacturer, or importer to obtain the missing SDS. A record of the contact must be maintained.
- Contractors introducing hazardous substances into the facility shall provide copies of SDS to the Project Manager.

##### 30.5.2.1 Safety Data Sheet Structure and Format



The SDS is a written or printed material concerning a hazardous chemical that is prepared by the chemical manufacturer or importer. The SDS is required to have the chemical information presented using sixteen (16) specific section headings in a specified sequence and must be in English. The sixteen standardized sections are as follows:

<b>Section 1</b>	Identification	<b>Section 9</b>	Physical and Chemical Properties
<b>Section 2</b>	Hazard(s) Identification	<b>Section 10</b>	Stability and Reactivity
<b>Section 3</b>	Composition/Ingredients Information	<b>Section 11</b>	Toxicological Information
<b>Section 4</b>	First-aid Measures	<b>Section 12</b>	Ecological Information
<b>Section 5</b>	Fire Fighting Measures	<b>Section 13</b>	Disposal Considerations
<b>Section 6</b>	Accidental Release Measures	<b>Section 14</b>	Transport Information
<b>Section 7</b>	Handling and Storage	<b>Section 15</b>	Regulatory Information
<b>Section 8</b>	Exposure Controls/Personal Protection	<b>Section 16</b>	Other Information including date of preparation or revision






### 30.5.3 Workplace Labels






Labels must never be removed or defaced on incoming containers of hazardous chemicals. Any labels that are observed to be damaged, defaced, missing, or otherwise illegible shall be reported for immediate replacement.

- Each container (primary or secondary) of hazardous chemicals must be labeled, tagged, or marked with:
  - The product identifier, signal word, hazard statement(s), precautionary statement(s), pictogram(s), and supplier identification; or
  - The product identifier and words, pictures, symbols, or a combination that provide at least general information regarding the hazards of the chemical(s) which provide employees with the specific information regarding the physical and health hazards of the hazardous chemical as defined in the safety data sheet.
- This information must be located together on the tag, label or mark and must be legible, in English (plus other languages, if desired), and prominently displayed.

#### 30.5.3.1 Pictograms

OSHA has established the following pictograms as a visual indicator of the hazards the chemicals present. There are eight pictograms established by OSHA and a ninth pictogram recognized by the Department of Transportation to indicate chemicals that pose a hazard to aquatic life. The Harmful to Aquatic Life pictogram can be used voluntarily and is not required by OSHA.

<b>Health Hazard</b>  <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<b>Flammable</b>  <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-heating</li> <li>• Emits Flammable Gas</li> <li>• Self-reactives</li> <li>• Organic Peroxides</li> </ul>	<b>Irritant</b>  <ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non-mandatory)</li> </ul>	<b>Compressed Gas</b>  <ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>	<b>Environment (Non-mandatory)</b> 
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<b>Corrosive</b>  <ul style="list-style-type: none"> <li>• Skin Corrosion/Burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<b>Explosive</b>  <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-reactives</li> <li>• Organic Peroxides</li> </ul>	<b>Oxidizer</b>  <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<b>Toxic</b>  <ul style="list-style-type: none"> <li>• Acute Toxicity (Fatal or Toxic)</li> </ul>	 <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>
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### 30.5.3.2 Exemptions

Exemptions to the requirement for in-plant individual container labels are as follows:

- Employers can substitute posted signs or placards for labels that convey the same information if there are a number of stationary containers within a work area that have similar contents and hazards.
- Employers can substitute various types of standard operating procedures, process sheets, batch tickets, blend tickets, and similar written materials for labels on stationary process containers if they contain the same information and the written materials are readily accessible to employees in the work area.
- Employers are not required to label portable containers into which hazardous chemicals are transferred from labeled containers and that are intended only for the immediate use of the employee who makes the transfer.
- Employers are not required to label pipes or piping systems.

### 30.5.4 Non-Routine Tasks

- Management will maintain a list of non-routine tasks
- Management will perform a hazardous analysis of these tasks to ensure safe and proper use of hazardous materials.
- Management is responsible for informing the employee of the hazards of non-routine tasks and the hazards associated with chemicals contained in unlabeled pipes in their work area.

### 30.5.5 Multi-employer Worksites

#### 30.5.5.1 Multi-employer Worksites – as Host

- Management shall explain to vendors and contractors the hazardous substances in the workplace
- Identity of hazardous materials in the workplace
- Share SDS with vendors and contractors
- Explain the labeling of hazardous substances

#### 30.5.5.2 Multi-employer Worksites – as Embedded Partner

- Management shall explain to employees the hazardous substances used by the Host employer – such as sanitizers and anhydrous ammonia
- Identity of hazardous materials in the workplace
- Share SDS of the Host with employees

- Explain the labeling – used by the Host employer - of hazardous substances

### 30.6 Training

This company has established a training and information program for employees who are exposed to hazardous chemicals in their work area at the time of initial assignment and whenever a new hazard is introduced into their work area.

- At a minimum, the discussion topics will include the following:
  - The hazard communication standard and its requirements.
  - The components of the hazard communication program in the employees' workplaces.
  - Operations in work areas where hazardous chemicals are present.
  - Where the employer will keep the communications program, inventory lists of hazardous chemicals, and the required SDS forms.
- The employee training plan must consist of the following elements:
  - How the hazard communication program is implemented in that workplace, how to read and interpret information on labels and the SDS, and how employees can obtain and use the available hazard information.
  - The hazards of the chemicals in the work area.
  - Measures employees can take to protect themselves from the hazards.
  - Specific procedures put into effect by the employer to provide protection such as engineering controls, work practices, and the use of personal protective equipment (PPE).
  - Methods and observations—such as visual appearance or smell—workers can use to detect the presence of a hazardous chemical to which they may be exposed.

#### 30.6.1 Initial

Management shall provide training as specified in this program to new hires and temporary workers regarding hazardous chemicals in their work area at the time of their initial assignment.

#### 30.6.2 Refresher

Employees will receive refresher training:

- Annually
- When a new chemical or work process involving chemicals is introduced
- The employee has been observed being exposed to workplace chemicals in an unsafe manner
- The employee has been involved in an accident or near-miss incident caused by a workplace chemical

#### 30.6.3 Training for Non-English-Speaking Employees

Training for non-English speaking workers or workers who are not fluent in English shall be provided training in their primary language or through an interpreter. An evaluation of the effectiveness of the training shall be done through written or verbal testing.

### 30.7 Reference

OSHA Standard 29 CFR 1910.1200

### 30.8 Appendix

- Chemical Inventory List Form
- Sample Label
- GHS Trained Cards
- OSHA Pictogram Cards
- Quiz
- Quiz Answer Key

Reviewed by: \_\_\_\_\_

Name                      Signature                      Date

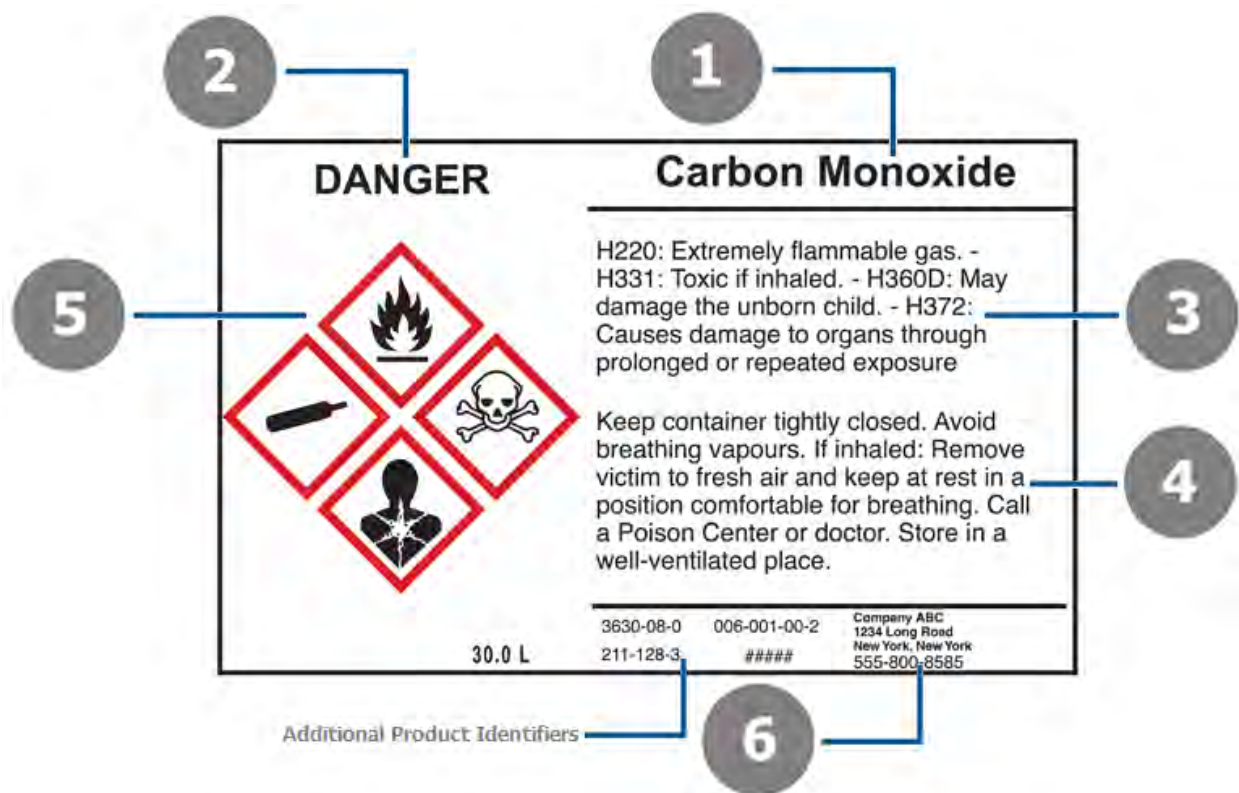
[illegible]

Chemical ID Marker	SDS on File?	Product Name	Manufacturer Name	Manufacturer Address (street, city, state)	Manufacturer Telephone (business and emergency)
	<input type="checkbox"/> YES <input type="checkbox"/> NO				( ) _____ - _____ (B) ( ) _____ - _____ (E)
	<input type="checkbox"/> YES <input type="checkbox"/> NO				( ) _____ - _____ (B) ( ) _____ - _____ (E)
	<input type="checkbox"/> YES <input type="checkbox"/> NO				( ) _____ - _____ (B) ( ) _____ - _____ (E)
	<input type="checkbox"/> YES <input type="checkbox"/> NO				( ) _____ - _____ (B) ( ) _____ - _____ (E)
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	<input type="checkbox"/> YES <input type="checkbox"/> NO				( ) _____ - _____ (B) ( ) _____ - _____ (E)
	<input type="checkbox"/> YES <input type="checkbox"/> NO				( ) _____ - _____ (B) ( ) _____ - _____ (E)

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HazCom Label Example

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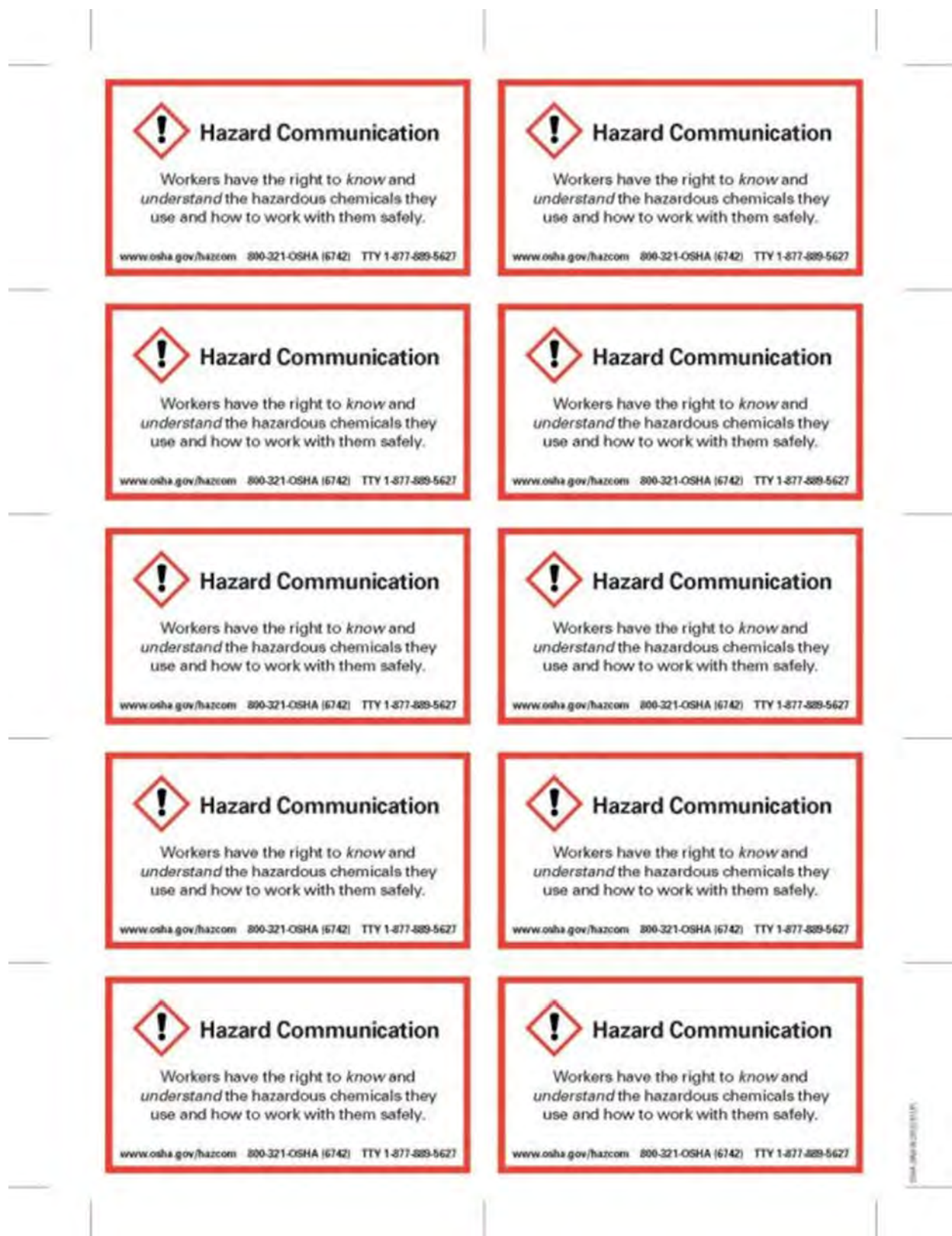


1. **Product Identifier** (Name)
2. **Signal Word** (DANGER or WARNING)
3. **Hazard Statement** (What it will do to you)
4. **Precautionary Statement** (How to prevent that from happening)
5. **Pictogram(s)**
6. **Supplier Identification**

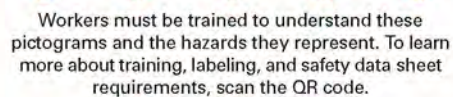
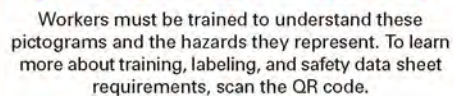
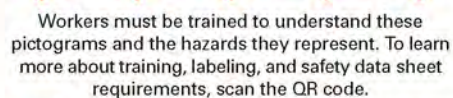
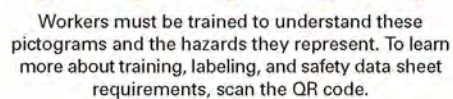
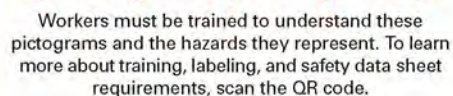
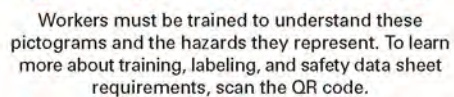
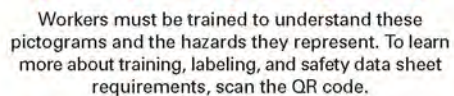
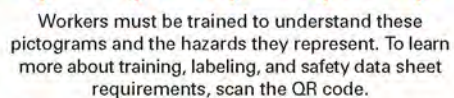
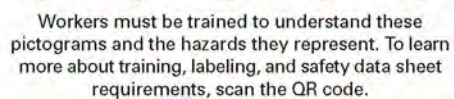
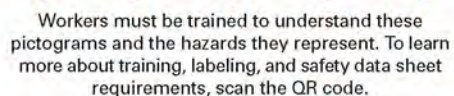
**Note:** Compressed carbon monoxide in combination with other gases (hydrogen, nitrogen, methane, and carbon dioxide) creates a fuel gas which is used as a substitute for natural gas for industrial and domestic heating. It is also used as a reducing agent in metals refining and in the

<p><b>GHS Safety Trained</b></p> <p>This is to certify that</p> <p>_____</p> <p>has successfully completed GHS Training</p> <p>_____</p> <p>Authorized Signature</p>	<p><b>GHS Safety Trained</b></p> <p>This is to certify that</p> <p>_____</p> <p>has successfully completed GHS Training</p> <p>_____</p> <p>Authorized Signature</p>
<p><b>GHS Safety Trained</b></p> <p>This is to certify that</p> <p>_____</p> <p>has successfully completed GHS Training</p> <p>_____</p> <p>Authorized Signature</p>	<p><b>GHS Safety Trained</b></p> <p>This is to certify that</p> <p>_____</p> <p>has successfully completed GHS Training</p> <p>_____</p> <p>Authorized Signature</p>
<p><b>GHS Safety Trained</b></p> <p>This is to certify that</p> <p>_____</p> <p>has successfully completed GHS Training</p> <p>_____</p> <p>Authorized Signature</p>	<p><b>GHS Safety Trained</b></p> <p>This is to certify that</p> <p>_____</p> <p>has successfully completed GHS Training</p> <p>_____</p> <p>Authorized Signature</p>









## Pictograms Quiz

Company \_\_\_\_\_ Date \_\_\_\_\_

Employee Name \_\_\_\_\_ Position \_\_\_\_\_

### GHS Pictograms



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_

### Match the hazards to the correct pictogram

- A. Acute Toxicity (may be fatal)
- B. Flammable, Emits Flammable Gas
- C. Oxidizer
- D. Explosive, Self-Reactive
- E. Environmental Toxicity
- F. Corrosive, Eye Damage
- G. Carcinogen, Target Organ Toxicity, Health Hazard
- H. Irritant, Narcotic Effects
- I. Gases Under Pressure
- J. Respiratory Sensitizer
- K. Pyrophorics

Total Correct: \_\_\_\_\_

11

Signature of Employee \_\_\_\_\_ Date \_\_\_\_\_

## Answer Sheet

### Pictograms Quiz

GHS Pictograms



Match the hazards to the correct pictogram

- A. Acute Toxicity (may be fatal)
- B. Flammable, Emits Flammable Gas
- C. Oxidizer
- D. Explosive, Self-Reactive
- E. Environmental Toxicity
- F. Corrosive, Eye Damage
- G. Carcinogen, Target Organ Toxicity, Health Hazard
- H. Irritant, Narcotic Effects
- I. Gases Under Pressure
- J. Respiratory Sensitizer
- K. Pyrophorics

## **Chapter 31 Hazardous Material Program**

### **31.1 Purpose, Scope & Policy**

#### **31.1.1 Purpose**

COMPANYNAME performs work in locations and environments that may be or have been associated with hazardous materials. Employees also have the potential for being exposed to hazardous materials in the course of working on multiple work group sites. It is the purpose of this program to mitigate those hazards and protect employees.

#### **31.1.2 Scope**

This program applies when employees are exposed to hazardous materials during work processes involving such substances.

#### **31.1.3 Policy**

It is the policy that no employee performs work of any kind related to lead, any type of asbestos or other hazardous materials. COMPANYNAME prevents employee exposure other material hazards by defining the scope of the project and coordination of work on the site.

### **31.2 Roles & Responsibilities**

#### **31.2.1 Employer Responsibilities**

Provide scope of work based on project documents and project meetings.

#### **31.2.2 Supervisor Responsibilities**

Monitor daily activities to identify any hazard exposures that maybe discovered or created by COMPANYNAME or others.

#### **31.2.3 Employee Responsibilities**

Inform supervisor immediately of any unanticipated exposure to hazardous materials or activities.

### **31.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xv</sup>

### **31.4 Hazards**

- Ionizing Radiation
- Non-ionizing Radiation
- Gases, vapors, fumes, dusts, and mists
- Lead (See Lead Program)
- Asbestos and other substances
- Highly Hazardous Chemicals

### **31.5 Hazard Control Measures**

#### **31.5.1 Ionizing Radiation**

Any activity involving radioactive material will be performed by competent persons specially trained in the proper and safe operation of equipment involving the use of radioactive sources.

Restricted areas will be established during use of radioactive sources.

Employees and work areas will be monitored for exposure (dose) to radioactive materials.

Employee dose will be managed under the provisions of the Nuclear Regulatory Commission's Standard for Protection Against Radiation, 10 CFR Part 20

### **31.5.2 Non-Ionizing Radiation**

Only trained and qualified will be assigned to operate laser equipment.

Employees working in areas of with potential exposure to direct or indirect laser light will be provided anti-laser eye protection devices.

Areas in which lasers are used will be posted with laser warning placards.

Beam shutters or caps will be utilized, or the equipment turned off when the laser is not required.

Employees will be kept out of the target area during raining, snowing, dust or fog conditions.

All efforts will be made to set up the laser equipment above the heads of employees.

### **31.5.3 Gases, Vapors, Fumes, Dusts and Mists**

Management will implement administrative and engineering controls whenever feasible to protect employees from inhalation, ingestion, skin absorption or contact with any materials or substances at a concentration above the Threshold Limit Values of Airborne Contaminants for 1970.

Personal protective equipment will be utilized as necessary to maintain employee exposures below the limits prescribed above.

Ventilation systems used as an engineering control will be maintained and properly operated.

Dry grinding, dry polishing and buffing will utilize local exhaust ventilation whenever the permissible exposure limit is exceeded, including when respirators are used.

Spray finishing operations will be evaluated by a competent person to assure employees are not exposed to levels exceeding the permissible exposure limit for the materials used.

### **31.5.4 Asbestos and other Substances**

All projects at existing facilities will be reviewed to determine if there is any potential for employee exposure to asbestos, and other substances.

Work locations within structures will be evaluated for the type of work to be performed and determinations made as to potential employee exposure to asbestos, lead, or other substances.

### **31.5.5 Highly Hazardous Chemicals**

Management will evaluate work location and work to be performed to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals which may result in toxic, fire or explosion hazards.

The site processes will be evaluated with participation of employees and Management will develop a written to identify, evaluate and control the hazards involved in the process.

Management will assure employees have or will receive any necessary training prior to work being performed.

Safe work practices will be identified and utilized during the performance of all work.

Hot work permits will be utilized for all welding, cutting, brazing, and grinding activities.

Any changes to the scope of work or changes to plans will be reviewed with Management and the owner.

An emergency action plan will be developed, and employees trained prior to their assignment to the field.

## **31.6 Training**

### **31.6.1 Initial**

Employees will be trained based on their project assignments

### **31.6.2 Refresher**

Employees will be trained based on observation of improper work practices

## **31.7 Reference**

OSHA Standard 29 CFR 1926 Subpart D



## Chapter 32 Lead Program

### 32.1 Purpose, Scope, and Policy

#### 32.1.1 Purpose

COMPANYNAME employees perform work in locations and environments that may be or have been associated with hazardous materials including lead. Employees also have the potential for being exposed to hazardous materials in the course of working on multiple work group sites. It is the purpose of this program to mitigate those hazards related to lead exposure and protect employees.

#### 32.1.2 Scope

This program applies when employees are exposed to lead during work processes involving such substances.

#### 32.1.3 Policy

It is the policy that no employee performs work of any kind related to lead without the proper engineering, administrative, and PPE controls in place. COMPANYNAME shall also reduce employee exposure by defining the scope of the project and coordination of work on the site.

### 32.2 Roles & Responsibilities

#### 32.2.1 Employer Responsibilities

Provide scope of work based on project documents and project meetings.

#### 32.2.2 Supervisor Responsibilities

Monitor daily activities to identify any hazard exposures that maybe discovered or created by COMPANYNAME or others.

#### 32.2.3 Employee Responsibilities

Inform supervisor immediately of any unanticipated exposure to hazardous materials or activities.

### 32.3 Definitions

**Action Level** – employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30  $\mu\text{g}/\text{m}^3$  calculated as an 8-hour time-weighted average (TWA).

**Competent Person** – one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

**Construction Work** –work for construction, alteration and/or repair, including painting and decorating including, but not limited to:

- Demolition or salvage.
- Removal or encapsulation.
- New construction, alteration, and repair.
- Installation of products containing lead.
- Lead contamination/emergency cleanup.
- Transportation, disposal, storage, or containment.
- Associated maintenance operations with above activities.

**Lead** – metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

## 32.4 Hazards

Hazards include exposure to lead and airborne lead particulate matter in the course of construction, alterations, and demolition activity. Lead can be found in piping, paint, solder, and other materials used in construction.

## 32.5 Exposure Control Methods

Lead exposure must be controlled so that no employee is exposed above the Action Level or PEL without proper protection. The following procedures will be followed to ensure that employees who may encounter lead are properly protected.

### 32.5.1 Written Compliance Program

The written compliance program shall establish the following:

- Description of each activity in which lead is admitted (e.g. equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices).
- Description of specific means that will be employed to achieve compliance and, where engineering controls are required, engineering plans and studies used to determine methods selected for controlling exposure to lead.
- Report of the technology considered in meeting the PEL.
- Air monitoring data, which documents the source of, lead emissions.
- Detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.
- Work practice program, which includes protective work clothing and equipment, housekeeping, and hygiene facilities and practices.
- Administrative control schedule, if applicable.
- Description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead and responsibility of compliance with OSHA 29 CFR 1926.62(e)(2).

### 32.5.2 Competent Person

OSHA requires that a Competent Person for lead must be appointed if the possibility of an exposure to lead over the Action Level exists. The Competent person must fulfil the following qualifications:

- Must be capable of identifying existing and predictable lead hazards in the surroundings or working conditions;
- and has authorization to take prompt corrective measures to eliminate them.

### 32.5.3 Action Level

The action level (AL) at which the lead standard must be implemented is 30 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), (8-hour TWA).

#### 32.5.3.1 Protective Measures Required When Action Level is Exceeded:

- Respiratory protection.
- Personal protective equipment (PPE).
- Change areas.
- Hand washing facilities.
- Biological monitoring consisting of:
  - Blood lead levels (BLL)
  - ZPP (zinc protoporphyrin) levels
- Training consisting of:
  - Hazard communication (OSHA 29 CFR 1926.59)



- Respiratory protection (OSHA 29 CFR 1926.103)
- Safety training and education (OSHA 29 CFR 1926.21)

#### 32.5.4 Permissible Exposure Limit

The Permissible Exposure Limits (PEL) for exposure to lead are as follows:

- PEL = 50  $\mu\text{g}/\text{m}^3$  (8-hour TWA)
- For work exceeding 8 hours, PEL = 400  $\mu\text{g}/\text{m}^3$ .

#### 32.5.5 Exposure Assessment

Personal samples representative of a full shift, including at least one (1) sample for each job classification in each work area, either for each shift or for the shift with the highest exposure level shall be collected.

Basis of initial assessment:

- Historical measurements can be only used if obtained within past twelve (12) months under similar workplace conditions. (monitoring from other employees can be used if within the past 12 months under similar conditions – considered the minimal violation).
- Objective data demonstrating exposures are less than the AL can be used to eliminate need for initial exposure assessment with the exception of abrasive blasting, welding, cutting, and torch burning activities.
- Where a positive initial determination has established that airborne concentrations are greater than the AL, representative monitoring must be done for each employee.

#### 32.5.6 Frequency of Exposure Monitoring

Frequency of exposure monitoring is dictated by the initial exposure assessment:

- |                          |  |
|--------------------------|--|
| < AL                     | No further exposure monitoring unless change in percent of lead, process, etc. |
| $\geq$ AL but $\leq$ PEL | At least every six (6) months  |
| > PEL                    | At least every three (3) months  |

#### 32.5.7 Employee Notification

Employers are required to notify employees of the results of the exposure assessment:

- within five working days after completion of exposure assessment.
- in writing of results that represent that employee's exposure and actions being taken to reduce exposures.

#### 32.5.8 Employee Protection

When performing work where lead is present, the following exposures will be assumed:

- Task exposures assumed to be  $>$  PEL &  $\leq 10\times$  PEL.
  - Manual demo (e.g.: drywall, dry manual scraping, dry manual sanding, heat gun application).
  - Spray painting with lead paint.
- Task exposures assumed to be  $> 10\times$  PEL.
  - Using lead containing mortar, lead burning.
  - Rivet busting, power tool cleaning without dust collection systems, cleanup activities where dry expendable abrasives are used, abrasive blasting enclosure movement and removal.
  - Abrasive blasting.
  - Welding.
  - Cutting.
  - Torch-burning.

### 32.5.9 Engineering and Work Practice Controls:

- Reduce employee exposures below PEL to the extent engineering and work practices controls are feasible.
- When feasible engineering and work practice controls are not sufficient to reduce exposure < PEL, employer shall use them to reduce exposure to the lowest achievable level and supplement with respiratory protection.
- Local exhaust ventilation (75 percent exposure reduction)
- Shrouded tools (75 percent exposure reduction).
- HEPA vacuums.
- Wetting agents.

### 32.5.10 Respiratory Protection

Respiratory protection is required:

- Whenever employee exposure exceeds the PEL
- When engineering and work practice controls are not sufficient to reduce exposure below the PEL
- Periods when an employee requests a respirator

#### 32.5.10.1 Medical Surveillance

Required employees, who are exposed thirty (30) or more days per year above the Action Level shall be subject to the medical surveillance program.

- Includes biological monitoring (BLL, ZPP).
- If blood lead level  $\geq 40 \mu\text{g/dL}$ , then a medical exam is required.

#### 32.5.10.2 Fit Testing

- Qualitative fit testing for half-mask respirator only
- Quantitative fit testing for full-face negative pressure respirators
- At initial fitting, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.

Protection factor for loose-fitting, continuous flow abrasive blasting helmet has been assigned a protection factor of 25 X PEL (exposures cannot exceed  $1,250 \mu\text{g/m}^3$ ).

### 32.5.11 Medical Examination and Consultation

Medical examinations are provided to all workers who are exposed to lead at or above the Action Level more than thirty (30) days in any consecutive 12-month period in accordance with the following schedule:

- Immediately, when a worker has a blood lead level greater than or equal to  $40 \mu\text{g/dl}$
- Annually for each worker who had a blood lead level of  $40 \mu\text{g/dl}$  or more during the preceding twelve (12) months
- When a worker has signs or symptoms associated with lead poisoning or believes they may be suffering from lead poisoning
- When a worker requests medical advice on reproductive effects of lead that they may be experiencing
- When a worker has problems breathing when wearing a respirator
- When a worker is pregnant
- When a worker has other medical conditions, unrelated to lead poisoning, that can possibly become worse with lead exposure

Medical examinations must be provided to the worker free of charge and during normal work hours.

### 32.5.11.1 Biological Monitoring Frequency

- BLL < 40 µg/dL, every two (2) months for first six (6) months and then every six (6) months thereafter.
- BLL ≥ 40 and < 50 µg/dL, every two (2) months.
- BLL ≥ 50 µg/dL, medical removal until BLL drops below 40 µg/dL.

### 32.5.12 Protective Work Clothing and Equipment

Employees exposed above the PEL must wear:

- Coveralls or similar full-body work clothing.
- Gloves, hats and shoes or disposable shoe coverlets.
- Face shields, vented goggles, and other appropriate protective equipment.

Clothing must be in a new/clean condition at least weekly and daily for workers exposed >200 µg/m<sup>3</sup> over an 8-hour TWA.

Protective clothing and equipment shall be removed in designated change areas at the completion of work shift and must be cleaned/or disposed of properly.

### 32.5.13 Housekeeping

- All work surfaces shall be kept free of particles of accumulated lead and lead containing material.
- Where lead or lead containing material has accumulated, clean up must be performed by vacuuming or other method that minimizes the likelihood of lead becoming airborne.
- Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.
- Compressed air shall not be used except in conjunction with ventilation system.

### 32.5.14 Hygiene Facilities

Hygiene Facilities and practices in areas where employees exposed above the PEL:

- Clean change rooms or areas and separate storage areas for clean and dirty clothing shall be provided.
- Employees must not leave workplace with contaminated clothing.
- Where feasible, showers shall be provided and used after each work shift.
- Food and beverages shall not be present or consumed.
- Eating facilities must be free from lead contamination.
- Remove contamination from clothing before entering lunch area.
- Provide adequate hand washing facilities.

### 32.5.15 Signs

Required where exposures exceed PEL, sign should state:

**WARNING**  
LEAD WORK AREA  
POISON  
NO SMOKING OR EATING

### 32.5.16 Recordkeeping

The following records must be kept for the duration of the employee's employment plus thirty (30) years.

- Employee exposure records.
- Medical records and exposure monitoring.
- Objective data that a particular product cannot release lead.

## **32.6 Training**

### **32.6.1 Initial**

The following training is required prior to any employee being exposed at or above the Action Level.

- Hazard communication training (29 CFR 1910.1200)
- Contents of lead standard
- Specific nature of operation resulting in exposure
- Purpose, proper selection, fitting, use, and limitations of respirators
- Purpose and description of medical surveillance program with attention to reproductive effects
- Engineering and work practice controls associated with job assignment
- Contents of compliance program
- Prohibition on the use of chelating agents
- Right of access to records (medical, exposure monitoring, etc.)

### **32.6.2 Refresher**

Employees will be trained based on observation of improper work practices.

## **32.7 Reference**

OSHA Standard 29 CFR 1926 Subpart D

## **32.8 Appendix**

- Worker Lead Protection Compliance Program
- Form 2 - Worker Blood Lead Level (BLL) and Zinc Protoporphyrin (ZPP) Test Results
- Form 3 - Worker Lead Training Record

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**Worker Lead Protection Compliance Program**

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This Lead Protection Compliance Program has been developed to comply with OSHA Construction Industry Standard 29 CFR 1926.62. It is reviewed and revised at least every six (6) months. The competent person assigned to the project has the complete authority to implement this program. Additional information is found in the Worker Lead Protection Program.

Name of Project: \_\_\_\_\_

Location of Project: \_\_\_\_\_

Anticipated Project Dates: \_\_\_\_\_

Competent Person-Assigned to Project: \_\_\_\_\_

Prepared by: \_\_\_\_\_ Approved by: \_\_\_\_\_

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Project Specific Lead Compliance Program**

1. Project, brief description of job: \_\_\_\_\_

\_\_\_\_\_

2. Competent Person: \_\_\_\_\_, will be on-site and will act as the competent person for occupational health and safety issues. The Competent Person will conduct inspections of the work areas on a (frequency) basis to ensure that control measures, work practices, personal protective equipment, and hygiene facilities are based used as prescribed in the document.

3. Schedule: The project is expected to start on \_\_\_\_\_ and end on \_\_\_\_\_. This compliance plan will take effect immediately upon project start-up. Work will proceed according to the following schedule:

Week \_\_\_\_\_ through \_\_\_\_\_: Initial set-up or site mobilization and (description of tasks):

\_\_\_\_\_

Week \_\_\_\_\_ through \_\_\_\_\_: (description of tasks):

\_\_\_\_\_

Week \_\_\_\_\_ through \_\_\_\_\_: (description of tasks):

\_\_\_\_\_

Week \_\_\_\_\_ through \_\_\_\_\_: (description of tasks):

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Week \_\_\_\_\_ through \_\_\_\_\_: (description of tasks):

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4. Lead Exposure Activities which may result in lead exposures:  
Signs are posted around work areas where exposures exceed the PEL

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5. Equipment:  
A list of equipment and materials (paint removal, containment, personal protective, etc.) to be used during this project includes:

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6. Crew:  
A crew of approximately \_\_\_\_\_ workers will complete the work. Crew leaders and likely assignments are as follows:

Name: \_\_\_\_\_ Task: \_\_\_\_\_

Name: \_\_\_\_\_ Task: \_\_\_\_\_

Name: \_\_\_\_\_ Task: \_\_\_\_\_

Name: \_\_\_\_\_ Task: \_\_\_\_\_

7. Engineering Control Methods:  
The primary engineering control methods for this project are (check all that apply):

- ☐ Containment  
☐ General Ventilation (abrasive blast cleaning)  
☐ Wet Methods (high pressure water, wet abrasive blast cleaning)  
☐ Local Exhaust Ventilation (needle guns, rotary peening, vacuum blasting)  
☐ HEPA Vacuums  
☐ Other, describe:

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8. Technology Considered in Meeting the Permissible Exposure Limit: The OSHA standards, other publications (e.g. SSPC 93-02 Industrial Lead Paint Removal Handbook), and past project experience

have been used to determine the appropriate engineering controls to be used in this project. Alternative methods were considered, but determined to be inappropriate for the project for the reasons stated below:

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9. Respirators: Respirators are provided in the context of a complete respiratory protection program. The written respiratory protection program is found in the COMPANYNAME Safety and Health Manual.

The types of respirators to be used on this project include:

Air Purifying with HEPA Cartridges

- ☐ Half Mask
- ☐ Full-face piece
- ☐ Powered Air-Purifying (half or full-face piece)

10. Hygiene Facilities: Hygiene facilities are provided by:

- ☐ Facility Owner
- ☐ General Contractor
- ☐ Others (identify)

The following wash and/or shower facilities will be used to decontaminate workers and will consist of:

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The wash and/or shower facilities will be located at:

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Hot water, soap and towels will be provided. Hands and face will be washed before all breaks and at the end of each day.

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11. Wastewater: Wastewater (wash and/or laundry water if laundry is accomplished on site) will be (check all that apply):

- ☐ Collected and filtered on site using \_\_\_\_\_  
(describe system)
- ☐ Disposed of in accordance with prior arrangements made with \_\_\_\_\_  
(name of local water and sewage authority)
- ☐ Contained for testing and disposal without filtration.

☐ Controlled by the Owner or General Contractor

Worker Exposure Air Monitoring Data:

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12. Medical Removal Protection: Employees assigned to this project are removed from exposures above the Action Level if blood lead levels (BLLs) greater than 50 µg/dL occur, or upon recommendation by the examining physician. Their seniority and benefits are protected during the removal period. They are returned to exposures above the Action Level only after two (2) consecutive BLL test results are below 40 µg/dL or when the physician indicates that the risk due to exposure no longer exists (in the case of removal for reasons other than blood lead).

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13. Administrative Job Rotations Plans: Job rotation may be used on this project to reduce worker exposures to lead on a given day. The job rotation schedule will be as follows (complete if applicable):

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14. Multi-Contractor Site Arrangements: The following arrangements will be made with other contractors on site to inform them of the potential lead exposures and for their responsibilities (e.g. the General contractor may provide shower facilities for all contractors on site):

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15. Training: All workers who will be exposed to lead above the Action Level have been trained in accordance with all the requirements found in paragraph (1) of 29 CFR 1926.62.

The names of the employees trained, the training provider, and the training dates are recorded on Form 3.



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**Worker Lead Protection Compliance Program - Form 2**  
**Worker Blood Lead Level (BLL) and Zinc Protoporphyrin (ZPP) Test Results**

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**Doctor or Firm Conducting Tests**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone #: \_\_\_\_\_

Employee (name or ID): \_\_\_\_\_ Date: \_\_\_\_\_

Blood Lead Level (BLL): \_\_\_\_\_ µg/dL      Zinc Protoporphyrin (ZPP) Level: \_\_\_\_\_ µg/dL

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

4) \_\_\_\_\_

5) \_\_\_\_\_

6) \_\_\_\_\_

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**Worker Lead Protection Compliance Program - Form 3**  
**Worker Lead Training Record**

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Employee (name or ID): \_\_\_\_\_ Date: \_\_\_\_\_

The lead protection compliance program training was conducted by:

\_\_\_\_\_  
(Instructor Name)\_\_\_\_\_  
(Signature)

At:

Address: \_\_\_\_\_

On: \_\_\_\_\_  
(Date of training)

## **Chapter 33 Stairways and Ladders Program**

### **33.1 Purpose, Scope & Policy**

#### **33.1.1 Purpose**

Company employees are exposed to hazards when working on or near stairways and ladders. Stairways and ladders are major sources of injuries and fatalities among construction workers, and many of the injuries are serious enough to require time off the job. It is the purpose of this program to mitigate those hazards and protect the employees.

#### **33.1.2 Scope**

This program applies to all stairways and ladders used in construction, alteration, repair, painting, decorating and demolition work.

#### **33.1.3 Policy**

This program describes a systematic approach that must be used to protect and prevent workers from injury. The prevention of these incidents will be accomplished through the implementation of this program, the training of affected employees and proper enforcement by all field management staff.

### **33.2 Roles & Responsibilities**

#### **33.2.1 Management Responsibilities**

Provide oversight of projects and proper tools and equipment.

#### **33.2.2 Supervisor Responsibilities**

Observe work in progress and enforce company policies and procedures, using the disciplinary action program when necessary.

#### **33.2.3 Employee Responsibilities**

Adhere to company safety policies and procedures.

### **33.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual.<sup>xvi</sup>

### **33.4 Hazards**

#### **33.4.1 Work Area**

The environment changes as work is completed creating a potential for new and existing fall hazards.

#### **33.4.2 Fall Protection Systems**

Correct procedures for erecting, maintaining, and disassembling various devices and systems must be followed at all times.

#### **33.4.3 Load and Capacity**

Stairways and ladders must be properly constructed, inspected, and placed properly before safe access can be achieved.

### **33.5 Hazard Control Measures**

#### **33.5.1 Work Area**

Inspect the job site for any changes and new hazards created at the start of the day.

Inspect stairways for items on steps, misplaced temporary material and secure handrails.

#### **33.5.2 Fall Protection Systems**

Inspect stair rail system.

Ensure the point of access is clear and free of debris.

#### **33.5.3 Load and Capacity**

Check portable ladders before use, inspecting side rails, steps or rungs and ladder hardware for tightness.

Ensure ladders are not being used in excess of their rated capacity.

Check temporary service stairways for structural soundness.

Check construction of any job-built ladders for cleat placement, side rail hand hazards and sound lumber material.

#### **33.5.4 Ladder and Stairways Requirements**

The following requirements apply to all stairways as indicated:

- Stairs shall be installed between 30 deg. and 50 deg. from horizontal.
- Riser height and tread depth shall be uniform within each flight of stairs, including any foundation structure used as one or more treads of the stairs. Variations in riser height or tread depth shall not be over 1/4-inch (0.6 cm) in any stairway system.
- Where doors or gates open directly on a stairway, a platform shall be provided, and the swing of the door shall not reduce the effective width of the platform to less than 20 inches (51 cm).
- Metal pan landings and metal pan treads, when used, shall be secured in place before filling with concrete or other material.

Stairways having four or more risers or rising more than 30 inches (76 cm), whichever is less, shall be equipped with:

- At least one handrail.
- One stair-rail system along each unprotected side or edge.

Height of Stair-Rails shall be as follows:

- Handrails and the top rails of stair-rail systems shall be capable of withstanding, without failure, a force of at least 200 pounds (890 n) applied within 2 inches (5 cm) of the top edge, in any downward or outward direction, at any point along the top edge.
- The height of handrails shall be not more than 37 inches (94 cm) or less than 30 inches (76 cm) from the upper surface of the handrail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
- Stair-rails installed after March 15, 1991, shall be not less than 36 inches (91.5 cm) from the upper surface of the stair-rail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
- Mid-rails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members shall be provided between the top rail of the stair-rail system and the stairway steps.
- Screens or mesh, when used, shall extend from the top rail to the stairway step, and along the entire opening between top rail supports.

- When intermediate vertical members, such as balusters, are used between posts, they shall be not more than 19 inches (48 cm) apart.
- Other structural members, when used, shall be installed such that there are no openings in the stair-rail system that are more than 19 inches (48 cm) wide.

### 33.5.5 Maintenance and Inspections:

The requirement to withdraw a defective ladder from service is satisfied if the ladder is:

- Ladder repairs shall restore the ladder to a condition meeting its original design criteria, before the ladder is returned to use.
- Portable ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, shall either be immediately marked in a manner that readily identifies them as defective, or be tagged with "Do Not Use" or similar language, and shall be withdrawn from service until repaired.
- Ladders will be kept free of oil, grease, or slippery materials.
- Fixed ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, or corroded components, shall be withdrawn from service until repaired and immediately tagged with "Do Not Use" or similar language.
- Cross-bracing on the rear section of stepladders shall not be used for climbing unless the ladders are designed and provided with steps for climbing on both front and rear sections.
- Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.

Ladder safety devices, and related support systems, for fixed ladders shall conform to all of the following:

- Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or drive ways, shall be secured to prevent accidental displacement, or a barricade shall be used to keep the activities or traffic away from the ladder.
- They shall permit the employee using the device to ascend or descend without continually having to hold, push, or pull any part of the device, leaving both hands free for climbing.
- Fixed ladders shall be used at a pitch no greater than 90 degrees from the horizontal, as measured to the back side of the ladder.

Where the total length of a climb equals or exceeds 24 feet (7.3 m), fixed ladders shall be equipped with one of the following:

- Ladder safety devices.
- Self-retracting lifelines, and rest platforms at intervals not to exceed 150 feet (45.7 m).

The mounting of ladder safety devices for fixed ladders shall conform to the following:

- The design and installation of mountings and cable guides shall not reduce the design strength of the ladder.
- Mountings for rigid carriers shall be attached at each end of the carrier, with intermediate mountings, as necessary, spaced along the entire length of the carrier, to provide the strength necessary to stop employees' falls.
- Mountings for flexible carriers shall be attached at each end of the carrier. When the system is exposed to wind, cable guides for flexible carriers shall be installed at a minimum spacing of 25 feet (7.6 m) and maximum spacing of 40 feet (12.2 m) along the entire length of the carrier, to prevent wind damage to the system.

Cages and Wells for Fixed Ladders shall conform to the following:

- The bottom of the cage shall be at a level not less than 7 feet (2.1 m) nor more than 8 feet (2.4 m) above the point of access to the bottom of the ladder. The bottom of the cage shall be flared not less than 4 inches (10 cm) all around within the distance between the bottom horizontal band and the next higher band.

- The top of the cage shall be a minimum of 42 inches (1.1 m) above the top of the platform, or the point of access at the top of the ladder, with provision for access to the platform or other point of access.
- They shall completely encircle the ladder.
- Cages shall extend not less than 27 inches (66 cm), or more than 30 inches (76 cm) from the centerline of the step or rung (excluding the flare at the bottom of the cage) and shall not be less than 27 inches (68 cm) in width.
- Their inside face on the climbing side of the ladder shall extend not less than 27 inches (68 cm) nor more than 30 inches (76 cm) from the centerline of the step or rung.
- The inside clear width shall be at least 30 inches (76 cm).
- The bottom of the wall on the access side shall start at a level not less than 7 feet (2.1 m) nor more than 8 feet (2.4 m) above the point of access to the bottom of the ladder.
- Horizontal bands shall be spaced not more than 4 feet (1.2 m) on center vertically.
- Vertical bars shall be spaced at intervals not more than 9 1/2 inches (24 cm) on center horizontally.
- Fixed ladders shall be provided with cages, wells, ladder safety devices, or self-retracting lifelines where the length of climb is less than 24 feet (7.3 m) but the top of the ladder is at a distance greater than 24 feet (7.3 m) above lower levels.
- A cage, well, multiple ladder sections, and each ladder section shall not exceed 50 feet (15.2 m) in length. Ladder sections shall be offset from adjacent sections, and landing platforms shall be provided at maximum intervals of 50 feet (15.2 m).

### 33.5.6 Portable Ladders:

All portable ladders provided by the company for use by employees are constructed according to OSHA specifications in order to ensure safety under normal conditions of usage. Portable wood, fiberglass, or aluminum ladders, shall be:

- Free from sharp edges and splinters.
- Shown through accepted visual inspection to be sound and free from cracks, splits, compression failures, decay, or other irregularities.
- Intact with no missing hardware.
- Without dents or deformation on aluminum rungs or supporting members.
- Not coated with any opaque coating that inhibits inspection of the ladder and its' components.
- Free from grease or other oily or slippery substances that could increase the likelihood of slipping while climbing the ladder.

### 33.5.7 Work Practices:

Ladders shall not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement. Slip-resistant feet shall not be used as a substitute for care in placing, lashing, or holding a ladder that is used upon slippery surfaces including, but not limited to, flat metal or concrete surfaces that are constructed so they cannot be prevented from becoming slippery.

- Ladders shall be inspected prior to use to insure they are free of defects.
- When ascending or descending a ladder, the user shall face the ladder and maintain good balance by keeping their belt buckle within the rails of the ladder.
- Employees shall use three points of contact with the ladder when progressing up and/or down the ladder.
- Single-rail ladders shall not be used.
- Ladders shall not be loaded beyond the maximum intended load for which they were built, or beyond their manufacturer's rated capacity.
- An employee shall not carry any object while climbing up or down a ladder.
- The bracing on the back legs of step ladders is designed solely for increasing stability and not for climbing.
- The top or top step of a stepladder shall not be used as a step.

- Two-section extension ladders, the minimum overlap for the two sections in use will be according to OSHA specifications.
- Non-self-supporting or extension ladders, shall be used at a 4:1 ratio and shall extend at least 3 feet above the landing surface.
- Wood job made ladders shall be used at a ratio of 8:1.
- Ladders shall not be moved, shifted, or extended while occupied.
- Ladders shall be properly secured into position or footed by a coworker.

### **33.5.8 Temporary Service:**

The following requirements apply to all stairways as indicated:

- Except during stairway construction, foot traffic is prohibited on stairways with pan stairs where the treads and/or landings are to be filled in with concrete or other material at a later date, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan. Such temporary treads and landings shall be replaced when worn below the level of the top edge of the pan.
- Treads for temporary service shall be made of wood or other solid material and shall be installed the full width and depth of the stair.

## **33.6 Training**

This company shall ensure that each employee has been trained by a competent person in the following areas:

- The nature of all fall hazards in the work area.
- The maximum intended load-carrying capacities of ladders.
- The proper construction, use, placement, and care in handling of all ladders.

### **33.6.1 Initial**

Employees must be trained by a competent person on the hazards of stairways and ladders.

### **33.6.2 Refresher**

Refresher training will be administered when the following situations occur:

- Changes in equipment, the workplace, or the type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## **33.7 Reference**

OSHA Standard 29 CFR 1926 Subpart X

## **Chapter 34 Fall Protection Program**

### **34.1 Purpose, Scope & Policy**

#### **34.1.1 Purpose**

The purpose of this Fall Protection Program is to establish guidelines that will effectively identify, manage, and control fall hazards from elevations of 6ft or higher by eliminating them with fall prevention methods.

#### **34.1.2 Scope**

The hazards of potential falls at heights of 6 feet and above will be addressed in this document. This instruction describes a systematic approach that must be used to protect and prevent workers from falling. This instruction also lists some of the most common fall hazards and provides recommendations and guidelines for selecting fall arrest systems.

#### **34.1.3 Policy**

This program describes a systematic approach that must be used to protect and prevent workers from falling. The prevention of these incidents will be accomplished by the use of fall prevention and fall protection methods, the training of affected employees and proper enforcement by all field management staff.

### **34.2 Roles & Responsibilities**

COMPANYNAME is responsible for the administration of this program and has full authority to make necessary decisions to ensure success of the program. All employees are responsible for safety at all times. COMPANYNAME has expressly authorized this person(s) as the competent person and has been authorized to halt any operation where there is danger of serious personal injury.

#### **34.2.1 Employer Responsibilities**

It is management's responsibility to provide employees with proper personal fall arrest equipment. Management will train each employee on proper use of each piece of equipment.

#### **34.2.2 Employee Responsibilities**

Employees are responsible for proper use and wear of the equipment used for personal fall arrest. Employees must inspect each piece of equipment before use and request new equipment to replace defective items.

### **34.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xvii</sup>

### **34.4 Hazards**

Personal fall arrest systems must be utilized to prevent falls greater than 6 feet in height if engineering or administration controls cannot eliminate the hazard. Personal fall arrest equipment is also used to protect employees from the hazards of being ejected out of an aerial lift. Hazards associated with improper use of personal fall arrest systems can lead to an employee getting severely injured. If employees don't wear the harness the proper way it can cause injury if the employee were to fall. An example of an improper use would be to not tighten the leg straps. If the employee were to fall the loose leg straps would rise and crush the pelvic area causing injury.



## 34.5 Hazard Control Measures

### 34.5.1 Written Program

Management will review and evaluate this program:

- On an annual basis
- When changes occur to 29 CFR, that prompts revision of this document
- When operational changes occur that require a revision of this document
- When there is an accident or near miss that relates to this area of safety
- Any time fall protection procedures fail

Effective implementation of this program requires support from all levels of management. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of the number of workers employed or the number of work crews. It is designed to establish clear goals, and objectives.

### 34.5.2 Workplace Evaluation

The workplace will be assessed before each assigned job for potential fall hazards. Proper fall arrest equipment will be used for jobs requiring fall protection when elimination of the hazard(s) is not possible. Management will evaluate the jobsites to determine fall hazards.

### 34.5.3 Unprotected Sides and/or Edges

Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is six feet (6') or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

### 34.5.4 Work at Leading Edges

A leading edge is the unprotected and under construction side or edge of a roof, floor, or other walking surface that shifts in position as the surface's construction progresses. Work near an unprotected edge does not qualify as 'leading edge work'.

The definition of 'leading edge work' is restricted to the construction of the floor, roof, or decking and does not apply to other work being done near an unprotected edge of flooring, roofing, or decking. Each employee who is constructing a leading edge six feet (6') or more above lower levels shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems.

**Exception:** When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer shall develop and implement a fall protection plan prepared by a qualified person and developed specifically for the site where the work is being performed. (See Fall Protection Plan section above).

**Note:** There is a presumption that the implementation of at least one of the above listed fall protection systems it is feasible and will not create a greater hazard. If using the Fall Protection Plan option, the employer has the burden of establishing that it is appropriate to implement a fall protection plan which complies with OSHA 29 CFR 1926.502(k) for a particular workplace situation, in lieu of implementing any of those systems (See Fall Protection Plan section above).

Each employee on a walking/working surface six feet (6') or more above a lower level where leading edges are under construction, but who is not engaged in the leading edge work, shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system. If a guardrail system is chosen to provide the fall protection, and a controlled access zone has already been established for leading edge work, the control line may be used in lieu of a guardrail along the edge that parallels the leading edge.

### 34.5.5 Hoist Areas

Each employee in a hoist area shall be protected from falling six feet (6') or more to lower levels by guardrail systems or personal fall arrest systems. If guardrail systems, or portions thereof, are removed to facilitate the hoisting operation (e.g., during landing of materials), and an employee must lean through the access opening or out over the edge of the access opening (to receive or guide equipment and materials, for example), that employee shall be protected from fall hazards by a personal fall arrest system.

#### **34.5.6 Holes**

Each employee on walking/working surfaces shall be protected from falling through holes (including skylights) more than six feet (6') above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes.

Covers shall be provided over holes in walking and working surfaces (including skylights) that are greater than two inches (2") or more in their least dimension to protect workers from tripping or stepping into them, or from being struck by items falling through them to the level below.

#### **34.5.7 Ramps, Runways, and Other Walkways**

Each employee on ramps, runways, and other walkways shall be protected from falling six feet (6') or more to lower levels by guardrail systems.

#### **34.5.8 Wall Openings**

Each employee working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is six feet (6') or more above lower levels and the inside bottom edge of the wall opening is less than thirty-nine inches (39") above the walking/working surface, must be protected from falling by the use of either a guardrail system, a safety net system, or a personal fall arrest system.

#### **34.5.9 Guardrail Systems.**

Management may choose to use guardrail systems to protect workers from falls. When utilized, guardrail systems will meet the following criteria:

- The top edge height of top rails, or (equivalent) guardrails must be 42 inches plus or minus 3 inches, above the walking/ working level.
- The guardrail system must be capable of withstanding a force of at least 200 pounds applied within 2 inches of the top edge in any outward or downward direction. When the 200 pounds test is applied in a downward direction, the top edge of the guardrail must not deflect to a height less than 39 inches above the walking/ working level.
- Top rails and midrails must be at least one-quarter inch nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for top rails, it must be flagged at not more than 6 feet intervals with high-visibility material. Steel and plastic banding cannot be used as top rails and midrails. Manila, plastic, or synthetic rope used for top rails or midrails must be inspected as frequently as necessary to ensure strength and stability.
- Screens, midrails, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking/ working surface when there are no walls or parapet walls at least 21 inches high. When midrails are used, they must be installed at a height midway between the top edge of the guardrail system and the walking/ working level. When screens and mesh are used, they must extend from the top rail to the walking/ working level and along the entire opening between top rail supports. Intermediate members, such as balusters, when used between posts, shall not be more than 19 inches apart.
- Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding a force of at least 150 pounds applied in any downward or outward direction at any point along the midrail or other member.
- Guardrail systems shall be surfaced to protect workers from punctures or lacerations and to prevent clothing from snagging.

- The ends of top rails and midrails must not overhang terminal posts, except where such an overhang does not constitute a projection hazard.
- When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section must be placed across the access opening between guardrail sections when hoisting operations are not in place.
- At holes, guardrail systems must be set up on all unprotected sides or edges. When holes are used for the passage of materials, the hole shall not have more than two sides with removable guardrail sections. When the hole is not in use, it must be covered or provided with guardrails along all unprotected sides or edges.
- If guardrail systems are used around holes that are used as access points (such as ladder ways), gates must be used, or the point of access must be offset to prevent accidentally walking into the hole.
- If guardrails are used at unprotected sides or edges of ramps and runways, they must be erected on each unprotected side or edge.

### 34.5.10 Personal Fall Arrest Systems

The purpose of a personal fall arrest system is to arrest an employee from a fall of 6 feet or greater than 6 feet in height if engineering or administration controls cannot eliminate the hazard. The personal fall arrest system consists of a full-body harness, lanyard, energy shock absorber, self-locking snap hook, and an anchorage point. Additional items such as a lifeline, deceleration device, or combination of all these may also be implemented. Body belts are not a substitution for body harnesses and cannot be used in a personal fall arrest system.

- Personal fall arrest systems and components subjected to shock or impact loading such as during a fall shall be immediately removed from service and not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for use.
- A personal fall arrest system used for fall protection must do the following:
  - Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness.
  - Be rigged so employee cannot fall more than six feet nor contact any lower level.
  - Bring an employee to a complete stop and limit maximum deceleration distance of employee travel to three and one-half feet (3½').
  - Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of six feet (6') or the free fall distance permitted by the system, whichever is less.
  - Not be used for any other purpose other than that intended.
  - Be removed from service for inspection if subjected to an impact load during a fall.

#### 34.5.10.1 Dee-Rings and Snap Hooks

Dee-rings and snap hooks must comply with the following minimum requirements:

- Dee-rings and snap hooks must have a minimum tensile strength of 5,000 pounds. They will be proof-tested to a minimum tensile load of 3,600 pounds without cracking, breaking, or suffering permanent deformation.
- Snap hooks will not be connected directly to webbing, rope or wire rope, to another snap hook, to a dee-ring with another snap hook or other connector attached to it already, to a horizontal lifeline, or to any object incompatible in shape or dimension relative to the snap hook.

#### 34.5.10.2 Lanyards and Lifelines

- When vertical lifelines are used, each employee shall be attached to a separate lifeline.
- Ropes and straps used in lanyards, lifelines, and strength components of body belts and body harnesses shall be made of synthetic fibers.
- Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds (22.2kN).

- Lifelines shall be protected against being cut or abraded.
- Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person. When used as part of a complete personal fall arrest system the horizontal lifeline must maintain a safety factor of at least two.

#### 34.5.10.2.1 Retractable Lifelines

A retractable lifeline is a fall arrest device used in conjunction with other components of a fall arrest system. Retractable lifelines should be used by one person at a time.

A properly inspected and maintained retractable lifeline, when correctly installed and used as part of the fall arrest system, automatically stops a person's descent in a short distance after the onset of an accidental fall.

Retractable lifelines may be considered when working in areas such as on roofs and scaffolds, or in tanks, towers, vessels, and manholes. Also, retractable lifelines should be considered when climbing such equipment as vertical fixed ladders. The following apply to the use of retractable lifelines:

- Retractable lifelines that automatically limit free fall distance to 2 feet or less will be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline in the fully extended position.
- Retractable lifelines that do not limit free fall distance to 2 feet or less, will be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline in the fully extended position.

#### 34.5.11 Anchorage Points

Anchorage will be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two, meaning capable of supporting at least twice the weight expected to be imposed on it.

Anchorage used to attach personal fall arrest systems will be independent of any anchorage being used to support or suspend platforms and must be capable of supporting at least 5,000 pounds per person attached.

##### 34.5.11.1 Calculating Potential Fall Distances

Personal Fall Arrest Systems (PFAS) must be designed and used in a manner that protects the worker from impacting the lower level or from a pendulum effect resulting in the worker swinging into the structure or another object.

When calculating fall distances the following must be considered:

- The height of the worker
- The fall distance to the next level
- A safety factor distance allowing for harness and system stretch

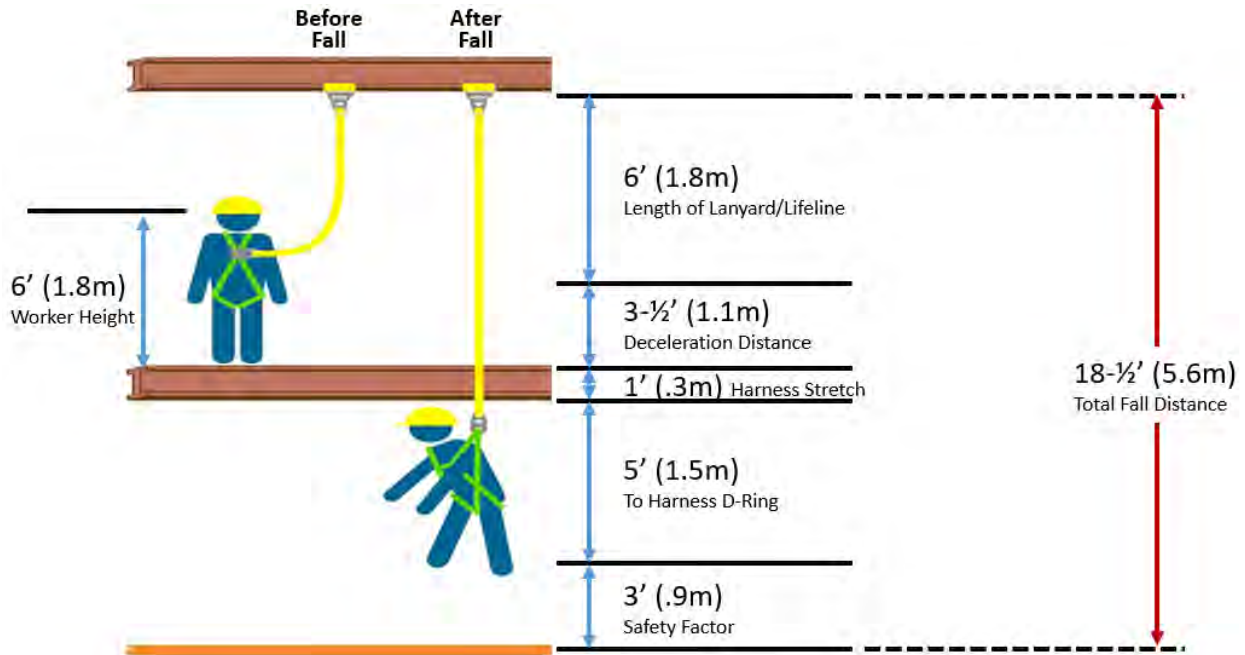
##### 34.5.11.1.1 Shock Absorbing Lanyard and Harness

To calculate the potential fall distance for a shock-absorbing lanyard and D-ring anchorage connector add:

- The length of the lanyard
- The length of the elongated deceleration device
- The length of connectors (anchor straps, hardware, etc.)
- The height of the worker
- A safety factor of three feet (3') to allow for harness stretch, improperly fitted or adjusted harness, system stretch, and potential miscalculation of distance. This cushion will reduce the likelihood of feet, ankle, or leg injury due to impact with the lower level.

Subtract this length from the fall distance to the next level to ensure the PFAS is not too long for the fall hazard.

Note that even with a short lanyard a worker of average height may fall as far as sixteen to eighteen feet (16'-18') before coming to a stop. A total of eighteen and one-half feet (18-½') is the minimum suggested safe fall distance for a configuration of this type.



(image adapted from images courtesy of Miller Fall Protection)

#### 34.5.11.1.2 Self-retracting Lifeline (SRL) and Harness

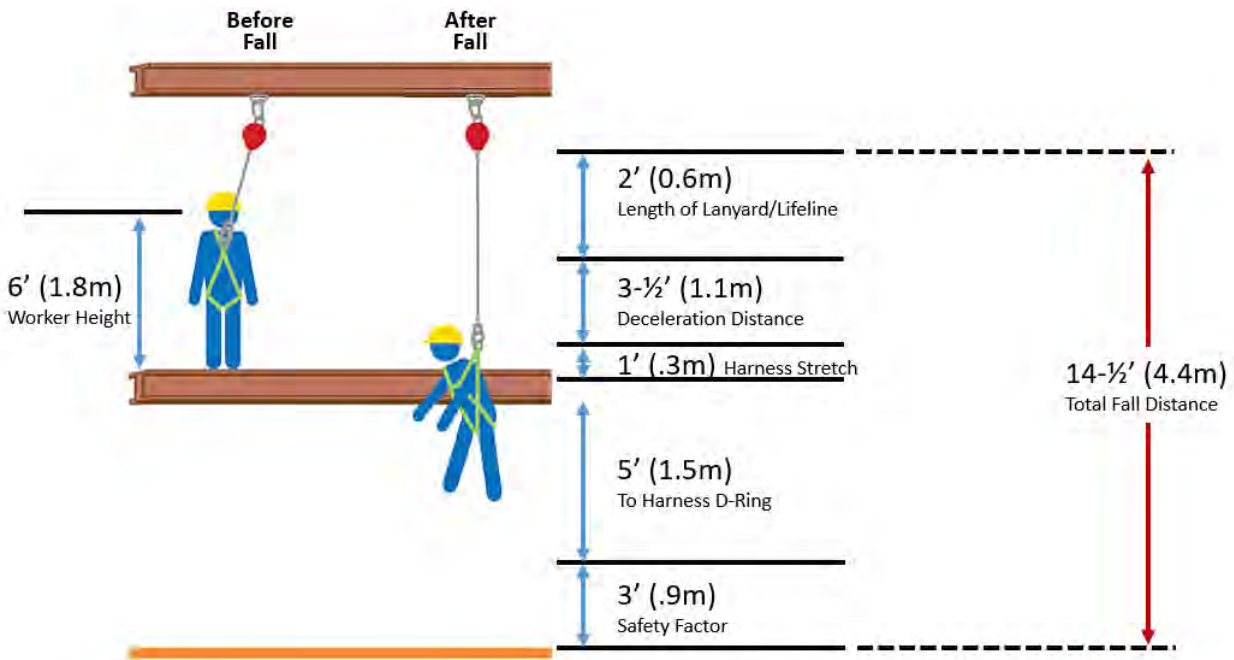
A self-retracting lifeline (SRL) is designed to arrest a worker's fall much more quickly with no more than a two-foot (2') free fall drop and no more than a three and one-half foot (3-½') deceleration distance before coming to a full stop.

To calculate the potential fall distance for a shock-absorbing lanyard and D-ring anchorage connector add:

- The maximum free fall distance (2')
- The maximum deceleration distance (3-½')
- The length of connectors (anchor straps, hardware, etc.)
- The height of the worker
- A safety factor of three feet (3') to allow for harness stretch, improperly fitted or adjusted harness, system stretch, and potential miscalculation of distance. This cushion will reduce the likelihood of feet, ankle, or leg injury due to impact with the lower level.

Subtract this length from the fall distance to the next level to ensure the PFAS is not too long for the fall hazard.

Note that even with proper fit and adjustment, a worker of average height may fall as far as twelve to fourteen feet (12'-14') before coming to a stop. A total of fourteen and one-half feet (14-½') is the minimum suggested safe fall distance for a configuration of this type.



(image adapted from images courtesy of Miller Fall Protection)

### 34.5.12 Fall Protection Plan

Using a fall protection plan as the primary method of fall protection is an option available only to employees engaged in leading edge work, precast concrete erection work, or residential construction work who can demonstrate that it is infeasible, or it creates a greater hazard to use conventional fall protection equipment.

Management has the burden of establishing that it is appropriate to implement a fall protection plan which complies with the standard for a particular workplace situation, in lieu of implementing any of those systems. The fall protection plan will conform to the following provisions:

- The fall protection plan will be prepared by a qualified person and developed specifically for the site where the leading edge work, precast concrete work, or residential construction work is being performed, and will be maintained up to date.
- Any changes to the fall protection plan shall be approved by a qualified person.
- A copy of the fall protection plan with all approved changes shall be maintained at the job site.
- The implementation of the fall protection plan shall be under the supervision of a competent person.
- The fall protection plan shall document the reasons why the use of conventional fall protection systems is infeasible or why their use would create a greater hazard.
- The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for employees who cannot be provided with protection from the conventional fall protection systems.
- The fall protection plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones and we will comply with the criteria discussed earlier in the controlled access zone section.
- Where no other alternative measure has been implemented, a safety monitoring system in conformance with OSHA 29 CFR 1926.502(h) will be implemented (See Safety Monitoring System section below).
- The fall protection plan will include a statement that provides the name or other method of identification for each employee who is designated to work in controlled access zones. No other employees may enter controlled access zones.

- In the event an employee falls, or another related serious incident occurs, an investigation of the circumstances of the fall or other incident shall be conducted to determine if the fall protection plan needs to be changed and shall implement those changes to prevent similar types of falls or incidents.

#### **34.5.13 Suspension Trauma**

In the event of a fall with a worker suspended in a personal fall-arrest system, COMPANYNAME must provide for a prompt rescue. 'Prompt' means without delay. A worker suspended in a harness after a fall can experience a condition called 'Suspension Trauma' or 'Harness Syndrome'. This condition could cause the worker to lose consciousness if the harness puts too much pressure on the arteries. Also, blood restriction may cause blood to pool in the extremities. A worker suspended in a body harness must be rescued in time to prevent serious injury.

In general, when standing, gravity causes blood to pool in the legs. It is the movement of the leg muscles, acting as a pump, which activates the circulation and allows the blood to rise towards the heart. When a worker who is suspended in a harness for prolonged periods, and more particularly if the worker is unconscious or cannot move his legs, serious injury or even death can occur. This is due to reduced or lack of circulation due to constricted blood vessels causing a lack of oxygen to the brain, kidneys, and other vital organs. A poorly adjusted harness can cause restriction of the femoral arteries and veins, and contribute to this dangerous condition.

#### **34.5.14 Retrieval and Rescue**

In the event of a fall with a worker suspended in a personal fall-arrest system, the company must provide for a prompt rescue. "Prompt" means without delay. A worker suspended in a harness after a fall can experience a condition called "Suspension Trauma". This condition could cause the worker to lose consciousness if the harness puts too much pressure on the arteries. Also, blood restricted from returning to the heart to become re-oxygenated may begin to pool in the extremities. A worker suspended in a body harness must be rescued in time to prevent serious injury.

It is possible that a fall-related emergency could happen at this work site. Therefore, this plan has been developed to provide for a prompt response. This plan must be executed prior to any workers being exposed to a fall hazard, however, in order to be effective. In other words, the rescue method must be chosen, and the necessary equipment must be deployed at the work site.

##### **34.5.14.1 Hierarchy of Rescue Methods**

It is important to understand the proper hierarchy of rescue methods in the event of a fall event. Rescue provisions will be provided and employed in the following order:

- Self-Rescue:
  - The use of self-rescue devices or techniques. In the event that self-rescue is not possible, and the worker is alert, devices such as the Suspension Trauma Safety Strap by DBI Sala can be utilized to prolong suspension time while awaiting assisted rescue.
- Assisted Rescue:
  - Rescue that is assisted by co-workers with the use of devices or tools to facilitate rescue.
- Professional Rescue:
  - The use of professional rescue teams such as fire department or other emergency services staff.

##### **34.5.14.2 Recommended Assisted Rescue Methods**

The following are suggested rescue methods and can be utilized in this order, depending on the condition, elevation, and location of the fallen worker.

- Placing a ladder under the worker to relieve pressure on his extremities and fall harness. If the worker is conscious, this may allow him to elevate himself and unhook from his lanyard and safely descend.
- Utilizing an aerial lift to reach the worker, guiding them into the basket, to retrieve them from heights.
- Utilizing a personnel hoisting basket in conjunction with the jobsite crane. The basket must be occupied by another worker on the site wearing the appropriate fall protection equipment and trained in the use of the basket. All procedures for proper setup, testing, and use of the basket must be performed prior to the start of work to ensure its' safe use and availability. The crane operator would maneuver the basket into position to allow the basket occupant to retrieve the fallen worker.
- Using a combination retractable lanyard/rescue device similar to the Miller MightEvac.
- Utilizing a rescue device similar to the Rollgliss® SRL Rescue Device. The use of this type of rescue device requires that a rescuer be trained in its use to ensure the ability to use it in the time of need.

#### **34.5.14.3 Rescue Plan**

In the event of a fall event, follow these steps:

- Assess quickly whether the worker will be able to promptly self-rescue.
- If not, call emergency services to invoke Professional Rescue immediately. In the event that an Assisted Rescue can be performed prior to the arrival of a Professional Rescue team, they can be turned around easily. It is much better to have summoned them than to not have them available quickly enough. The professionals who are being summoned will also be on hand to handle the fallen worker from a medical standpoint if necessary.
- Assess which method of assisted rescue will be best based on the condition, elevation, and location of the worker.
- Invoke this selected method of rescue immediately.
- While performing the rescue, and after arriving at a safe working level, rescuers must keep the fallen person in an upright or seated posture to reduce sudden back-flow of de-oxygenated blood into the heart.
- Advise the fallen worker to obtain medical attention for possible delayed onset of suspension trauma.
- First aid procedures may be administered at this time while awaiting Emergency Medical Services by any personnel certified to do so.

#### **34.5.14.4 Incident Investigation**

In the event an employee falls, or some other related, serious incident such as a near miss occurs, the employer shall investigate the circumstances of the fall or incident to determine if the fall protection plan needs to be revised and shall implement those changes to prevent similar types of falls or incidents.

#### **34.5.15 Safety Net Systems**

COMPANYNAME does not utilize safety net systems as part of its fall protection systems, even though the option exists. If safety nets are introduced to the workplace, necessary changes to this program and additional employee training will be evaluated and performed/directed by the Safety Coordinator.

##### **34.5.15.1 Inspections**

Equipment must be inspected by the user prior to each use for wear or damage. Defective equipment must be removed from service and shall not be used again until inspected and determined by a competent person to be undamaged and suitable for use.



Regular detailed inspections of the equipment should be performed at least every three (3) to six (6) months. The more frequently the equipment is used, the more often a detailed inspection should be performed.

#### 34.5.15.1.1 Inspection Process

Inspections of equipment should follow the following process. Any identified deficiencies require the equipment to be removed from service for a more detailed inspection by a competent person. If the deficiency cannot be corrected by thorough cleaning, the equipment must be replaced.

Area	Method	Criteria
Webbing	Visual	Cuts, breaks, fraying, knots, deformation, chemical or thermal damage, mildew, user modification, missing straps, grommets, accumulated debris or contamination
Stitching	Visual, touch	Pulled, missing, or cut stitches
Hardware	Visual, touch	Deformation, rough or sharp edges, breaks, cracks, rust. Tongue buckle must overlap the buckle frame and move freely. Roller must be present and move freely. Frame bars are not deformed and springs are in good condition. User modification.
Tags and Labels	Visual	Safety and equipment information labels must be clear and legible. Refer to manufacturer's instruction manual to identify manufacturer set life span. Ensure equipment is within lifespan.
D-Rings	Visual, touch	Deformation, rough or sharp edges, rust, fatigue damage.

#### 34.5.16 Protection from Falling Objects

When guardrail systems are used to prevent materials from one level to fall to another, any openings must be small enough to prevent passage of potential falling objects.

No materials or equipment except masonry and mortar shall be stored within 4 feet of working edges. Excess mortar, broken or scattered masonry units, and all other materials and debris shall be kept clear of the working area by removal at regular intervals.

During roofing work, materials and equipment shall not be stored within 6 feet of a roof edge unless guardrails are erected at the edge, and materials piled, grouped, or stacked near a roof edge must be stable and self-supporting.

- Canopies - When used as protection from falling objects, canopies must be strong enough to prevent collapse and to prevent penetration by any objects that may fall onto them.
- Toeboards – When toeboards are used as protection from falling objects, they must be erected along the edges of the overhead walking or working surface for a distance sufficient to protect persons working below. Toeboards shall be capable of withstanding a force of at least 50 pounds applied in any downward or outward direction at any point along the toeboard.
- Toeboards shall be a minimum of 3.5 inches tall from their top edge to the level of the walking/ working surface, have no more than 0.25 inches clearance above the walking/ working surface, and be solid or have openings no larger than 1 inch in size.

- When tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening must be erected from the walking/ working surface or toeboard to the top of a guardrail system's top rail or midrail, for a distance sufficient to protect employees below.

### **34.5.17 Subcontractor Responsibilities**

In addition to complying with the fall protection requirements that apply to all construction operations called out in 29 CFR, each subcontractor who is retained to perform operations that involve fall protection must coordinate fall protection operations with the Safety Coordinator, when both our personnel and subcontractor personnel will be working in or near recognized fall hazard locations.

## **34.6 Training**

A training program will be provided for all employees who will be exposed to fall hazards in the work area and will be conducted by competent personnel. The program will include but will not be limited to:

- A description of fall hazards in the work area
- Procedures for erecting and using fall prevention and protection systems
- Equipment limitations
- Safety monitoring systems and the employee's role in them
- The elements encompassed in total fall distance
- Inspection and storage procedures for the equipment

Generally, workers will be trained to recognize the hazards of falling from elevations and to avoid falls from grade level to lower levels through holes or openings in walking/working surfaces. Training programs will include prevention, control, and fall arrest systems. It must be ensured that appropriate fall arrest systems are installed, and that employees know how to use them before beginning any work that requires fall protection.

### **34.6.1 Initial**

Training will be conducted prior to job assignment. This employer will provide training to ensure that the purpose, function, and proper use of fall protection is understood by employees and that the knowledge and skills required for the safe application, and usage is acquired by employees.

All workers who will be working at heights should be trained on the site Rescue Plan. Those authorized by the company to perform rescue activities should be trained in the use of the equipment specified in the Recommend Assisted Rescue Methods section of this plan. Also, the requirements for Safe Hoisting of Personnel as found in 1926.550(g) Crane or Derrick Suspended Personnel Platforms should be met prior to the use of a personnel basket for rescue.

### **34.6.2 Refresher**

The training content will be identical to initial training. Refresher training will be conducted on an as needed basis or when the following conditions are met.

- Retraining will be provided for all authorized and affected employees whenever (and prior to) a change in their job assignments, a change in the type of fall protection equipment used, or when a known hazard is added to the work environment which affects the fall protection program.
- Additional retraining will also be conducted whenever a periodic inspection reveals, or whenever this employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of fall protection equipment or procedures.

The retraining will reestablish employee proficiency and introduce new or revised methods and procedures, as necessary.

### **34.6.3 Recertification**

This employer will certify that employee training has been accomplished and is being kept up to date. The certification will contain each employee's name and dates of training. Training will be accomplished by competent personnel.

- Involve the Safety Coordinator early in the project planning/job planning so that they can recommend appropriate fall-protection measures and equipment.
- Involve qualified Engineers when load rating of anchorage points must be determined or is in doubt.
- Subcontractors will be required to provide a written fall protection program which describes the Contractors' fall protection policies and procedures when they will be working at elevated heights.

### **34.7 Reference**

OSHA Standard 29 CFR 1926.500 – 1926.503

## Chapter 35 Scaffolding Program

### 35.1 Purpose, Scope, and Policy

#### 35.1.1 Purpose

COMPANYNAME has implemented this program to promote safety in the erecting, dismantling, and use of scaffolds. This program does not purport to be all inclusive, nor does it supplant or replace other safety and precautionary measures that cover usual or unusual conditions. Manufacturer's recommendations and guidelines are to be consulted and followed to ensure safe work practices are being performed.

#### 35.1.2 Scope

This program applies to all scaffolds that may be used, and scaffold work that may be performed in the workplace including scissor lifts, but does not apply to crane or derrick suspended personnel platforms. This program applies to both General Industry and Construction applications.

#### 35.1.3 Policy

All employees performing scaffold work including erecting and disassembly are required to follow the requirements established in this program.

### 1.1 Roles & Responsibilities

#### 35.1.4 Employer Responsibilities

It is management's responsibility to provide a safe workplace for employees. Management will ensure employees are following safety policies while working on scaffolds. Supervisors are responsible for implementing and administering this program.

It shall also be management's responsibility to ensure that all employees working on scaffold systems have completed the necessary training prior to the commencement of work. A Competent Person for scaffold work shall also be designated by the company prior to commencing any scaffold work.

#### 35.1.5 Employee Responsibilities

Employees are responsible for following training and safety procedures that are in place regarding scaffolding. Employees are also responsible for attending training, and only performing scaffold related activities that they have been trained to perform. Employees must be focused and alert when assembling and disassembling scaffolds.

#### 35.1.6 Scaffold Competent Person

Competent persons shall perform the following duties:

- Select and direct employees who erect, dismantle, move, or alter scaffolds.
- Determine if it is safe for employees to work on scaffolds during storms or high winds.
- Train employees involved in erecting, disassembling, moving, operating, preparing, maintaining, or inspecting scaffolds.
- Inspect scaffolds for visible defects before each work shift and after any occurrence that could affect the structural integrity and authorize prompt corrective actions.
- Inspect ropes on suspended scaffolds before each work shift and after every occurrence that could affect the structural integrity and authorize prompt corrective actions.
- Determine the feasibility and safety of providing fall protection and access.

- Determine if a scaffold is structurally sound when intermixing components from different manufacturers.

## 1.2 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xviii</sup>

## 1.3 Hazards

Any elevated work presents many potential hazards; (slips, trips, and falls, electrical exposure, and struck by falling objects), therefore, it is essential that planning and implementation of appropriate hazard control measures be done prior to any work on scaffolds.

In addition to the above indicated hazards, scaffold work also exposes workers to the threat of scaffold collapse and equipment failure, as well as severe wind and weather.

## 1.4 Hazard Control Measures

### 35.1.7 General Scaffold Requirements

#### 1.4.1.1 Capacity

- Each scaffold and scaffold component shall be capable of supporting, without failure, its own weight and at least four times (4x) the maximum intended load applied or transmitted to it.
- Direct connections to roofs and floors, and counterweights used to balance adjustable suspension scaffolds, shall be capable of resisting at least four times (4x) the tipping moment imposed by the scaffold operating at the rated load of the hoist, or one and one-half times (1-½x) (minimum) the tipping moment imposed by the scaffold operating at the stall load of the hoist, whichever is greater.
- Each suspension rope, including connecting hardware, used on non-adjustable suspension scaffolds shall be capable of supporting, without failure, at least six times (6x) the maximum intended load applied or transmitted to that rope.
- Each suspension rope, including connecting hardware, used on adjustable suspension scaffolds shall be capable of supporting, without failure, at least six times (6x) the maximum intended load applied or transmitted to that rope with the scaffold operating at either the rated load of the hoist, or two times (2x) (minimum) the stall load of the hoist, whichever is greater.
- The stall load of any scaffold hoist shall not exceed three times (3x) its rated load.
- Scaffolds shall be designed by a qualified person and shall be constructed and loaded in accordance with that design.

#### 1.4.1.2 Scaffold Platform Construction

- Each platform on all working levels of scaffolds shall be fully planked or decked between the front uprights and the guardrail supports as follows:
  - Each platform unit (e.g., scaffold plank, fabricated plank, fabricated deck, or fabricated platform) shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than one inch (1") wide, except where the employer can demonstrate that a wider space is necessary (for example, to fit around uprights when side brackets are used to extend the width of the platform).
  - Where the employer makes the demonstration that a wider space is necessary, the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed nine and one-half inches (9-½").

**Exception:** The requirement to provide full planking or decking does not apply to platforms used solely as walkways or solely by employees performing scaffold erection or dismantling. In these situations, only the planking that the employer establishes is necessary to provide safe working conditions is required.

- Except as provided below, each scaffold platform and walkway shall be at least eighteen inches (18") wide.
  - Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold shall be at least twelve inches (12") wide. There is no minimum width requirement for boatswains' chairs.

**NOTE:** Pursuant to an administrative stay effective November 29, 1996 and published in the Federal Register on November 25, 1996, the requirement in 29 CFR 1926.451(b)(2)(i) that roof bracket scaffolds be at least twelve inches (12") wide is stayed until November 25, 1997 or until rulemaking regarding the minimum width of roof bracket scaffolds has been completed, whichever is later.
  - Where scaffolds must be used in areas that the employer can demonstrate are so narrow that platforms and walkways cannot be at least eighteen inches (18") wide, such platforms and walkways shall be as wide as feasible, and employees on those platforms and walkways shall be protected from fall hazards by the use of guardrails and/or personal fall arrest systems.
- Except as provided below, the front edge of all platforms shall not be more than fourteen inches (14") from the face of the work, unless guardrail systems are erected along the front edge and/or personal fall arrest systems are used in accordance with the fall protection requirements identified below to protect employees from falling.
  - The maximum distance from the face for outrigger scaffolds shall be three inches (3");
  - The maximum distance from the face for plastering and lathing operations shall be eighteen inches (18").
- Each end of a platform, unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support at least six inches (6").
- Each end of a platform ten feet (10') or less in length shall not extend over its support more than twelve inches (12") unless the platform is designed and installed so that the cantilevered portion of the platform is able to support employees and/or materials without tipping, or has guardrails which block employee access to the cantilevered end.
- Each platform greater than ten feet (10') in length shall not extend over its support more than eighteen inches (18"), unless it is designed and installed so that the cantilevered portion of the platform is able to support employees without tipping, or has guardrails which block employee access to the cantilevered end.
- On scaffolds where scaffold planks are abutted to create a long platform, each abutted end shall rest on a separate support surface. This provision does not preclude the use of common support members, such as "T" sections, to support abutting planks, or hook-on platforms designed to rest on common supports.
- On scaffolds where platforms are overlapped to create a long platform, the overlap shall occur only over supports, and shall not be less than twelve inches (12") unless the platforms are nailed together or otherwise restrained to prevent movement.
- At all points of a scaffold where the platform changes direction, such as turning a corner, any platform that rests on a bearer at an angle other than a right angle shall be laid first, and platforms which rest at right angles over the same bearer shall be laid second, on top of the first platform.
- Wood platforms shall not be covered with opaque finishes, except that platform edges may be covered or marked for identification. Platforms may be coated periodically with wood preservatives, fire-retardant finishes, and slip-resistant finishes; however, the coating may not obscure the top or bottom wood surfaces.
- Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force and the scaffold's structural integrity is maintained by the user. Scaffold components manufactured by different manufacturers shall not be modified in order to intermix them unless a competent person determines the resulting scaffold is structurally sound.
- Scaffold components made of dissimilar metals shall not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component to a level below that required by the Capacity section above.

#### 1.4.1.3 Supported Scaffolds

- Supported scaffolds with a height to base width (including outrigger supports, if used) ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means, as follows:
  - Guys, ties, and braces shall be installed at locations where horizontal members support both inner and outer legs.
  - Guys, ties, and braces shall be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the 4:1 height and be repeated vertically at locations of horizontal members every twenty feet (20') or less thereafter for scaffolds three feet (3') wide or less, and every twenty-six feet (26') or less thereafter for scaffolds greater than three feet (3') wide. The top guy, tie, or brace of completed scaffolds shall be placed no further than the 4:1 height from the top. Such guys, ties and braces shall be installed at each end of the scaffold and at horizontal intervals not to exceed thirty feet (30') (measured from one end [not both] towards the other).
  - Ties, guys, braces, or outriggers shall be used to prevent the tipping of supported scaffolds in all circumstances where an eccentric load, such as a cantilevered work platform, is applied or is transmitted to the scaffold.
- Supported scaffold poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation. An adequate foundation is one that will support the load of the supported scaffold, materials, and workers without collapse or shifting of one component or the entire scaffold, and will prevent the scaffold from settling into the ground.
  - Footings shall be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.
  - Mud sills are required in addition to base plates when the base plates are not on firm support such as mud, unfirm ground, and easily perforated materials such as asphalt.
  - Unstable objects shall not be used as working platforms.
  - Front-end loaders and similar pieces of equipment shall not be used to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.
  - Fork-lifts shall not be used to support scaffold platforms unless the entire platform is attached to the fork and the fork-lift is not moved horizontally while the platform is occupied.
- Supported scaffold poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement.

#### 1.4.1.4 Suspension Scaffolds

- All suspension scaffold support devices, such as outrigger beams, cornice hooks, parapet clamps, and similar devices, shall rest on surfaces capable of supporting at least four times (4x) the load imposed on them by the scaffold operating at the rated load of the hoist (or at least one and one-half times (1-½x)) the load imposed on them by the scaffold at the stall capacity of the hoist, whichever is greater).
- Suspension scaffold outrigger beams, when used, shall be made of structural metal or equivalent strength material, and shall be restrained to prevent movement.
- The inboard ends of suspension scaffold outrigger beams shall be stabilized by bolts or other direct connections to the floor or roof deck, or they shall have their inboard ends stabilized by counterweights, except masons' multi-point adjustable suspension scaffold outrigger beams shall not be stabilized by counterweights.
  - Before the scaffold is used, direct connections shall be evaluated by a competent person who shall confirm, based on the evaluation, that the supporting surfaces are capable of supporting the loads to be imposed. In addition, masons' multi-point adjustable suspension scaffold connections shall be designed by an engineer experienced in such scaffold design.
  - Counterweights shall be made of non-flowable material. Sand, gravel, and similar materials that can be easily dislocated shall not be used as counterweights.
  - Only those items specifically designed as counterweights shall be used to counterweight scaffold systems. Construction materials such as, but not limited to, masonry units and rolls of roofing felt, shall not be used as counterweights.

- Counterweights shall be secured by mechanical means to the outrigger beams to prevent accidental displacement.
- Counterweights shall not be removed from an outrigger beam until the scaffold is disassembled.
- Outrigger beams which are not stabilized by bolts or other direct connections to the floor or roof deck shall be secured by tiebacks.
- Tiebacks shall be equivalent in strength to the suspension ropes.
- Outrigger beams shall be placed perpendicular to its bearing support (usually the face of the building or structure). However, where the employer can demonstrate that it is not possible to place an outrigger beam perpendicular to the face of the building or structure because of obstructions that cannot be moved, the outrigger beam may be placed at some other angle, provided opposing angle tiebacks are used.
- Tiebacks shall be secured to a structurally sound anchorage on the building or structure. Sound anchorages include structural members, but do not include standpipes, vents, other piping systems, or electrical conduit.
- Tiebacks shall be installed perpendicular to the face of the building or structure, or opposing angle tiebacks shall be installed. Single tiebacks installed at an angle are prohibited.
- Suspension scaffold outrigger beams shall be:
  - Provided with stop bolts or shackles at both ends;
  - Securely fastened together with the flanges turned out when channel iron beams are used in place of I-beams;
  - Installed with all bearing supports perpendicular to the beam center line;
  - Set and maintained with the web in a vertical position; and
  - When an outrigger beam is used, the shackle or clevis with which the rope is attached to the outrigger beam shall be placed directly over the center line of the stirrup.
- Suspension scaffold support devices such as cornice hooks, roof hooks, roof irons, parapet clamps, or similar devices shall be:
  - Made of steel, wrought iron, or materials of equivalent strength;
  - Supported by bearing blocks; and
  - Secured against movement by tiebacks installed at right angles to the face of the building or structure, or opposing angle tiebacks shall be installed and secured to a structurally sound point of anchorage on the building or structure. Sound points of anchorage include structural members, but do not include standpipes, vents, other piping systems, or electrical conduit.
  - Tiebacks shall be equivalent in strength to the hoisting rope.
- When winding drum hoists are used on a suspension scaffold, they shall contain not less than four wraps of the suspension rope at the lowest point of scaffold travel. When other types of hoists are used, the suspension ropes shall be long enough to allow the scaffold to be lowered to the level below without the rope end passing through the hoist, or the rope end shall be configured or provided with means to prevent the end from passing through the hoist.
- The use of repaired wire rope as suspension rope is prohibited.
- Wire suspension ropes shall not be joined together except through the use of eye splice thimbles connected with shackles or cover plates and bolts.
- The load end of wire suspension ropes shall be equipped with proper size thimbles and secured by eye splicing or equivalent means.
- Ropes shall be inspected for defects by a competent person prior to each work shift and after every occurrence which could affect a rope's integrity. Ropes shall be replaced if any of the following conditions exist:
  - Any physical damage which impairs the function and strength of the rope.
  - Kinks that might impair the tracking or wrapping of rope around the drum(s) or sheave(s).
  - Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay.
  - Abrasion, corrosion, scrubbing, flattening, or peening causing loss of more than one-third of the original diameter of the outside wires.
  - Heat damage caused by a torch, or any damage caused by contact with electrical wires.



- Evidence that the secondary brake has been activated during an overspeed condition and has engaged the suspension rope.
- Swaged attachments or spliced eyes on wire suspension ropes shall not be used unless they are made by the wire rope manufacturer or a qualified person.
- When wire rope clips are used on suspension scaffolds:
  - There shall be a minimum of three (3) wire rope clips installed, with the clips a minimum of six (6) rope diameters apart;
  - Clips shall be installed according to the manufacturer's recommendations;
  - Clips shall be retightened to the manufacturer's recommendations after the initial loading;
  - Clips shall be inspected and retightened to the manufacturer's recommendations at the start of each work shift thereafter;
  - U-bolt clips shall not be used at the point of suspension for any scaffold hoist;
  - When U-bolt clips are used, the U-bolt shall be placed over the dead end of the rope, and the saddle shall be placed over the live end of the rope.
- Suspension scaffold power-operated hoists and manual hoists shall be tested by a qualified testing laboratory.
- Gasoline-powered equipment and hoists shall not be used on suspension scaffolds.
- Gears and brakes of power-operated hoists used on suspension scaffolds shall be enclosed.
- In addition to the normal operating brake, suspension scaffold power-operated hoists and manually operated hoists shall have a braking device or locking pawl which engages automatically when a hoist makes either of the following uncontrolled movements: an instantaneous change in momentum or an accelerated overspeed.
- Manually operated hoists shall require a positive crank force to descend.
- Two-point and multi-point suspension scaffolds shall be tied or otherwise secured to prevent them from swaying, as determined to be necessary based on an evaluation by a competent person. Window cleaners' anchors shall not be used for this purpose.
- Devices whose sole function is to provide emergency escape and rescue shall not be used as working platforms. This provision does not preclude the use of systems which are designed to function both as suspension scaffolds and emergency systems.

#### **1.4.1.5 Access**

This section applies to scaffold access for all employees. Access requirements for employees erecting or dismantling supported scaffolds are specifically addressed below in this section.

When scaffold platforms are more than two feet (2') above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/towers), stairway-type ladders (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface shall be used. Crossbraces shall not be used as a means of access.

##### **1.4.1.5.1 Portable, Hook-on, and Attachable Ladders**

- Portable, hook-on, and attachable ladders shall be positioned so as not to tip the scaffold;
- Hook-on and attachable ladders shall be positioned so that their bottom rung is not more than twenty-four inches (24") above the scaffold supporting level;
- When hook-on and attachable ladders are used on a supported scaffold more than thirty-five feet (35') high, they shall have rest platforms at thirty-five foot (35') maximum vertical intervals.
- Hook-on and attachable ladders shall be specifically designed for use with the type of scaffold used;
- Hook-on and attachable ladders shall have a minimum rung length of eleven and one-half inches (11-½"); and
- Hook-on and attachable ladders shall have uniformly spaced rungs with a maximum spacing between rungs of sixteen and three-quarter inches (16-¾").

##### **1.4.1.5.2 Stairway - type Ladders**

Stairway-type ladders shall:

- Be positioned such that their bottom step is not more than twenty-four inches (24") above the scaffold supporting level;
- Be provided with rest platforms at twelve foot (12') maximum vertical intervals;
- Have a minimum step width of sixteen inches (16"), except that mobile scaffold stairway-type ladders shall have a minimum step width of eleven and one-half inches (11-½"); and
- Have slip-resistant treads on all steps and landings.

#### 1.4.1.5.3 Stair Towers

- Stair towers (scaffold stairway/towers) shall be positioned such that their bottom step is not more than twenty-four inches (24") above the scaffold supporting level.
- A stair rail consisting of a top rail and a midrail shall be provided on each side of each scaffold stairway.
- The top rail of each stair rail system shall also be capable of serving as a handrail unless a separate handrail is provided.
- Handrails, and top rails that serve as handrails, shall provide an adequate handhold for employees grasping them to avoid falling.
- Stair rail systems and handrails shall be surfaced to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.
- The ends of stair rail systems and handrails shall be constructed so that they do not constitute a projection hazard.
- Handrails, and top rails that are used as handrails, shall be at least three inches (3") from other objects.
- Stair rails shall be not less than twenty-eight inches (28") nor more than thirty-seven inches (94 cm) from the upper surface of the stair rail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
- A landing platform at least eighteen inches (18") wide by at least eighteen inches (18") long shall be provided at each level.
- Each scaffold stairway shall be at least eighteen inches (18") wide between stair rails.
- Treads and landings shall have slip-resistant surfaces.
- Stairways shall be installed between forty (40) and sixty (60) degrees from the horizontal.
- Guardrails meeting the requirements of paragraph (g)(4) of this section shall be provided on the open sides and ends of each landing.
- Riser height shall be uniform, within one quarter inch, (¼") for each flight of stairs. Greater variations in riser height are allowed for the top and bottom steps of the entire system, not for each flight of stairs.
- Tread depth shall be uniform, within one quarter inch, (¼"), for each flight of stairs.

#### 1.4.1.5.4 Ramps and Walkways

- Ramps and walkways six feet (6") or more above lower levels shall have guardrail systems which comply with subpart M of this part -- Fall Protection;
- No ramp or walkway shall be inclined more than a slope of one (1) vertical to three (3) horizontal (20 degrees above the horizontal).
- If the slope of a ramp or a walkway is steeper than one (1) vertical in eight (8) horizontal, the ramp or walkway shall have cleats not more than fourteen (14) inches (35 cm) apart which are securely fastened to the planks to provide footing.

#### 1.4.1.5.5 Integral Prefabricated Scaffold Access Frames

Integral prefabricated scaffold access frames shall:

- Be specifically designed and constructed for use as ladder rungs;
- Have a rung length of at least eight inches (8");

- Not be used as work platforms when rungs are less than eleven and one-half inches (11-½") in length, unless each affected employee uses fall protection, or a positioning device, which complies with OSHA fall protection requirements (29 CFR 1926.502);
- Be uniformly spaced within each frame section;
- Be provided with rest platforms at thirty-five foot (35') maximum vertical intervals on all supported scaffolds more than thirty-five feet (35') high; and
- Have a maximum spacing between rungs of sixteen and three-quarter inches (16-¾"). Non-uniform rung spacing caused by joining end frames together is allowed, provided the resulting spacing does not exceed sixteen and three-quarter inches (16-¾").

#### **1.4.1.5.6 Steps and Rungs**

Steps and rungs of ladder and stairway type access shall line up vertically with each other between rest platforms.

#### **1.4.1.5.7 Surface Transitions**

Direct access to or from another surface shall be used only when the scaffold is not more than fourteen inches (14") horizontally and not more than twenty-four inches (24") vertically from the other surface.

#### **1.4.1.5.8 Erecting and Dismantling**

- The employer shall provide safe means of access for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. The employer shall have a competent person determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.
- Hook-on or attachable ladders shall be installed as soon as scaffold erection has progressed to a point that permits safe installation and use.
- When erecting or dismantling tubular welded frame scaffolds, (end) frames, with horizontal members that are parallel, level and are not more than twenty-two inches (22") apart vertically may be used as climbing devices for access, provided they are erected in a manner that creates a usable ladder and provides good hand hold and foot space.
- Cross braces on tubular welded frame scaffolds shall not be used as a means of access or egress.

#### **1.4.1.6 Use**

- Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift, and after any occurrence which could affect a scaffold's structural integrity. If any deficiencies are identified the scaffold shall not be used until the deficiencies are corrected.
- Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.
- Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.
- The use of shore or lean-to scaffolds is prohibited.
- Any part of a scaffold damaged or weakened such that its strength is less than that required by the Capacity section of this program shall be immediately repaired or replaced, braced to meet those provisions, or removed from service until repaired.
- Scaffolds shall not be moved horizontally while employees are on them, unless they have been designed by a registered professional engineer specifically for such movement or, for mobile scaffolds, where the provisions identified in the Mobile Scaffolds section below are followed.

#### **1.4.1.6.1 Ropes and Hoists**

- Suspension ropes supporting adjustable suspension scaffolds shall be of a diameter large enough to provide sufficient surface area for the functioning of brake and hoist mechanisms.
- Suspension ropes shall be shielded from heat-producing processes. When acids or other corrosive substances are used on a scaffold, the ropes shall be shielded, treated to protect against the corrosive substances, or shall be of a material that will not be damaged by the substance being used.
- Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.

#### 1.4.1.6.2 Fall Hazards

- Makeshift devices, such as but not limited to boxes and barrels, shall not be used on top of scaffold platforms to increase the working level height of employees.
- Ladders shall not be used on scaffolds to increase the working level height of employees, except on large area scaffolds where employers have satisfied the following criteria:
  - When the ladder is placed against a structure which is not a part of the scaffold, the scaffold shall be secured against the sideways thrust exerted by the ladder;
  - The platform units shall be secured to the scaffold to prevent their movement;
  - The ladder legs shall be on the same platform or other means shall be provided to stabilize the ladder against unequal platform deflection, and
  - The ladder legs shall be secured to prevent them from slipping or being pushed off the platform.
- Platforms shall not deflect more than 1/60 of the span when loaded.

#### 1.4.1.6.3 Welding

- To reduce the possibility of welding current arcing through the suspension wire rope when performing welding from suspended scaffolds, the following precautions shall be taken, as applicable:
  - An insulated thimble shall be used to attach each suspension wire rope to its hanging support (such as cornice hook or outrigger). Excess suspension wire rope and any additional independent lines from grounding shall be insulated;
  - The suspension wire rope shall be covered with insulating material extending at least four feet (4') above the hoist. If there is a tail line below the hoist, it shall be insulated to prevent contact with the platform. The portion of the tail line that hangs free below the scaffold shall be guided or retained, or both, so that it does not become grounded;
  - Each hoist shall be covered with insulated protective covers;
  - In addition to a work lead attachment required by the welding process, a grounding conductor shall be connected from the scaffold to the structure. The size of this conductor shall be at least the size of the welding process work lead, and this conductor shall not be in series with the welding process or the work piece;
  - If the scaffold grounding lead is disconnected at any time, the welding machine shall be shut off; and
  - An active welding rod or uninsulated welding lead shall not be allowed to contact the scaffold or its suspension system.

#### 1.4.1.6.4 Electrical Clearance

Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows:

##### 1.4.1.6.4.1 Insulated Lines:

Insulated Lines		
Voltage	MINIMUM Distance	Alternatives

Voltage <300V	Three feet (3')	
Voltage between 300V and 50kV (50,000V)	Ten feet (10')	
Voltage >50kV	Ten feet (10') plus 0.4 inches for each 1,000V over 50kV	Two times (2x) the length of the line insulator, but never less than ten feet (10')

#### 1.4.1.6.4.2 Uninsulated Lines:

Uninsulated Lines		
Voltage	MINIMUM Distance	Alternatives
Voltage <50kV (50,000V)	Ten feet (10')	
Voltage >50kV	Ten feet (10') plus 0.4 inches for each 1,000V over 50kV	Two times (2x) the length of the line insulator, but never less than ten feet (10')

**Exception:** Scaffolds and materials may be closer to power lines than specified above where such clearance is necessary for performance of work, and only after the utility company, or electrical system operator, has been notified of the need to work closer and the utility company, or electrical system operator, has deenergized the lines, relocated the lines, or installed protective coverings to prevent accidental contact with the lines.

#### 1.4.1.6.5 Weather

- Employees shall be prohibited from working on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such materials.
- Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens. Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.

#### 1.4.1.6.6 General Housekeeping

Debris shall not be allowed to accumulate on platforms.

#### 1.4.1.7 Fall Protection

Each employee on a scaffold more than ten feet (10') above a lower level shall be protected from falling to that lower level.

**NOTE:** The fall protection requirements for employees installing suspension scaffold support systems on floors, roofs, and other elevated surfaces are established in 29 CFR 1926 Subpart M.

##### 1.4.1.7.1 Scaffold Workers

- Each employee on a boatswains' chair, catenary scaffold, float scaffold, needle beam scaffold, or ladder jack scaffold shall be protected by a personal fall arrest system;
- Each employee on a single-point or two-point adjustable suspension scaffold shall be protected by both a personal fall arrest system and guardrail system;
- Each employee on a crawling board (chicken ladder) shall be protected by a personal fall arrest system, a guardrail system (with minimum 200-pound top rail capacity), or by a three-quarter inch (¾") diameter grabline or equivalent handhold securely fastened beside each crawling board;
- Each employee on a self-contained adjustable scaffold shall be protected by a guardrail system (with minimum 200-pound top rail capacity) when the platform is supported by the frame structure,

and by both a personal fall arrest system and a guardrail system (with minimum 200-pound top rail capacity) when the platform is supported by ropes;

- Each employee on a walkway located within a scaffold shall be protected by a guardrail system (with minimum 200-pound top rail capacity) installed within nine and one-half inches (9-½") of and along at least one side of the walkway.
- Each employee performing overhand bricklaying operations from a supported scaffold shall be protected from falling from all open sides and ends of the scaffold (except at the side next to the wall being laid) by the use of a personal fall arrest system or guardrail system (with minimum 200-pound top rail capacity).
- For all scaffolds not otherwise specified above, each employee shall be protected by the use of personal fall arrest systems or guardrail systems meeting the requirements identified below.

#### 1.4.1.7.2 Scaffold Erectors and Dismantlers

The employer shall have a competent person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. Employers are required to provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

#### 1.4.1.7.3 Guardrails

Guardrail systems installed to meet the requirements of this section shall comply with the following provisions:

- Guardrail systems shall be installed along all open sides and ends of platforms. Guardrail systems shall be installed before the scaffold is released for use by employees other than erection/dismantling crews.
- The top edge height of top rails or equivalent member on supported scaffolds manufactured or placed in service after January 1, 2000 shall be installed between thirty-eight inches (38") and forty-five inches (45") above the platform surface. The top edge height on supported scaffolds manufactured and placed in service before January 1, 2000, and on all suspended scaffolds where both a guardrail and a personal fall arrest system are required shall be between thirty-six inches (36") and forty-five inches (45"). When conditions warrant, the height of the top edge may exceed the forty-five-inch (45") height, provided the guardrail system meets all other criteria of this section.
- When midrails, screens, mesh, intermediate vertical members, solid panels, or equivalent structural members are used, they shall be installed between the top edge of the guardrail system and the scaffold platform.
- When midrails are used, they shall be installed at a height approximately midway between the top edge of the guardrail system and the platform surface.
- When screens and mesh are used, they shall extend from the top edge of the guardrail system to the scaffold platform, and along the entire opening between the supports.
- When intermediate members (such as balusters or additional rails) are used, they shall not be more than nineteen inches (19") apart.
- Guardrail systems built in accordance with 29 CFR 1926 Subpart L Appendix A will be deemed to meet the following requirements
  - Each top rail or equivalent member of a guardrail system shall be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along its top edge of at least 100 pounds (445 n) for guardrail systems installed on single-point adjustable suspension scaffolds or two-point adjustable suspension scaffolds, and at least 200 pounds (890 n) for guardrail systems installed on all other scaffolds.
  - When the loads specified above are applied in a downward direction, the top edge shall not drop between thirty-eight inches (38") and forty-five inches (45") above the working surface.
  - Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members of a guardrail system shall be capable of withstanding, without failure, a force applied

in any downward or horizontal direction at any point along the midrail or other member of at least seventy-five pounds (333 n) for guardrail systems with a minimum 100-pound top rail capacity, and at least 150 pounds (666 n) for guardrail systems with a minimum 200-pound top rail capacity.

- Suspension scaffold hoists and non-walk-through stirrups may be used as end guardrails if the space between the hoist or stirrup and the side guardrail or structure does not allow passage of an employee to the end of the scaffold.
- Guardrails shall be surfaced to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.
- The ends of all rails shall not overhang the terminal posts except when such overhang does not constitute a projection hazard to employees.
- Steel or plastic banding shall not be used as a top rail or midrail.
- Manila or plastic (or other synthetic) rope being used for top rails or midrails shall be inspected by a competent person as frequently as necessary to ensure that it continues to meet the strength requirements identified in this section.
- Cross bracing is acceptable in place of a midrail when the crossing point of two braces is between twenty inches (20") and thirty inches (30") above the work platform or as a top rail when the crossing point of two braces is between thirty-eight inches (38") and forty-eight inches (48") above the work platform. The end points at each upright shall be no more than forty-eight inches (48") apart.

#### 1.4.1.7.4 Personal Fall Protection Systems

In addition to meeting the requirements of the OSHA Fall Protection Standard (1926.502(d)), personal fall arrest systems used on scaffolds shall be attached by lanyard to a vertical lifeline, horizontal lifeline, or scaffold structural member. Vertical lifelines shall not be used when overhead components, such as overhead protection or additional platform levels, are part of a single-point or two-point adjustable suspension scaffold.

- When vertical lifelines are used, they shall be fastened to a fixed safe point of anchorage, shall be independent of the scaffold, and shall be protected from sharp edges and abrasion. Safe points of anchorage include structural members of buildings, but do not include standpipes, vents, other piping systems, electrical conduit, outrigger beams, or counterweights.
- When horizontal lifelines are used, they shall be secured to two or more structural members of the scaffold, or they may be looped around both suspension and independent suspension lines (on scaffolds so equipped) above the hoist and brake attached to the end of the scaffold. Horizontal lifelines shall not be attached only to the suspension ropes.
- When lanyards are connected to horizontal lifelines or structural members on a single-point or two-point adjustable suspension scaffold, the scaffold shall be equipped with additional independent support lines and automatic locking devices capable of stopping the fall of the scaffold in the event one or both of the suspension ropes fail. The independent support lines shall be equal in number and strength to the suspension ropes.
- Vertical lifelines, independent support lines, and suspension ropes shall not be attached to each other, nor shall they be attached to or use the same point of anchorage, nor shall they be attached to the same point on the scaffold or personal fall arrest system.

#### 1.4.1.8 Falling Object Protection

In addition to wearing hardhats each employee on a scaffold shall be provided with additional protection from falling hand tools, debris, and other small objects through the installation of toeboards, screens, or guardrail systems, or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects. When the falling objects are too large, heavy, or massive to be contained or deflected by any of the above-listed measures, the employer shall place such potential falling objects away from the edge of the surface from which they could fall and shall secure those materials as necessary to prevent their falling.

#### 1.4.1.8.1 Falling Tools and Materials

Where there is a danger of tools, materials, or equipment falling from a scaffold and striking employees below, the following provisions apply:

- The area below the scaffold to which objects can fall shall be barricaded, and employees shall not be permitted to enter the hazard area; or
- A toeboard shall be erected along the edge of platforms more than ten feet (10') above lower levels for a distance sufficient to protect employees below, except on float (ship) scaffolds where an edging of 1-½-inch x ¾-inch (1-½" x ¾") wood or equivalent may be used in lieu of toeboards;
- Where tools, materials, or equipment are piled to a height higher than the top edge of the toeboard, paneling or screening extending from the toeboard or platform to the top of the guardrail shall be erected for a distance sufficient to protect employees below; or
- A guardrail system shall be installed with openings small enough to prevent passage of potential falling objects; or
- A canopy structure, debris net, or catch platform strong enough to withstand the impact forces of the potential falling objects shall be erected over the employees below.

#### 1.4.1.8.2 Canopies

Canopies, when used for falling object protection, shall comply with the following criteria:

- When canopies are used on suspension scaffolds for falling object protection, the scaffold shall be equipped with additional independent support lines equal in number to the number of points supported, and equivalent in strength to the strength of the suspension ropes.
- Canopies shall be installed between the falling object hazard and the employees.
- Independent support lines and suspension ropes shall not be attached to the same points of anchorage.

#### 1.4.1.8.3 Toeboards

Where used, toeboards shall be:

- Capable of withstanding, without failure, a force of at least fifty pounds (222 n) applied in any downward or horizontal direction at any point along the toeboard (toeboards built in accordance with Appendix A to this subpart will be deemed to meet this requirement); and
- At least three and one-half inches (3-½") high from the top edge of the toeboard to the level of the walking/working surface. Toeboards shall be securely fastened in place at the outermost edge of the platform and have not more than ¼-inch (¼") clearance above the walking/working surface. Toeboards shall be solid or with openings not over one inch (2.5 cm) in the greatest dimension.

#### 1.4.2 General Scaffold Guidelines

Ensure that all persons who erect, dismantle, or use scaffolding are aware of these scaffolding safety guidelines.

- Follow all state, local and federal codes, ordinances, and regulations pertaining to scaffolding.
- Survey the scaffold location. A survey shall be made of the scaffold location for hazards, such as untamped earth fills, ditches, debris, high tension wires, unguarded openings, and other hazardous conditions created by other trades. These conditions should be corrected or avoided as noted in the following sections.
- Do not erect, dismantle, or alter a scaffold except under the supervision of a competent person.
- Scaffolds must be erected in accordance with design and/or manufacturer's recommendations and instructions.
- Scaffolding components from different manufacturers cannot be mixed they fit together without force. Unless approved by the competent person, scaffold components cannot be used if they are:
  - Manufactured by different manufacturers; or



- Of dissimilar metals.
- Scaffolding must be inspected by a competent person before using and continuously throughout use. Never use any damaged or defective equipment. Remove it from service and tag it out of service. A tagging system may be useful in identifying that the scaffold has been inspected and is either safe to use or is not to be used. Users should report any concerns and unsafe conditions to their supervisor.
- Do not abuse or misuse the scaffold equipment.
- Never take chances! If in doubt regarding the safety or use of the scaffold, consult your supervisor, competent person, or scaffold supplier.
- Consideration must be given to the provision of falling object protection for workers or the public below the scaffolding. This is to be achieved by the appropriate use of toeboards, mesh and/or canopies.
- Never use equipment for purposes or in ways for which it was not intended.
- Scaffold components shall be capable of withstanding four time (4x) the maximum intended load.
- Do not work on scaffolds if your physical condition is such that you feel dizzy or unsteady in any way.

#### 1.4.2.1 Scaffold Erection

- Scaffold base must be set on an adequate sill or pad to prevent slipping or sinking and fixed thereto where required. Any part of a building or structure used to support the scaffold shall be capable of supporting the maximum intended load to be applied.
- Minimum Mud Sill Sizes

Height of Scaffold	Soil Type	Pad Dimensions
1-4 levels		2" x 10" pad, 18" long
>4 levels	Type A	2" x 10" pad, 18" long
>4 levels	Type B	2" x 18" x 18"
>4 levels	Type C	2" x 36" x 36"

- Baseplates shall be nailed to the mudsills on at least two opposite corners to prevent walking and slippage.
- Unstable objects such as bricks, cinder blocks, buckets, scrap lumber, etc. shall not be used to support scaffolds or platform units.
- Screw jacks must be used to level scaffolding on uneven surfaces. The screw jack maximum extension shall not exceed twelve inches (12").

#### 1.4.2.2 Bracing, Leveling, Squaring, and Plumbing of Frame Scaffolds:

- Plumb and level all scaffolds as the erection proceeds. Do not force frames or braces to fit. Level the scaffold until proper fit can easily be made.
- Each frame or panel shall be braced by horizontal bracing, cross bracing, diagonal bracing, or any combination thereof for securing vertical members together laterally. All brace connections shall be made secure, in accordance with the manufacturer's recommendations.
- Cross-bracing is required on both the front and back sides of each scaffold frame.
- To check for plumb, use a level on two opposite uprights.

- To check for level, use a level on a horizontal support or bearer.
- To ensure scaffold frame is "square", use a tape measure to measure the distance between opposite corners. The two measurements should be equal.

#### **1.4.2.3 Bracing, Leveling, and Plumbing of Tube & Clamp and System Scaffolds**

- Posts shall be erected plumb in all directions, with the first level of runners and bearers positioned as close to the base as feasible. The distance between bearers and runners shall not exceed manufacturer's recommended procedures.
- Plumb, level, and tie all scaffolds as erection proceeds.
- Fasten all couplers and/or connections securely before assembly of next level.
- Vertical and/or horizontal diagonal bracing must be installed according to manufacturer's recommendations.

#### **1.4.2.4 Ties**

- Tie continuous (running) scaffolds to the wall or structure at each end and at least every thirty feet (30') when the scaffold height to base width ratio exceeds 4:1 or the manufacturer's recommendations, whichever is lower. Begin ties or stabilizers when the scaffold height exceeds that dimension, and repeat at vertical intervals not greater than:
  - Twenty feet (20') for scaffolds three feet (3') wide or less, or
  - Twenty-six feet (26') for scaffolds over three feet (3') wide.
- The top anchor shall be placed no lower than four times (4x) the base dimension from the top of the completed scaffold.
  - Anchors must prevent scaffold from tipping into or away from wall or structure.
  - Stabilize circular or irregular scaffolds in such a manner that completed scaffold is secure and restrained from tipping.
- When scaffolds are partially or fully enclosed, or subjected to overturning loads, specific precautions shall be taken to ensure the frequency and accuracy of ties to the wall and structure.
- Due to increased loads resulting from wind or overturning loads, the scaffolding component to which ties are subjected shall be checked for additional loads.

#### **1.4.2.5 Planking**

- Working platforms shall cover scaffold bearer as completely as possible. Only scaffold grade wood planking, or fabricated planking and decking meeting scaffold use requirements shall be used.
- Gaps in planking should be maintained to no more than one inch (1") except where warranted, due to brackets which prevent complete coverage. In this case, the gap must not exceed nine and one-half inches (9½").
- Check each plank prior to use to be sure plank is not warped, damaged, or otherwise unsafe.
- Planking overlap at least twelve inches (12") and extend at least six inches (6") beyond the center of support, or be cleated or restrained at both ends to prevent sliding off supports.
- Platforms and planking less than ten feet (10') in length shall not extend over its support more than twelve inches (12") and platforms and planking more than ten feet (10') in length shall not extend over its support more than eighteen inches (18") unless the platform is designed and installed so that the cantilevered portion of the platform is able to support employees and/or materials without tipping, or has guardrails which block employee access to the cantilevered end.
- Only materials rated appropriately to be used as scaffold plank shall be used for this purpose.
- Solid sawn lumber, LVL (laminated veneer lumber) or fabricated scaffold planks and platforms (unless cleated or restrained) shall extend over their end supports not less than six inches (6") nor more than eighteen inches (18"). This overhang should not be used as a work platform.

#### **1.4.2.6 Brackets and Cantilevered Platforms**

- Brackets for system scaffolds shall be installed and used in accordance with manufacturer's recommendation.

- Brackets for Frame Scaffolds shall be seated correctly with side bracket parallel to the frames and end brackets at ninety degrees (90°) to the frames. Brackets shall not be bent or twisted from normal position. Brackets (except mobile brackets designed to carry materials) are to be used as work platforms only and shall not be used for storage of material or equipment.
- Cantilevered platforms shall be designed, installed, and used in accordance with manufacturer's recommendations.
- All scaffolding components shall be installed and used in accordance with the manufacturer's recommended procedure. Components shall not be altered in the field.

#### 1.4.2.7 Dismantling Scaffolds

- Do not erect, dismantle, or alter a scaffold unless under the supervision of a competent person.
- Check to ensure scaffolding has not been structurally altered in a way which would make it unsafe and, if it has, reconstruct where necessary before commencing with dismantling procedures. This includes all scaffold ties.
- Visually inspect planks prior to dismantling to ensure they are in a safe working condition.
- Consideration must be given as to the effect removal of a component will have on the rest of the scaffold prior to that component's removal.
- Consideration of anchorage points shall be taken for fall protection; The employer must designate a competent person responsible for determining the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds.
- Employers are required to provide fall protection for employees erecting or dismantling supported scaffolds where it is feasible, and where installing and use does not create a greater hazard.
- Do not accumulate excess components or equipment on the level being dismantled.
- Do not remove ties until scaffold above has been removed (dismantled).
- Lower dismantled components in an orderly manner. Do not throw off scaffold.
- Dismantled equipment should be stockpiled in an orderly manner.
- Follow erection procedures and use manuals.

#### 1.4.3 Specific Scaffold Requirements

The following requirements apply to the specific types of scaffolds indicated. Scaffolds not specifically addressed in this section, such as but not limited to systems scaffolds, must meet the requirements General Scaffold Requirements.

##### 1.4.3.1 Supported Scaffolds

###### 1.4.3.1.1 Pole Scaffolds

A type of supported scaffold is built with vertical poles and horizontal braces to platforms, is not attached to the building. They are generally built inside a building.

OSHA has standards for pole scaffolds. They are side by a structure or wall and are not independent of any structure.

Because they have to be attached to a structure, pole scaffolds are considered supported scaffolds.

- When platform is moved, the new platform must be braced until the new platform is in place.
- Cross bracing is required for all pole scaffolds.
- Diagonal bracing is required for all pole scaffolds used as work platforms or for storage of materials or equipment.

**This section (Specific Scaffold Requirements) should be customized to the company. Remove any scaffold types not typically used.**

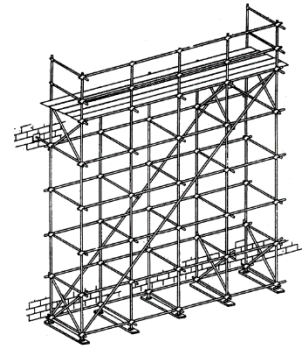


disturbed  
forms.  
scaffolds.  
multiple-pole  
(50 lbs.)

- Diagonal bracing in both directions shall be installed across the entire outside face of all double- and single-pole scaffolds.
- Runners and bearers shall be installed on edge.
- Bearers shall extend a minimum of three inches (3") over the outside edges of runners.
- Runners shall extend over a minimum of two poles, and shall be supported by bearing blocks securely attached to the poles.
- Braces, bearers, and runners shall not be spliced between poles.
- Where wooden poles are spliced, the ends shall be squared, and the upper section shall rest squarely on the lower section. Wood splice plates shall be provided on at least two adjacent sides, and shall extend at least two feet (2') on either side of the splice, overlap the abutted ends equally, and have at least the same cross-sectional areas as the pole. Splice plates of other materials of equivalent strength may be used.
- Pole scaffolds over sixty feet (60') in height shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with that design. Non-mandatory Appendix A to this subpart contains examples of criteria that will enable an employer to comply with design and loading requirements for pole scaffolds under sixty feet (60') in height.

#### 1.4.3.1.2 Tube and Coupler Scaffolds

Tube and coupler scaffolds are so-named because they are built from tubing connected by coupling devices. Due to their strength, they are frequently used where heavy loads need to be carried, or where multiple platforms must reach several stories high. Their versatility, which enables them to be assembled in multiple directions in a variety of settings, also makes them hard to build correctly.

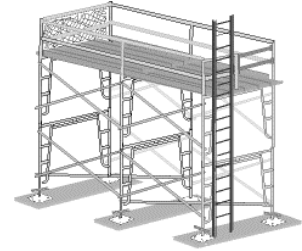


- When platforms are being moved to the next level, the existing platform shall be left undisturbed until the new bearers have been set in place and braced prior to receiving the new platforms.
- Transverse bracing forming an "X" across the width of the scaffold shall be installed at the scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically. Bracing shall extend diagonally from the inner or outer posts or runners upward to the next outer or inner posts or runners. Building ties shall be installed at the bearer levels between the transverse bracing and shall conform to the requirements of 1926.451(c)(1).
- On straight run scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions, and shall extend from the base of the end posts upward to the top of the scaffold at approximately a forty-five-degree (45°) angle. On scaffolds whose length is greater than their height, such bracing shall be repeated beginning at least at every fifth post. On scaffolds whose length is less than their height, such bracing shall be installed from the base of the end posts upward to the opposite end posts, and then in alternating directions until reaching the top of the scaffold. Bracing shall be installed as close as possible to the intersection of the bearer and post or runner and post.
- Where conditions preclude the attachment of bracing to posts, bracing shall be attached to the runners as close to the post as possible.
- Bearers shall be installed transversely between posts, and when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible.
- Bearers shall extend beyond the posts and runners, and shall provide full contact with the coupler.
- Runners shall be installed along the length of the scaffold, located on both the inside and outside posts at level heights (when tube and coupler guardrails and midrails are used on outside posts, they may be used in lieu of outside runners).
- Runners shall be interlocked on straight runs to form continuous lengths, and shall be coupled to each post. The bottom runners and bearers shall be located as close to the base as possible.

- Couplers shall be of a structural metal, such as drop-forged steel, malleable iron, or structural grade aluminum. The use of gray cast iron is prohibited.
- Tube and coupler scaffolds over 125 feet in height shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with such design. Non-mandatory Appendix A to this subpart contains examples of criteria that will enable an employer to comply with design and loading requirements for tube and coupler scaffolds under 125 feet in height.

#### 1.4.3.1.3 Fabricated Frame Scaffolds (tubular welded frame scaffolds)

Fabricated frame scaffolds are the most common type of scaffold because they are versatile, economical, and easy to use. They are frequently used in one or two tiers by residential contractors, painters, etc., but their modular frames can also be stacked several stories high for use on large-scale construction jobs.



- When moving platforms to the next level, the existing platform shall be left undisturbed until the new end frames have been set in place and braced prior to receiving the new platforms.
- Frames and panels shall be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces shall be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, level, and square. All brace connections shall be secured.
- Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means.
- Where uplift can occur which would displace scaffold end frames or panels, the frames or panels shall be locked together vertically by pins or equivalent means.
- Brackets used to support cantilevered loads shall:
  - Be seated with side-brackets parallel to the frames and end-brackets at ninety-degrees (90°) to the frames;
  - Not be bent or twisted from these positions; and
  - Be used only to support personnel, unless the scaffold has been designed for other loads by a qualified engineer and built to withstand the tipping forces caused by those other loads being placed on the bracket-supported section of the scaffold.
- Scaffolds over 125 feet (38.0 m) in height above their base plates shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with such design.

#### 1.4.3.1.4 Mobile Scaffolds

Mobile scaffolds are a type of supported scaffold set on wheels or casters. They are designed to be easily moved and are commonly used for things like painting and plastering, where workers must frequently change position.



- Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent racking or collapse of the scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.
  - Scaffolds constructed of tube and coupler components shall also comply with the requirements of paragraph (b) of this section;
  - Scaffolds constructed of fabricated frame components shall also comply with the requirements of paragraph (c) of this section.
- Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the scaffold while the scaffold is used in a stationary manner.
- Manual force used to move the scaffold shall be applied as close to the base as practicable, but not more than five feet (5') above the supporting surface.

- Power systems used to propel mobile scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel scaffolds unless the scaffold is designed for such propulsion systems.
- Scaffolds shall be stabilized to prevent tipping during movement.
- Employees shall not be allowed to ride on scaffolds unless the following conditions exist:
  - The surface on which the scaffold is being moved is within three degrees (3°) level, and free of pits, holes, and obstructions;
  - The height to base width ratio of the scaffold during movement is two to one (2:1) or less unless the scaffold is designed and constructed to meet or exceed nationally recognized stability test requirements such as those listed in paragraph 2.(w) of appendix A to this subpart;
  - Outrigger frames, when used, are installed on both sides of the scaffold;
  - When power systems are used, the propelling force is applied directly to the wheels, and does not produce a speed in excess of one foot per second (1 fps); and
  - No employee is on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.
- Platforms shall not extend outward beyond the base supports of the scaffold unless outrigger frames or equivalent devices are used to ensure stability.
- Where leveling of the scaffold is necessary, screw jacks or equivalent means shall be used.
- Caster stems and wheel stems shall be pinned or otherwise secured in scaffold legs or adjustment screws.
- Before a scaffold is moved, each employee on the scaffold shall be made aware of the move.

#### 1.4.3.1.5 Narrow Frame (Baker/Perry) Scaffolds

A narrow frame scaffold has wheels and is often used as a mobile scaffold with the end frame measuring three feet (3') or less in width. Designed to be easily moved, they are used for operations such as painting, drywall installation, plastering, and other jobs where workers must frequently change position. Scaffolds can be adapted to stairs, ramps, and other uneven surfaces.

Riding a rolling scaffold is very hazardous. Be sure to follow all manufacturer's guidelines. If the manufacturer advises against it, do not do it.

In addition to the requirements for mobile scaffolds, the following safety measures for rolling scaffolds apply:

- Casters with plain stems shall be attached to the panel or adjustment screw by pins or other suitable means.
- Wheels or casters shall be provided with a locking means to prevent caster rotation and scaffold movement and shall be kept locked while the scaffold is in use.
- Joints shall be secured from separation.
- Do not use brackets or other platform extensions without compensating for the overturning effect.
- Cleat or secure all planks.
- Secure or remove all materials and equipment from platform before moving.
- Do not attempt to move a rolling scaffold without sufficient help. Watch out for holes in the floor and overhead obstructions. Stabilize against tipping.
- Follow the manufacturer's allowable load for the casters, scaffold components and platforms, along with recommended bracing to ensure a rigid and structurally sound scaffold.
- Assess the work area, site conditions, and work to be performed.
- Conduct a pre-operation inspection to verify that all scaffold components are functioning properly and/or are correctly assembled.
- Keep the platform free from tripping hazards such as hand tools, equipment, or materials.
- Use guardrails which include top rails, mid-rails, and toe boards, or fall protection at working platform heights of ten feet (10') or higher.
- Stay at least ten feet (10') away from energized power lines.



- If outriggers are installed, deploy installed outriggers on both sides of the scaffold. All locking pins must be engaged before using the scaffold.
- Never stand on the guardrail, or use any components of the scaffold or other items (e.g., stepladders, buckets, boxes, barrels, etc.) inside the scaffold to gain additional standing height.
- Never try to pull yourself from one location to another while standing on the platform.
- Never use a scaffold if it is incomplete, broken, or has missing or ill-fitting parts which need replacement. Contact your employer immediately.
- Never move the scaffold with worker(s) on the scaffold when:
  - The worker(s) on the scaffold is unaware of the move and/or the surface under the scaffold is not within three degrees ( $3^{\circ}$ ) of level and free of pits, holes, or obstructions.
  - The worker is on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.
  - Manual force is not being applied as close to the base as practicable. Manual force must be applied not more than five feet (5') above the supporting surface.
  - The height to base width ratio of the scaffold during movement is greater than two to one (2:1) unless the scaffold is designed and constructed to meet or exceed nationally recognized stability test requirements (such as ANSI/SIA A92.5 and A92.6) (1926.452(w)(6)(ii)).

#### 1.4.3.1.6 Ladder Jack Scaffolds

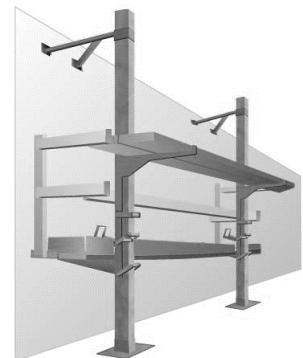
A ladder jack scaffold is a simple device consisting of a platform resting on brackets attached to a ladder. Ladder jacks are primarily used in light applications because of their portability and cost effectiveness.



- Platforms shall not exceed a height of twenty feet (20').
- All ladders used to support ladder jack scaffolds shall meet the requirements of subpart X of this part -- Stairways and Ladders, except that job-made ladders shall not be used to support ladder jack scaffolds.
- The ladder jack shall be so designed and constructed that it will bear on the side rails and ladder rungs or on the ladder rungs alone. If bearing on rungs only, the bearing area shall include a length of at least ten inches (10") on each rung.
- Ladders used to support ladder jacks shall be placed, fastened, or equipped with devices to prevent slipping.
- Scaffold platforms shall not be bridged one to another.

#### 1.4.3.1.7 Pump Jack Scaffolds

Pump jacks are a uniquely designed scaffold consisting of a platform supported by moveable brackets on vertical poles. The brackets are designed to be raised and lowered in a manner similar to an automobile jack. Pump jacks are appealing for certain applications because they are easily adjusted to variable heights, and are relatively inexpensive.



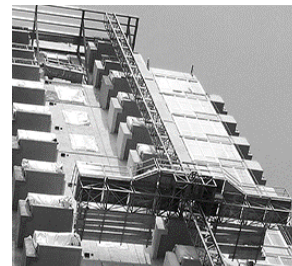
- Pump jack brackets, braces, and accessories shall be fabricated from metal plates and angles. Each pump jack bracket shall have two positive gripping mechanisms to prevent any failure or slippage.
- Poles shall be secured to the structure by rigid triangular bracing or equivalent at the bottom, top, and other points, as necessary. When the pump jack has to pass bracing already installed, an additional brace shall be installed approximately four feet (4') above the brace to be passed, and shall be left in place until the pump jack has been moved and the original brace reinstalled.
- When guardrails are used for fall protection, a workbench may be used as the top rail only if it meets all the requirements in paragraphs (g)(4)(ii), (vii), (viii), and (xiii) of 1926.451.
- Work benches shall not be used as scaffold platforms.



- When poles are made of wood, the pole lumber shall be straight-grained, free of shakes, large loose or dead knots, and other defects which might impair strength.
- When wood poles are constructed of two continuous lengths, they shall be joined together with the seam parallel to the bracket.
- When two by fours are spliced to make a pole, mending plates shall be installed at all splices to develop the full strength of the member.

#### 1.4.3.1.8 Mast Climbing Work Platforms (Hydro Mobile scaffold systems)

Mast climbing supported scaffolds (Mast Climbers) carry much heavier loads than traditional scaffolding and serve to position personnel, along with necessary tools, equipment, and materials to perform work at great heights. This section applies specifically to the Hydro Mobile brand of mast climbing scaffolds. For additional detail, please refer to the Hydro Mobile Scaffolding Operator's Manual.



##### 1.4.3.1.8.1 General Guidelines (Hydro Mobile P-Series)

- 1) Prepare a layout plan showing how the mast climbing work platform system (motorized units, bridges, and accessories) will be positioned near structures or walls to be erected.  
On long walls, install separate mast climber sections to allow for flexibility. Make sure to position motorized units so as to provide proper anchoring points for masts for tied installations.
- 2) Rely on a licensed engineer for help on special jobs and to approve plans if required by local regulation.
- 3) It is recommended to use the job survey form as a guide for the proper installation of the configuration.
- 4) Any P Series setup requiring an approved, angled, or non-linear configuration achieved with a forward/back extension, or a swivel bridge **must have mast ties and those mast ties must be completely pre-installed to the top of the installation before the start of any work.**
- 5) Any P Series setup requiring the use of additional, approved accessories and equipment such as a hoist structure specifically manufactured to be used on a P Series installation, weather protection or an approved planking configuration wider than the standard three planks **must have mast ties and those mast ties must be completely pre-installed to the top of the installation before the start of any work.**
- 6) It is **mandatory** to refer to the Mast Tie Schedule table on p. 48 of the Mast and Mast Ties section and to the Load Capacities section on p. 57 **before the installation of any P Series configuration.**
- 7) Establish the distance between the mast climbing work platform system and the structure or wall, taking into account the length of plank outriggers, as well as curvatures, balconies, columns, trees, telephone wires, electrical lines, etc.
- 8) Refer to and follow local regulations governing distances between the mast climbing work platform system and electrical lines.
- 9) Make sure the ground or support surface capacity meets with values included in the Minimum Bearing Surface Capacities table herein (fig. 1.19, p. 16). Soil compacting, cribbing, or shoring can increase bearing capacity.
- 10) While they can be used to help level the motorized unit, the **jacks on the base outriggers are specifically designed to stabilize the motorized unit and must not be used to support any load.** Make sure the motorized unit is **resting on the main jacks on the base** (4) and that the optional caster wheels, if installed, are no longer in contact with the ground before using the motorized unit. Contact an engineer for assistance.
- 11) Never modify the mast climbing work platform system or use substitute factory parts. This could adversely affect worker safety, unit performance and void the warranty. In addition, this could lead to serious injury or death.



- 12) The P Series motorized unit **must not be used** with any equipment or accessories not specifically manufactured and rated by Hydro Mobile to be used with P Series motorized units. For the use and installation of any such equipment or accessories, contact the distributor/service center or the Hydro Mobile technical support team.
- 13) Never use the motorized unit in an enclosed space due to carbon monoxide emissions or in a place where explosives are stored. It is recommended to use the optional P Series auxiliary electric power pack if the installation must be used in an enclosed area. Refer to p. 73 of the Accessories section for more information about the auxiliary electric power pack bridge.
- 14) Each P Series motorized unit must be equipped with an appropriate fire extinguisher (not supplied). Use a bracket to hang the fire extinguisher on a guardrail (fig. 1.1, p. 10).
- 15) It is recommended not to smoke on the platform.
- 16) Planks used for planking must be scaffold graded (SPF), in good condition and meet local regulations.
- 17) **IMPORTANT:** It is strongly recommended not to use equipment that may generate excessive vibrations or reactions on Hydro Mobile platforms.
- 18) Workers exposed to potential hazards must always wear proper personal protection equipment (PPE) such as a helmet, safety boots, a fall arrest harness, etc., as prescribed by local regulations. In all cases where workers are exposed to fall hazards, fall protection is required. Installation of all the necessary guardrails is **mandatory**.
- 19) The P Series motorized unit must only be used on a mast whose height does not exceed 250' (76 m).
- 20) To ensure work efficiency, maintain an adequate equipment and parts inventory on the job site. Keep equipment in good condition.
- 21) Inspection and maintenance operations must be carried out efficiently and in a timely manner. Daily inspections and their related operations must be performed by a **qualified operator** every day or before every working shift. Frequent and annual inspections and their related operations must be carried out by a **qualified technician** specifically trained on P Series motorized units and their accessories.  
Refer to the Transport, Storage and Maintenance section of the Operator's Manual for more information on inspection and maintenance requirements for P Series motorized units and their accessories.
- 22) After installation, mark off limit areas of the system using fencing, barriers, warning tape and note emergency phone numbers (fire and police dept.) for quick reference. **Prepare an emergency evacuation plan that is specific to the job site and is in accordance with local regulations.** Make sure that there is a reliable and adequate alternate power source available (generator, extension cord, etc.) to supply the emergency descent system (120 volts in North America, 240 volts in Europe).
- 23) **Never load bridges or motorized units beyond their rated capacities.** Overloading may bring damages to equipment or cause the installation to become unbalanced, leading to serious injury or death.
- 24) Contact the distributor/service center or Hydro Mobile for service, repair, or technical advice. Refer to equipment type and serial number when calling.
- 25) Each person should access the platform by the access stairs, a staircase, through an opening in the building or, when the unit is at least ten feet (10') above base level, by the **right-hand side** of the mast, using the access bridge to reach the platform. The use of the access bridge is **mandatory** to reach the platform by the mast. To avoid crushing hazards, it is important to make sure that the access ladder is **fully extended** before it is used. Refer to p. 69 of the Accessories section for more information on the installation and use of the access bridge. In all cases, transfer must be safe and free from obstruction.
- 26) The use of appropriate fall protection equipment is **mandatory** when using the mast for climbing or descending at heights between thirty (30) and sixty-nine (69) feet, when modifying plank configuration or whenever the worker is exposed to a fall hazard. Failure to use fall protection equipment can expose the user to serious injury or death. It is not recommended to climb up the

mast to reach work areas at heights over sixty-nine feet (69') because of the time and effort required to reach such heights. The use of alternate equipment compliant with local regulations, such as a rapid mast climber, a transport platform system, or a conventional scaffold stair system will prove to be more efficient. Refer to local regulations for more information.

- 27) Only one person at a time may evacuate the platform by climbing down the mast. It is not recommended to evacuate the platform by climbing down the mast when the platform is at heights beyond sixty-nine feet (69').
- 28) In the event of an abnormal occurrence or operation which could compromise security (ex. malfunction of a motorized unit component, collision with an obstacle, etc.), immobilize the unit and inform the competent person.
- 29) It is strongly recommended not to touch any of the moving parts on the motorized unit when it is in use.
- 30) All access doors and panels on the motorized unit must be closed when they are not in use. All access doors and panels should be free from any material or obstruction.
- 31) The motorized unit must not be used or operated during an electrical thunderstorm.
- 32) The deposit of loads on the setup must be done with extreme care and under proper supervision. Refer to the Load Capacities section on p. 57 for more information about placing loads on the platform. When the motorized unit setup is not in use and **above base level**, loads should not be left on the platform except for counterweights.
- 33) The erection and dismantling of a motorized unit setup (including the base, the bridges, the masts, the mast ties and all the other components) must not be conducted when wind speeds exceed **twenty-eight miles per hour (28 mph)**. **Freestanding installations and setups equipped with weather protection**, when allowed, must not be used with wind speeds exceeding **twenty-eight miles per hour (28 mph)**. **Weather protection**, when allowed, **must not be used** when work is performed on an **open-air structure**. A motorized unit setup with mast ties **must not be operated** when wind speeds exceed **thirty-five miles per hour (35 mph)**. If wind speeds are expected to exceed **ninety-four miles per hour (94 mph)**, the motorized unit must be **brought down to base level when not in use**.

#### 1.4.3.1.8.2 General Guidelines (Hydro Mobile M-Series)

- 1) Prepare a layout plan showing how the mast climb working platform system [motorized unit(s), bridges, extensions] will be positioned near structures or walls to be erected. On long walls, separate mast climber sections to allow for flexibility. Position motorized units to provide proper anchoring points for masts.
- 2) Establish the distance between the mast climbing work platform system and the structure or wall, taking into account the length of plank outriggers, as well as curvatures, balconies, columns, trees, telephone wires, electrical lines, etc.
- 3) Refer to and follow regulations governing distances between the mast climbing work platform system and electrical lines.
- 4) Make sure the ground or support surface capacity meets with values included in the Minimum Bearing Surface Capacities table herein (fig. 1.18, p. 16). Soil compacting, cribbing, or shoring can increase bearing capacity. Contact an engineer for assistance.
- 5) Never modify the mast climbing work platform system or use substitute factory parts. This could adversely affect worker safety, unit performance and void the warranty. In addition, this could lead to serious injury or death.
- 6) Unless authorized in writing by Hydro Mobile prior to installation, the motorized unit **must not be used** with any equipment or any accessories (hoist, weather protection, monorail, etc.) not specifically manufactured and rated by Hydro Mobile to be used on M2 Series motorized units. For the use and installation of any such equipment or accessories, contact the service center or the Hydro Mobile technical support team.
- 7) Never use the motorized unit in an enclosed space due to carbon monoxide emissions or in a place where explosives are stored. It is also recommended not to smoke on the platform.
- 8) Planks used for planking must be scaffold graded (SPF) and in good condition.

- 9) **IMPORTANT:** It is strongly recommended not to use equipment that may generate excessive vibrations or reactions on Hydro Mobile platforms.
- 10) Workers exposed to potential hazards must always wear proper personal protection equipment (PPE) such as a helmet, safety boots, a fall arrest harness, etc., as prescribed by local regulations. In all cases where workers are exposed to fall hazards, fall protection is required. Installation of all the necessary guardrails is **mandatory**.
- 11) Unless authorized by Hydro Mobile prior to installation, the platform should only be used on masts whose height does not exceed 250' (76 m). For any configuration other than those described in this owner's manual, contact the Hydro Mobile technical support team.
- 12) Rely on a licensed engineer for help on special jobs and to approve plans if required by local regulation.
- 13) To ensure work efficiency, maintain an adequate equipment and parts inventory on the job site. Keep equipment in good condition. Refer to maintenance checklists recommended for this motorized unit (see p. 93).
- 14) After installation, mark off limit areas of the system using fencing, barriers, warning tape and note emergency phone numbers (fire and police dept.) for quick reference. **Prepare an emergency evacuation plan that is specific to the job site and is in accordance with local regulations.**
- 15) **Never load bridges or motorized units beyond their rated capacities.** Overloading may cause damages to equipment leading to serious injury or death.
- 16) Contact the service center or Hydro Mobile for service, repair, or technical advice. Refer to equipment type and serial number when calling.
- 17) Each person should access the platform by a staircase, through an opening in the building or by the back of the mast, using the access walkway to reach the platform. The use of the access walkway is **mandatory** to reach the platform by the mast.
- 18) The use of appropriate fall protection equipment is **mandatory** when using the mast for climbing or descending at heights between thirty (30) and sixty-nine (69) feet or when modifying plank configuration. Failure to use fall protection equipment can expose the user to serious injury or death.
- 19) Only one person at a time may evacuate the platform by climbing down the mast. It is not recommended to evacuate the platform by climbing down the mast at heights beyond sixty-nine feet (69').
- 20) In the event of an abnormal occurrence or operation which could compromise security (ex. malfunction of a motorized unit component, collision with an obstacle, etc.), immobilize the unit and inform the competent person.
- 21) It is strongly recommended not to touch any of the moving parts on the motorized unit when it is in use.
- 22) All access doors on the motorized unit must be closed when they are not in use.
- 23) There must be at least two competent persons for each motorized unit in a setup. A motorized unit should never be operated by only one person.
- 24) The motorized unit must not be used or operated during an electrical thunderstorm.
- 25) The deposit of loads on the setup must be done with extreme care, under proper supervision. Loads must be equally distributed on all the bridges of the setup and deposited in the middle of each bridge, whenever possible. Refer to the Load Capacities section on p. 64 for more information about loading the platform. When the motorized unit setup is not in use and above **base** level, loads should not be left on the platform except for counterweights used for front and back extension configurations.
- 26) Wind speeds must not exceed **twenty-eight miles per hour (28 mph)** during the **erection** and **dismantling** of a motorized unit setup (including the base, the bridges, the masts, the mast ties and all the other components). **Freestanding installations** must not be exposed to wind speeds exceeding **twenty-eight miles per hour (28 mph)**. A motorized unit setup with mast ties must not be exposed to wind speeds exceeding **thirty-five miles per hour (35 mph)** when in **operation**. A motorized unit setup equipped with **weather protection** must not be exposed to

wind speeds exceeding **twenty miles per hour (20 mph)**. Wind speeds must not exceed **ninety-four miles per hour (94 mph)** when the motorized unit setup is **not in use**.

#### 1.4.3.1.9 Specialty Scaffolds

##### 1.4.3.1.9.1 Plasterers', Decorators', and Large Area Scaffolds.

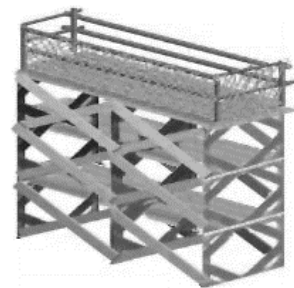
Scaffolds shall be constructed in accordance with the requirements for pole scaffolds, tube and coupler scaffolds, and/or fabricated frame scaffolds, as appropriate.



##### 1.4.3.1.9.2 Bricklayers' Square Scaffolds (squares)

Scaffolds made of wood shall be reinforced with gussets on both sides of each corner.

- Diagonal braces shall be installed on all sides of each square.
- Diagonal braces shall be installed between squares on the rear and front sides of the scaffold, and shall extend from the bottom of each square to the top of the next square.
- Scaffolds shall not exceed three tiers in height, and shall be so constructed and arranged that one square rests directly above the other.
- The upper tiers shall stand on a continuous row of planks laid across the next lower tier, and shall be nailed down or otherwise secured to prevent displacement.



##### 1.4.3.1.9.3 Horse Scaffolds

A horse scaffold is a scaffold for light or medium duty use; it is composed of "saw horses" supporting a work platform. **NOTE:** Newer methods of ship construction have greatly reduced the use of these scaffolds. However, these scaffolds are primarily used during the construction and repair of boats.

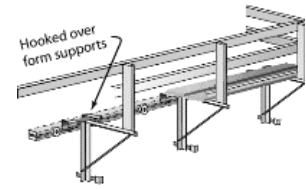
- Scaffolds shall not be constructed or arranged more than two tiers or ten feet (10') in height, whichever is less.
- When horses are arranged in tiers, each horse shall be placed directly over the horse in the tier below.
- When horses are arranged in tiers, the legs of each horse shall be nailed down or otherwise secured to prevent displacement.
- When horses are arranged in tiers, each tier shall be cross braced.



#### 1.4.3.1.9.4 Form Scaffolds and Carpenters' Bracket Scaffolds

A supported scaffold consisting of a platform supported by brackets attached to concrete forms, or building or structural walls.

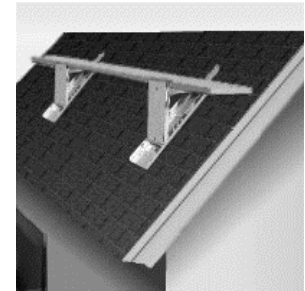
- Each bracket, except those for wooden bracket-form scaffolds, shall be attached to the supporting formwork or structure by means of one or more of the following: nails; a metal stud attachment device; welding; hooking over a secured structural supporting member, with the form wales either bolted to the form or secured by snap ties or tie bolts extending through the form and securely anchored; or, for carpenters' bracket scaffolds only, by a bolt extending through to the opposite side of the structure's wall.
- Wooden bracket-form scaffolds shall be an integral part of the form panel.
- Folding type metal brackets, when extended for use, shall be either bolted or secured with a locking-type pin.



#### 1.4.3.1.9.5 Roof Bracket Scaffolds

A supported scaffold used on a sloped roof. It consists of a platform resting on angular-shaped supports so that the scaffold platform is level.

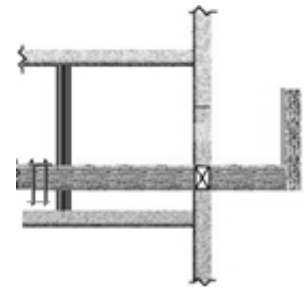
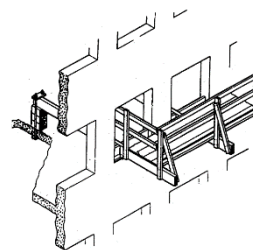
- Scaffold brackets shall be constructed to fit the pitch of the roof and shall provide a level support for the platform.
- Brackets (including those provided with pointed metal projections) shall be anchored in place by nails unless it is impractical to use nails. When nails are not used, brackets shall be secured in place with first-grade manila rope of at least three-quarter inch ( $\frac{3}{4}$ " ) diameter, or equivalent.



#### 1.4.3.1.9.6 Outrigger Scaffolds

A supported scaffold consisting of a platform resting on outrigger beams (thrustouts) projecting beyond the wall or face of the building or structure, the inboard ends of which are secured inside the building or structure.

- The inboard end of outrigger beams, measured from the fulcrum point to the extreme point of anchorage, shall be not less than one and one-half times ( $1\frac{1}{2}x$ ) the outboard end in length.
- Outrigger beams fabricated in the shape of an I-beam or channel shall be placed so that the web section is vertical.
- The fulcrum point of outrigger beams shall rest on secure bearings at least six inches (6") in each horizontal dimension.
- Outrigger beams shall be secured in place against movement, and shall be securely braced at the fulcrum point against tipping.
- The inboard ends of outrigger beams shall be securely anchored either by means of braced struts bearing against sills in contact with the overhead beams or ceiling, or by means of tension members secured to the floor joists underfoot, or by both.
- The entire supporting structure shall be securely braced to prevent any horizontal movement.



- To prevent their displacement, platform units shall be nailed, bolted, or otherwise secured to outriggers.
- Scaffolds and scaffold components shall be designed by a registered professional engineer and shall be constructed and loaded in accordance with such design.

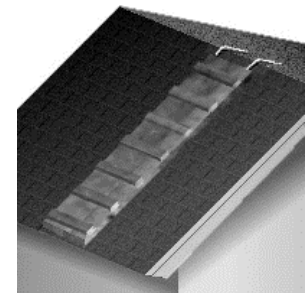
#### 1.4.3.1.9.7 Window Jack Scaffolds

- Scaffolds shall be securely attached to the window opening.
- Scaffolds shall be used only for the purpose of working at the window opening through which the jack is placed.
- Window jacks shall not be used to support planks placed between one window jack and another, or for other elements of scaffolding.



#### 1.4.3.1.9.8 Crawling Boards (chicken ladders)

- Crawling boards shall extend from the roof peak to the eaves when used in connection with roof construction, repair, or maintenance.
- Crawling boards shall be secured to the roof by ridge hooks or by means that meet equivalent criteria (e.g., strength and durability).



#### 1.4.3.1.9.9 Step, Platform, and Trestle Ladder Scaffolds

A platform resting directly on the rungs of a step, platform, or trestle ladder.

- Scaffold platforms shall not be placed any higher than the second highest rung or step of the ladder supporting the platform.
- All ladders used in conjunction with step, platform and trestle ladder scaffolds shall meet the pertinent requirements of subpart X of this part -- Stairways and Ladders, except that job-made ladders shall not be used to support such scaffolds.
- Ladders used to support step, platform, and trestle ladder scaffolds shall be placed, fastened, or equipped with devices to prevent slipping.
- Scaffolds shall not be bridged one to another.



#### 1.4.3.1.9.10 Stilts

Stilts, when used, shall be used in accordance with the following requirements:

- An employee may wear stilts on a scaffold only if it is a large area scaffold.
- When an employee is using stilts on a large area scaffold where a guardrail system is used to provide fall protection, the guardrail system shall be increased in height by an amount equal to the height of the stilts being used by the employee.
- Surfaces on which stilts are used shall be flat and free of pits, holes, and obstructions, such as debris, as well as other tripping and falling hazards.
- Stilts shall be properly maintained. Any alteration of the original equipment shall be approved by the manufacturer.



#### 1.4.3.2 Suspended Scaffolds

##### 1.4.3.2.1 Boatswains' Chairs

A wooden board slung by ropes as a seat for workers to sit on while working at height over the side of a ship, building, or other structure. Boatswain's chairs should be used only for short periods of time and for light work and where it is not feasible to provide a working platform.

- Boatswains' chair tackle shall consist of correct size ball bearings or bushed blocks containing safety hooks and properly "eye-spliced" minimum five-eighth inch ( $\frac{5}{8}$ " ) diameter first-grade manila rope, or other rope which will satisfy the criteria (e.g., strength and durability) of manila rope.
- Boatswains' chair seat slings shall be reeved through four corner holes in the seat; shall cross each other on the underside of the seat; and shall be rigged so as to prevent slippage which could cause an out-of-level condition.
- Boatswains' chair seat slings shall be a minimum of five-eighth inch ( $\frac{5}{8}$ " ) diameter fiber, synthetic, or other rope which will satisfy the criteria (e.g., strength, slip resistance, durability, etc.) of first grade manila rope.
- When a heat-producing process such as gas or arc welding is being conducted, boatswains' chair seat slings shall be a minimum of three-eighth inch ( $\frac{3}{8}$ " ) wire rope.
- Non-cross-laminated wood boatswains' chairs shall be reinforced on their underside by cleats securely fastened to prevent the board from splitting.



##### 1.4.3.2.2 Single-point Adjustable Suspension Scaffolds

A platform suspended by one rope from an overhead support and equipped with a means to permit the platform to be moved to desired working levels.

- When two single-point adjustable suspension scaffolds are combined to form a two-point adjustable suspension scaffold, the resulting two-point scaffold shall comply with the requirements for two-point adjustable suspension scaffolds identified in the next section.
- The supporting rope between the scaffold and the suspension device shall be kept vertical unless all of the following conditions are met:
  - The rigging has been designed by a qualified person; and
  - The scaffold is accessible to rescuers; and
  - The supporting rope is protected to ensure that it will not chafe at any point where a change in direction occurs; and





- The scaffold is positioned so that swinging cannot bring the scaffold into contact with another surface.

#### 1.4.3.2.3 Two-point Adjustable Suspension Scaffolds (swing stages)

A platform supported by hangers (stirrups) suspended by two ropes from overhead supports and equipped with a means to permit the platform to be raised and lowered.

The following requirements do not apply to two-point adjustable suspension scaffolds used as masons' or stone setters' scaffolds. Such scaffolds are covered by the Multi-point Adjustable Suspension Scaffolds section below.

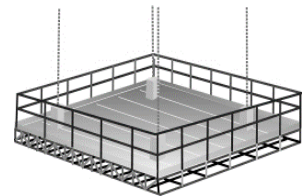
- Platforms shall not be more than thirty-six inches (36") wide unless designed by a qualified person to prevent unstable conditions.
- The platform shall be securely fastened to hangers (stirrups) by U-bolts or by other means which satisfy the equipment capacity requirements.
- The blocks for fiber or synthetic ropes shall consist of at least one double and one single block. The sheaves of all blocks shall fit the size of the rope used.
- Platforms shall be of the ladder-type, plank-type, beam-type, or light-metal type. Light metal-type platforms having a rated capacity of 750 pounds or less and platforms forty feet (40') or less in length shall be tested and listed by a nationally recognized testing laboratory.
- Two-point scaffolds shall not be bridged or otherwise connected one to another during raising and lowering operations unless the bridge connections are articulated (attached), and the hoists properly sized.
- Passage may be made from one platform to another only when the platforms are at the same height, are abutting, and walk-through stirrups specifically designed for this purpose are used.



#### 1.4.3.2.4 Multi-point Adjustable Suspension Scaffolds

Platform(s) suspended by more than two ropes from overhead supports and equipped with a means to permit the platform to be raised and lowered. Includes chimney hoists.

This section covers multi-point adjustable suspension scaffolds, stone setters' multi-point adjustable suspension scaffolds, and masons' multi-point adjustable suspension scaffolds.



- When two or more scaffolds are used they shall not be bridged one to another unless they are designed to be bridged, the bridge connections are articulated, and the hoists are properly sized.
- If bridges are not used, passage may be made from one platform to another only when the platforms are at the same height and are abutting.
- Scaffolds shall be suspended from metal outriggers, brackets, wire rope slings, hooks, or means that meet equivalent criteria (e.g., strength, durability).



#### 1.4.3.2.5 Multi-level Suspended Scaffolds

Two-point or multi-point adjustable suspension scaffold with a series of platforms at various levels resting on common stirrups.

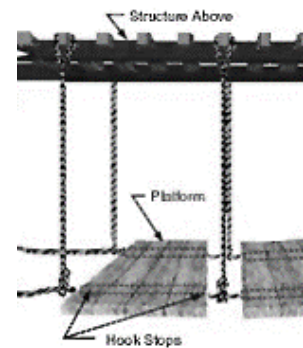
- Scaffolds shall be equipped with additional independent support lines, equal in number to the number of points supported, and of equivalent strength to the suspension ropes, and rigged to support the scaffold in the event the suspension rope(s) fail.
- Independent support lines and suspension ropes shall not be attached to the same points of anchorage.
- Supports for platforms shall be attached directly to the support stirrup and not to any other platform.



#### 1.4.3.2.6 Catenary Scaffolds

A platform supported by two essentially horizontal and parallel ropes attached to structural members of a building. Additional vertical pickups may also provide support.

- No more than one platform shall be placed between consecutive vertical pickups, and no more than two platforms shall be used on a catenary scaffold.
- Platforms supported by wire ropes shall have hook-shaped stops on each end of the platforms to prevent them from slipping off the wire ropes. These hooks shall be so placed that they will prevent the platform from falling if one of the horizontal wire ropes breaks.
- Wire ropes shall not be tightened to the extent that the application of a scaffold load will overstress them.
- Wire ropes shall be continuous and without splices between anchors.



#### 1.4.3.2.7 Float (ship) Scaffolds

A braced platform resting on two parallel bearers and hung from overhead supports by ropes of fixed length.

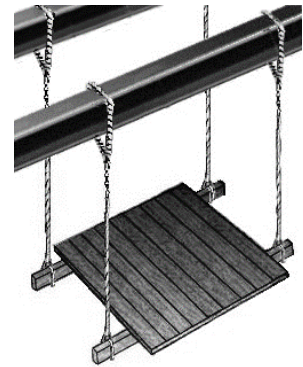
- The platform shall be supported by a minimum of two bearers, each of which shall project a minimum of six inches (6") beyond the platform on both sides. Each bearer shall be securely fastened to the platform.
- Rope connections shall be such that the platform cannot shift or slip.
- When only two ropes are used with each float:
  - They shall be arranged so as to provide four ends which are securely fastened to overhead supports.
  - Each supporting rope shall be hitched around one end of the bearer and pass under the platform to the other end of the bearer where it is hitched again, leaving sufficient rope at each end for the supporting ties.



#### 1.4.3.2.8 Interior Hung Scaffolds

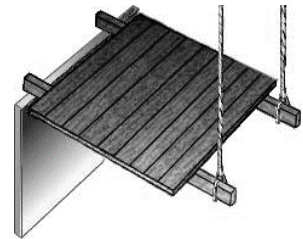
A platform suspended from the ceiling or roof structure by fixed-length supports.

- Scaffolds shall be suspended only from the roof structure or other structural member such as ceiling beams.
- Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the scaffold is erected.
- Suspension ropes and cables shall be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).



#### 1.4.3.2.9 Needle Beam Scaffolds

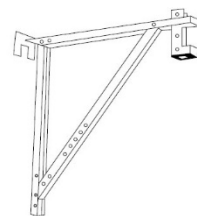
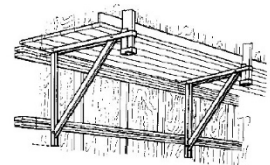
- Scaffold support beams shall be installed on edge.
- Ropes or hangers shall be used for supports, except that one end of a needle beam scaffold may be supported by a permanent structural member.
- The ropes shall be securely attached to the needle beams.
- The support connection shall be arranged so as to prevent the needle beam from rolling or becoming displaced.
- Platform units shall be securely attached to the needle beams by bolts or equivalent means. Cleats and overhang are not considered to be adequate means of attachment.



#### 1.4.3.2.10 Repair Bracket Scaffolds

A supported scaffold consisting of a platform supported by brackets. The brackets are secured in place around the circumference or perimeter of a chimney, stack, tank, or other supporting structure by one or more wire ropes placed around the supporting structure.

- Brackets shall be secured in place by at least one wire rope at least one-half inch ( $\frac{1}{2}$ " ) in diameter.
- Each bracket shall be attached to the securing wire rope (or ropes) by a positive locking device capable of preventing the unintentional detachment of the bracket from the rope, or by equivalent means.
- Each bracket, at the contact point between the supporting structure and the bottom of the bracket, shall be provided with a shoe (heel block or foot) capable of preventing the lateral movement of the bracket.
- Platforms shall be secured to the brackets in a manner that will prevent the separation of the platforms from the brackets and the movement of the platforms or the brackets on a completed scaffold.
- When a wire rope is placed around the structure in order to provide a safe anchorage for personal fall arrest systems used by employees erecting or dismantling scaffolds, the wire rope shall meet the requirements of subpart M of this part, but shall be at least five-sixteenth inch ( $\frac{5}{16}$ " ) in diameter.
- Each wire rope used for securing brackets in place or as an anchorage for personal fall arrest systems shall be protected from damage due to contact with edges, corners, protrusions, or other discontinuities of the supporting structure or scaffold components.



- Tensioning of each wire rope used for securing brackets in place or as an anchorage for personal fall arrest systems shall be by means of a turnbuckle at least one inch (1") in diameter, or by equivalent means.
- Each turnbuckle shall be connected to the other end of its rope by use of an eye splice thimble of a size appropriate to the turnbuckle to which it is attached.
- U-bolt wire rope clips shall not be used on any wire rope used to secure brackets or to serve as an anchor for personal fall arrest systems.
- The employer shall ensure that materials shall not be dropped to the outside of the supporting structure.
- Scaffold erection shall progress in only one direction around any structure.

#### 1.4.4 Aerial Lifts

##### 1.4.4.1 General Requirements

Aerial lifts include the following types of vehicle-mounted aerial devices used to elevate personnel to jobsites above ground:

- Extensible boom platforms;
- Aerial ladders;
- Articulating boom platforms;
- Vertical towers; and
- A combination of any such devices. Aerial equipment may be made of metal, wood, fiberglass reinforced plastic (FRP), or other material; may be powered or manually operated; and are deemed to be aerial lifts whether or not they are capable of rotating about a substantially vertical axis.

##### 1.4.4.1.1 Modifications

Aerial lifts may be "field modified" for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in conformity with all applicable provisions of ANSI A92.2-1969 and this section and to be at least as safe as the equipment was before modification.

##### 1.4.4.2 Specific Requirements

##### 1.4.4.2.1 Ladder and Tower Trucks

Aerial ladders shall be secured in the lower traveling position by the locking device on top of the truck cab, and the manually operated device at the base of the ladder before the truck is moved for highway travel.

##### 1.4.4.2.2 Extensible and Articulating Boom Platforms.

- Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.
- Only authorized persons shall operate an aerial lift.
- Belting off to an adjacent pole, structure, or equipment while working from an aerial lift shall not be permitted.
- Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
- A body belt shall be worn, and a lanyard attached to the boom or basket when working from an aerial lift.  
**NOTE:** As of January 1, 1998, subpart M of this part (1926.502(d)) provides that body belts are not acceptable as part of a personal fall arrest system.
- Boom and basket load limits specified by the manufacturer shall not be exceeded.

- The brakes shall be set and when outriggers are used, they shall be positioned on pads or a solid surface. Wheel chocks shall be installed before using an aerial lift on an incline, provided they can be safely installed.
- An aerial lift truck shall not be moved when the boom is elevated in a working position with men in the basket, except for equipment which is specifically designed for this type of operation in accordance with the provisions identified in the General Requirements section above.
- Articulating boom and extensible boom platforms, primarily designed as personnel carriers, shall have both platform (upper) and lower controls. Upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower-level controls shall not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.
- Climbers shall not be worn while performing work from an aerial lift.
- The insulated portion of an aerial lift shall not be altered in any manner that might reduce its insulating value.
- Before moving an aerial lift for travel, the boom(s) shall be inspected to see that it is properly cradled, and outriggers are in stowed position except in accordance with the provisions identified in the General Requirements section above.

#### 1.4.4.2.3 Electrical Tests

- All electrical tests shall conform to the requirements of ANSI A92.2-1969 section 5. However equivalent d.c.; voltage tests may be used in lieu of the a.c. voltage specified in A92.2-1969; d.c. voltage tests which are approved by the equipment manufacturer or equivalent entity shall be considered an equivalent test for the purpose of this requirement.
- Bursting safety factor. The provisions of the American National Standards Institute standard ANSI A92.2-1969, section 4.9 Bursting Safety Factor shall apply to all critical hydraulic and pneumatic components. Critical components are those in which a failure would result in a free fall or free rotation of the boom. All noncritical components shall have a bursting safety factor of at least two to one (2:1).
- Welding standards. All welding shall conform to the following standards as applicable:
  - Standard Qualification Procedure, AWS B3.0-41.
  - Recommended Practices for Automotive Welding Design, AWS D8.4-61.
  - Standard Qualification of Welding Procedures and Welders for Piping and Tubing, AWS D10.9-69.
  - Specifications for Welding Highway and Railway Bridges, AWS D2.0-69.

### 1.5 Training

#### 1.5.1 Initial

COMPANYNAME shall have each employee who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards.

- The nature of any electrical hazards, fall hazards and falling object hazards in the work area;
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used;
- The proper use of the scaffold, and the proper handling of materials on the scaffold;
- The maximum intended load and the load-carrying capacities of the scaffolds used; and
- Any other pertinent requirements of this subpart.

COMPANYNAME shall have each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by a competent person to recognize any hazards associated with the work in question. The training shall include the following topics, as applicable:

- The nature of scaffold hazards;

- The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question;
- The design criteria, maximum intended load-carrying capacity and intended use of the scaffold;
- Any other pertinent requirements of this subpart.

### 1.5.2 Refresher

When COMPANYNAME has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the employer shall retrain each such employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:

- Where changes at the worksite present a hazard about which an employee has not been previously trained; or
- Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained; or
- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

### 1.6 Reference

- OSHA Standard 29 CFR 1926 Subpart L
- OSHA Standard 29 CFR 1910 Subpart D
- Hydro Mobile Operator's Manuals (P-Series, M2-Series)

## Chapter 36 Material Handling and Storage

### 36.1 Purpose, Scope & Policy

#### 36.1.1 Purpose

The purpose of this program is to minimize injuries and property damage with regard to the handling and storage of materials. Trained and authorized Operators transport, carry, move, and otherwise handle and store many types of materials and containers.

#### 36.1.2 Scope

Handling and storing materials involves diverse operations such as hoisting tons of steel with a crane, driving a truck loaded with concrete blocks, manually carrying bags of material, and stacking drums, barrels, kegs, lumber, or loose bricks.

#### 36.1.3 Policy

Since numerous injuries can result from improperly handling and storing materials, it is important to be aware of incidents that may occur from unsafe or improperly handled equipment and improper work practices, and to recognize the methods for eliminating, or minimizing the occurrence of these incidents.

### 36.2 Roles & Responsibilities

#### 36.2.1 Employer Responsibilities

It is management's responsibility to train employees on the safe procedures involved with handling materials. Management will ensure that employees are using proper lifting techniques.

##### 36.2.1.1 Supervisors

Observe work in progress to assure safe work practices and proper condition of any tools and equipment necessary for the job.

#### 36.2.2 Employee Responsibilities

It is the employee's responsibility to attend safety training meetings regarding the safe operation of handling materials. Employees will be responsible for implementing the information used in training, such as hazards involved with improper lifting techniques and overexertion, during lifting. Employees will report any injuries to management.

### 36.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xix</sup>

### 36.4 Hazards

- Improper condition or operation of mechanical equipment can cause death or serious injury.
- Improper condition and use of mechanical tools can cause death or serious injury.
- Injuries can be caused by falling objects, improperly stacked materials, or by various types of equipment.
- Caught in between or struck by hazards exist when performing this activity.

### 36.5 Hazard Control Measures

#### 36.5.1 Use of Mechanical Equipment

Using mechanical equipment to move and store materials increases the potential for employee injuries in some instances. To mitigate that these procedures will be followed:

- All operators shall be trained and authorized to operate mechanical equipment.
- All material handling equipment shall be inspected daily, before use, and records shall be maintained.
- The equipment-rated capacities shall be displayed on each piece of equipment and must not be exceeded.
- The weight of the materials being handled may not exceed the capacity of the equipment used to transport them.
- The weight, size, and shape of the material being moved will dictate the type of equipment used.
- Sufficient safe clearances will be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made.
- Permanent aisles and passageways will be appropriately marked.
- Stacked materials shall be stacked properly and not exceed the capacity of the shelving or racking.
- Stack materials so that they can be safely removed when needed.
- A load greater than the load rating may not be placed on any floor of a building or other structure.
- Load limits must be conspicuously posted in all storage areas and on all storage racks.
- Use properly sized dunnage, blocks, wedges, to ensure stability of the material.
- Dock plates shall be properly positioned and rated for the weight of the mechanical equipment plus transported materials.
- Dropped PUP trailers shall be properly supported with landing gear and jack stands to prevent tipping.
- Dropped trailers shall be secured from roll-a-way or pull-a-way using a combination of key management, chocks in good condition, and glad-hand locks.

#### **36.5.1.1 Powered Industrial Trucks**

Fork trucks, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electrical motors or internal combustion engines are often used to move materials. When this type of equipment is used, employers must make workers aware of the safety requirements pertaining the design, maintenance, and use of these trucks. Please refer to the Powered Industrial Trucks Chapter for more information.

#### **36.5.1.2 Cranes**

Only thoroughly trained and competent workers will be permitted to operate cranes. To reduce the severity of an injury, employers will take the following precautions:

- Require workers to always check the crane's load chart to ensure that the crane will not be overloaded by operating conditions.
- Instruct workers to plan lifts before starting them to ensure that they are safe.
- Direct workers to always keep hoisting chains and ropes free of kinks or twists and never wrapped around a load.
- Train workers to attach loads to the load hook by slings, fixtures, and other devices that have the capacity to support the load on the hook.
- Instruct workers to pad sharp edges of loads to prevent cutting slings.
- Teach workers to maintain proper sling angles so that slings are not loaded in excess of their capacity.
- Ensure that all cranes are inspected frequently by persons thoroughly familiar with the crane, the methods of inspecting the crane, and what can make the crane unserviceable. Crane activity, the severity of use, and environmental conditions should determine inspection schedules.
- Ensure that the critical parts of a crane—such as crane operating mechanisms, hooks, air, or hydraulic system components and other load-carrying components—are inspected daily for any maladjustment, deterioration, leakage, deformation, or other damage.

### 36.5.1.3 Cranes in Construction

Cranes used in construction must be operated in accordance with the 1926 Subpart CC – Cranes & Derricks in Construction. Please refer to the Cranes (Construction) chapter for more information.

### 36.5.1.4 Use of Slings

A designated competent person will conduct inspections of slings before and during use, especially when service conditions warrant. Management will ensure that workers observe the following precautions when working with slings:

- Remove immediately damaged or defective slings from service.
- Do not shorten slings with knots or bolts or other makeshift devices.
- Do not kink sling legs.
- Do not load slings beyond their rated capacity.
- Keep suspended loads clear of all obstructions.
- Remain clear of loads about to be lifted and suspended.
- Do not engage in shock loading.
- Avoid sudden crane acceleration and deceleration when moving suspended loads.

### 36.5.1.5 Use of Conveyors

When using conveyors, workers may get their hands caught in nip points where the conveyor medium runs near the frame or over support members or rollers. Workers also may be struck by material falling off the conveyor, or they may get caught in the conveyor and drawn into the conveyor path as a result. To prevent or reduce the severity of an injury, employers must take the following precautions to protect workers:

- Install an emergency button or pull cord designed to stop the conveyor at the employee's work station.
- Install emergency stop cables that extend the entire length of continuously accessible conveyor belts so that the cables can be accessed from any location along the conveyor.
- Design the emergency stop switch so that it must be reset before the conveyor can be restarted.
- Ensure that appropriate personnel inspect the conveyor and clear the stoppage before restarting a conveyor that has stopped due to an overload.
- Prohibit employees from riding on a materials-handling conveyor.
- Provide guards where conveyors pass over work areas or aisles to keep employees from being struck by falling material. (If the crossover is low enough for workers to run into it, mark the guard with a warning sign or paint it a bright color to protect employees.)
- Cover screw conveyors completely except at loading and discharging points. (At those points, guards must protect employees against contacting the moving screw. The guards are movable, and they must be interlocked to prevent conveyor movement when the guards are not in place.)

### 36.5.2 Moving Materials Manually

When moving materials manually, workers will attach handles or holders to loads if possible. In addition, workers will always wear appropriate personal protective equipment and use proper lifting techniques. To prevent injury from oversize loads, workers will seek help in the following:

- When a load is so bulky that employees cannot properly grasp or lift it,
- When employees cannot see around or over a load, or
- When employees cannot safely handle a load.

Using the following personal protective equipment prevents needless injuries when manually moving materials:

- Hand and forearm protection, such as gloves, for loads with sharp or rough edges.



- Eye protection.
- Steel-toed safety shoes or boots.
- Metal, fiber, or plastic metatarsal guards to protect the instep area from impact or compression.

### 36.5.3 Secure Storage

Stored materials must not create a hazard for employees. Employers should make workers aware of such factors as the materials' height and weight, how accessible the stored materials are to the user, and the condition of the containers where the materials are being stored when stacking and piling materials.

Stacking materials can be dangerous if workers do not follow safety guidelines. Falling materials and collapsing loads can crush or pin workers, causing injuries or death. To help prevent injuries when stacking materials, workers must do the following:

- Stack lumber no more than 16 feet high if it is handled manually, and no more than 20 feet if using a forklift;
- Remove all nails from used lumber before stacking;
- Stack and level lumber on solidly supported bracing;
- Ensure that stacks are stable and self-supporting;
- Do not store pipes and bars in racks that face main aisles to avoid creating a hazard to passersby when removing supplies;
- Stack bags and bundles in interlocking rows to keep them secure; and
- Stack bagged material by stepping back the layers and cross-keying the bags at least every ten layers (to remove bags from the stack, start from the top row first).

During materials stacking activities, workers must also do the following:

- Store baled paper and rags inside a building no closer than 18 inches to the walls, partitions, or sprinkler heads;
- Band boxed materials or secure them with cross-ties or shrink plastic fiber;
- Stack drums, barrels, and kegs symmetrically;
- Block the bottom tiers of drums, barrels, and kegs to keep them from rolling if stored on their sides;
- Place planks, sheets of plywood dunnage, or pallets between each tier of drums, barrels, and kegs to make a firm, flat, stacking surface when stacking on end;
- Chock the bottom tier of drums, barrels, and kegs on each side to prevent shifting in either direction when stacking two or more tiers high; and
- Stack and block poles as well as structural steel, bar stock, and other cylindrical materials to prevent spreading or tilting unless they are in racks.

#### 36.5.3.1 Shelving

- Shelving shall be inspected frequently to ensure integrity and storage stability;
- The feet and uprights shall be free of significant dents and creases.
- Materials and containers shall be placed securely on the racking/shelving;
- Pallets used to support materials stored within shelving shall be in good condition and placed securely within the storage system.
- Materials and containers stored in shelving or rack shall not be closer than 18 inches to the sprinkler heads.

#### 36.5.3.2 Pallet Storage

- Pallets should be stacked in stable columns;
- Pallet stack heights should be limited according to fire protection standards established by the fire insurance carrier or local Fire Marshal.

### 36.5.4 Housekeeping

Storage areas will be kept free from accumulation of materials that create hazards for tripping, fire, explosion, or pest harborage.

### 36.5.5 Clearance Limits

Clearance signs to warn of clearance limits will be provided and clearly posted.

### 36.5.6 Material Handling and Storage Requirements

General requirements include:

- Material stored inside buildings under construction shall not be placed within six (6) feet of any hoistway, or inside floor openings, nor within ten (10) feet of an exterior wall which does not extend above the top of the material stored.
- Each employee required to work on stored material in silos, hoppers, tanks, and similar storage areas shall be equipped with personal fall arrest equipment meeting the requirements of the fall protection standard established in 29 CFR 1926 Subpart M.
- Noncompatible materials shall be segregated in storage.
- Materials shall not be stored on scaffolds or runways in excess of supplies needed for immediate operations.

#### 36.5.6.1 Wood

Lumber must be stacked no more than sixteen (16) feet high if it is handled manually; twenty (20) feet is the maximum stacking height if a forklift is used.

Used lumber must have all nails removed before stacking. Lumber must be stacked and leveled on solidly supported bracing. The stacks must be stable and self-supporting.

#### 36.5.6.2 Brick

Stacks of loose bricks should not be more than 7 feet in height.

When these stacks reach a height of 4 feet, they should be tapered back 2 inches for every foot of height above the 4-foot level.

When masonry blocks are stacked higher than 6 feet, the stacks should be tapered back one-half block for each tier above the 6-foot level.

#### 36.5.6.3 Bags and Bundles

Bags and bundles must be stacked in interlocking rows to remain secure. Bagged material must be stacked by stepping back the layers and cross-keying the bags at least every ten layers.

To remove bags from the stack, start from the top row first.

Baled paper and rags stored inside a building must not be closer than 18 inches to the walls, partitions, or sprinkler heads.

Boxed materials must be banded or held in place using cross-ties or shrink plastic fiber.

#### 36.5.6.4 Drums, Barrels, Kegs

Drums, barrels, and kegs must be stacked symmetrically.

If stored on their sides, the bottom tiers must be blocked to keep them from rolling.

When stacked on end, put planks, sheets of plywood dunnage, or pallets between each tier to make a firm, flat, stacking surface.

When stacking materials two or more tiers high, the bottom tier must be chocked on each side to prevent shifting in either direction.

All bound material should be stacked, placed on racks, blocked, interlocked, or otherwise secured to prevent it from sliding, falling, or collapsing. A load greater than the load rating may not be placed on any floor of a building or other structure. Load limits must be conspicuously posted in all storage areas and on all storage racks.

When stacking, consider the need for availability of the material. Material that cannot be stacked due to size, shape, or fragility can be safely stored on shelves or in bins. Structural steel, bar stock, poles, and other cylindrical materials, unless in racks, must be stacked and blocked to prevent spreading or tilting. Pipes and bars should not be stored in racks that face main aisles; this could create a hazard to passers-by when supplies are being removed.

### **36.5.6.5 Aluminum Extrusions**

#### **36.5.6.5.1 Transport and Storage**

Damage to aluminum usually happens during transport or while it is being handled in storage or installation. Most damage is superficial surface damage such as scratches or rubs but such damage can lead to corrosion and must be prevented.

When transporting aluminum stock, the pieces should be wrapped in strong paper, cardboard, or plastic to prevent pieces from rubbing against each other. Pieces should be secured from movement to prevent loads shifting or toppling which can lead to physical damage such as gouges and deformation.

When strapping aluminum pieces in place, take care to avoid unsupported stress that may bend or warp them.

When receiving aluminum shipments during cold weather, leave the aluminum pieces in their original wrappings until their temperature has equalized with the storage or work area. This will help prevent condensation buildup which can lead to oxidation and corrosion.

#### **36.5.6.5.2 Water Damage**

It is important to protect aluminum pieces from water exposure. Many believe that aluminum does not rust but untreated or unsurfaced aluminum does in fact oxidize (rust) when exposed to water and air. Aluminum alloys with a high magnesium content produce the most staining due to oxidation.

This rust takes the form of white spots or blotches, or dark discoloration. Pieces should be stored in a dry area away from temperature extremes which may cause condensation.

If materials do get wet, it is important to allow them to dry thoroughly. Separate the pieces to ensure no water is trapped between them. If condensation is noted to build up on the stored pieces take measures to store the pieces in an area with a stable temperature.

#### **36.5.6.5.3 Corrosion Due to Contact with Dissimilar Metals**

Aluminum can corrode when a number of factors are present.

- Metal to metal contact
- The contact must be wet with a conductive liquid (water)

- The metals must be electrochemically dissimilar
- If all three conditions are met, then corrosion will accelerate.

Metals to be avoided include galvanized steel, stainless steel, and copper. When storing metal materials, separate different metals and keep them free from moisture.

#### **36.5.6.5.4 Corrosion Due to Air Pollution**

In urban areas where there is an increased level of pollution in the air, aluminum may corrode and pit faster due to the interaction between the aluminum and the pollutants. This is especially true where moisture is involved. Pollutants in the air can be acidic and when mixed with water can form an acid that will corrode the metal surface of the materials.

#### **36.5.6.5.5 Handling**

Use two workers to move aluminum pieces. When moving them, lift them rather than dragging them across other surfaces. Do not walk or rest on pieces.

Do not throw the pieces. Throwing them can cause scrapes, bends, and warps that may render the pieces unusable.

When lifting heavy pieces using a crane, use synthetic slings rather than wire rope or chains. This will help in avoiding distortion or damage.

When handling aluminum wear gloves that will protect against sharp edges, shavings, and burrs. Gloves should also be used to prevent the transfer of oils to the metal surface.

#### **36.5.6.5.6 Installation**

Installation of aluminum components should be done as late in the process as possible. This will help in avoiding staining or damage.

After installation the surfaces of the aluminum components should be cleaned as soon as possible to prevent stains from setting into the surface. Common products that come in contact with the aluminum surface include concrete, mortar, plaster, paint, oils, solvents, caulks, and dusts. If using a scraper to remove buildup use a plastic or wooden scraper. Then follow up with water. Wipe the surfaces with a damp cloth and when dry apply a light coat of oil or a clear lacquer.

If stronger cleaning agents are necessary, the following can be used in order from least harsh to most harsh.

- Plain water (dust)
- Mild water/dish soap solution (light oils)
- Solvents such as acetone, kerosene, or turpentine (adhesives, caulks, persistent products)
- Non-etching chemical cleaners (corrosion)
- Wax based metal polish
- Abrasive wax
- Abrasive cleaners

Using abrasive cleaning agents such as polishes, buffing compounds, and abrasive cleaners may alter the appearance of the metal surface. If the surface has a 'grain', always clean in the direction of the grain.

#### **36.5.6.6 Glass**

The handling of plate glass exposes the worker to a significant risk of personal injury. Glass is heavy, fragile, easily broken, and when broken can shatter into dangerous and very sharp pieces. These pieces

can cut to the bone leading to significant blood loss, damage to muscles, nerves, and tendons, and other significant trauma. Even when not broken, glass pieces can have sharp edges that can lead to significant injury. In addition, glass sheets are very heavy, and workers can be crushed beneath their weight.

#### **36.5.6.6.1 Transport and Storage**

Due to its weight and fragility, glass must be transported and stored very carefully and particularly.

The vehicle used to transport the glass should be rated to handle the weight of the load. Too often underpowered and underweight trucks are used to transport glass loads that are much heavier than the truck was designed to handle leading to loss of control of the vehicle.

Glass should be transported using professionally engineered glass transport racks. Glass is heavy and a shop-built transport rack may not securely support the weight and flex can cause the glass to warp and shatter during transport. In addition, the system used to secure the glass to the storage rack must be professionally engineered to keep the load in place.

- Glass should be stored fully supported, on edge, in a dry, sheltered, and well-ventilated storage area.
- Glass should be kept dry to prevent water etching due to minerals and chemicals in the water forming deposits and clouding the glass.
- Stored glass should be slightly inclined (3-5° from vertical) with the storage footing at 90° from the upright support.
- Soft spaces should be placed between each pane and against the backrest.
- Glass should never be stored against anything harder than itself such as masonry or steel as doing so can increase the risk of damage or breakage.
- Mesh fencing should be provided at the ends of storage racks to contain any glass that may fall out sideways during handling.

#### **36.5.6.6.2 Handling**

Approved eye protection, cut-resistant gloves, and safety footwear must be used in environments where glass is handled frequently. Cut-resistant clothing such as gauntlets, aprons, or leggings should also be worn when moving and handling plate glass.

Avoid wiping your face or rubbing your eyes while wearing the gloves. Small glass particles may be embedded in the glove materials and may cause lacerations or eye injury.

Two or more workers should work together to handle and move glass sheets. This will reduce strain and sprain injuries and allow for greater control of the material.

Proper lifting technique should be employed:

- Lift with the legs, not the back
- Avoid twisting while carrying the load
- Plan your lift and carry. Remove obstructions, create clearance, and inform other workers in the area.

When storing and handling glass sheets:

- Never attempt to restrain falling glass by hand
- Use proper mechanical lifting aids
- Keep the work area clear and organized
- Stand clear of glass sheets in transit
- Use a properly designed and engineered trolley to move glass sheets
- When trolley is not in transit activate the wheel brakes

- Never try to pull a sheet from the middle of the load, always work with the outmost sheet first. If a sheet from the middle of the load is needed remove the covering sheets to a second trolley until you can access the desired sheet.
- When using trolleys remember to keep loads balanced.

#### 36.5.6.6.2.1 Handling Breakage

When dealing with broken glass never use hands or other body parts to move or pick up the broken pieces. Use tools such as shovels, brooms, and suitable disposal/recycling containers.

Broken glass should never be placed in a waste container used for other purposes. Dispose of glass pieces in a container designated for that purpose and label it to inform other workers of the presence of broken glass.

Post warning signs in the area to warn other workers of the presence of broken glass until cleanup is complete.

Avoid vigorous sweeping as glass dust and small pieces may be thrown into the air increasing the risk of eye injury or inhaling glass dust. Sweep in smooth controlled motions until all glass has been collected.

### 36.5.6.6.3 Installation

After installation glass surfaces should be cleaned as soon as possible to prevent staining, to remove built-up residue, and to ensure the glass is free from damage. Clean the glass using a sponge and a glass cleaner or a very mild soap/water solution (one drop of dish soap in one gallon of water). Wipe the windows clean using a squeegee.

If removal of built-up residue is necessary, use a razor scraper with a fresh blade taking care to not scratch the glass surface.

*For Cranes, Slings, and Forklifts, see the corresponding chapters*

## 36.6 Training

### 36.6.1 Initial

Initial training will be conducted through new hire orientation.

### 36.6.2 Refresher

Refresher training will be administered when the following situations occur:

- Changes in equipment, the workplace, or the type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## 36.7 Reference

OSHA Standard 29 CFR 1926.200

## Chapter 37 Powered Industrial Trucks

### 37.1 Purpose, Scope & Policy

The purpose of this program is to minimize employee exposure to injuries while operating a Powered Industrial Truck (PIT) and to perform operations so as to not expose pedestrians to injury while operating the PIT.

#### 37.1.1 Scope

This program applies to the operation of all powered industrial trucks including forklifts, scissors platforms, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines.

#### 37.1.2 Policy

All employees must successfully complete this training program and receive certification prior to the operation of any powered industrial truck.

### 37.2 Roles & Responsibilities

#### 37.2.1 Employer Responsibilities

It is management's responsibility to use proper control measures to limit employee exposure. Control measures may be either engineering, administrative, or use of PPE.

- Certify that each operator has been trained and evaluated for proper PIT operation
- Certify all authorized and qualified operators

#### 37.2.2 Employee Responsibilities

It is ultimately the employee's responsibility to follow management's safety policies and be responsible for their own safety as well as that of their coworkers. Employees must comply with their company's safety requirements as well as those of the Occupational Safety and Health Administration. Employees must report any hazardous conditions seen to management. Employees have the right to refuse unsafe work. Violations of these roles and responsibilities may be grounds for disciplinary action to the employee.

- Attend classroom training, practical training and undergo evaluation before being authorized to operate the PIT
- Conduct daily inspections
- Operating the PITs in accordance with the guidelines set forth in this program

### 37.3 Definitions

**Powered Industrial Truck** – Any mobile power-propelled truck used to carry, push, pull, lift, stack, or tier materials. Powered industrial trucks can be ridden or controlled by a walking operator.

### 37.4 Hazards

#### 37.4.1 Tip Over

Trucks may tip over for a variety of reasons e.g., uneven floor or ground surfaces, improper distribution of the load, speed, attachments, poor maintenance, and lack of proper training.

#### 37.4.2 Struck By

Speeding, brake failure, not leaving enough stopping distance, operating outside of designated areas and other factors can lead to employees or other powered industrial trucks being struck.

### 37.4.3 Slips, Trips and Falls

Many forklift-related injuries involve slips, trips and falls when getting on and off. Fall hazards are also present when operating an order picker type powered industrial truck, where the employee is lifted to the material.

### 37.4.4 Fire

Improper refueling procedures or LP gas cylinder change out can lead to a fire or explosion.

### 37.4.5 Chemical Contact

Improper battery charging procedures can lead to contact with battery acid.

45.5 Hazard Measures	Control
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## 37.5 Hazard Control Measures

### 37.5.1 Pre-Shift Inspection

The management provides checklists pertinent to each type of vehicle and are modified accordingly. The manufacturer's instructions on vehicle maintenance and owner's and operator's responsibilities are also consulted. See this chapter's appendix for sample checklists.

Prior to the operation of any powered industrial truck the Pre-Shift Inspection Checklist must be completed. Any safety defects (such as hydraulic fluid leaks, defective brakes, steering, lights, or horn; and/or missing fire extinguisher, lights, seat belt, or back-up alarm) must be reported for immediate repair. They must also be locked and tagged and taken out of service.

### 37.5.2 Markings

- Trucks shall bear a label, or some other identifying mark indicating approval, listed, or approved for fire safety purposes for the intended use, by a nationally recognized testing laboratory, using nationally recognized testing standards.
- Capacity, operation, and maintenance instruction plates, tags, or decals shall be affixed to the powered industrial truck.
- Modifications and additions which affect capacity and safe operation shall not be performed without the manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.
- If the truck is equipped with front-end attachments other than factory installed attachments, the truck must be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with load laterally centered.
- All nameplates and markings must be in place and maintained in a legible condition.

### 37.5.3 Operation General

#### 37.5.3.1 PIT Operations Rules

- Operators must wear seat belts at all times
- Operators must sound the horn and use extreme caution when meeting pedestrians making turns, and cornering
- Passengers are not allowed to ride on an industrial truck, unless the truck has an extra seat that allows the passenger to buckle-up while riding
- Arms or legs may not be placed between the uprights of the mast or outside the running lines of the truck
- Persons are not allowed to stand or pass under any elevated portion of a truck
- Travel-ways must be maintained free from obstructions, aisles must be marked, and wide enough (six-foot minimum) for vehicle operation



- Maintain sufficient headroom under overhead installations such as: lights, pipes, sprinkler systems, etc.
- An overhead guard must be used as protection against falling objects
- Lift capacity must be marked on all powered industrial trucks. Operators must assure the load does not exceed rated weight limits
- When a powered industrial truck is left unattended (more than 25ft. away or out of sight), load engaging means must be fully lowered, controls neutralized, power shut off, and brakes set. Wheels must be blocked if the truck is parked on an incline
- All modifications must be approved by the manufacturer, and new rated load capacities determined and posted on the truck. Written approval is required
- Operators must report all accidents, regardless of fault and severity, to their Supervisor

### **37.5.3.2 Stability**

The stability of a vehicle is a critical factor in safe operation of powered industrial trucks. The following concepts must be understood prior to operating a PIT:

- The basic principles of stability
- The stability triangle
- Longitudinal stability
- Lateral stability
- Dynamic stability

### **37.5.3.3 Loading**

- Only handle loads within the rated capacity of the truck.
- Loads should be safely arranged, stable, and centered – always use caution when handling loads. Adjust long or high (including multiple-tiered) loads that may affect capacity.
- Trucks equipped with attachments must be operated as partially loaded trucks even when not handling a load.
- A load engaging means must be placed under the load as far as possible. The mast must be carefully tilted backward to stabilize the load.
- Use extreme care when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated is prohibited except to pick up a load. An elevated load may not be tilted forward except when the load is in a deposit position.
- When stacking or tiering, use only enough backward tilt to stabilize the load

### **37.5.3.4 Traveling**

- The driver must slow down and sound the horn at cross aisles and other locations where vision is obstructed.
- If the load being carried obstructs forward view, the driver must travel with the load trailing.
- Loads must be tilted back and carried no more than four inches above the ground.
- The driver must look in the direction of and keep a clear view of the path of travel.
- Grades must be ascended and descended slowly. Position the load uphill relative to the operator when ascending or descending grades.
- Stunt driving and horseplay are prohibited.
- While negotiating turns, reduce speed and turn the hand steering wheel in a smooth, sweeping motion.

### **37.5.4 Fueling**

- Fuel tanks may not be filled while the engine is running. Avoid spillage.
- Spillage of oil or fuel must be absorbed using oil dry or vermiculite, the affected area carefully washed, and the fuel tank cap replaced before restarting engine.
- Any spill clean-up debris must be properly disposed of.

- No truck can be operated with a leak in the fuel system.
- Open flames are not to be used when checking electrolyte levels in storage batteries, or gasoline levels in fuel tanks.

### **37.5.5 Changing & Charging Batteries**

- Battery charging installations must be located in areas designated for that purpose.
- Facilities must provide for: flushing and neutralizing spilled electrolyte, fire protection, protection of charging apparatus from damage by trucks, adequate ventilation for dispersal of fumes from gassing batteries.
- Precautions must be taken to prevent open flames, sparks, or electric arcs in battery charging areas.
- Employees charging and changing batteries shall be authorized to do the work, trained in the proper handling, and required to wear protective clothing, including face shields, long sleeves, rubber boots, aprons, and gloves.

### **37.5.6 Maintenance**

- Any power-operated industrial truck not in safe operating condition must be removed from service. Authorized personnel must make all repairs.
- Repairs to the fuel and ignition systems of industrial trucks that involve fire hazards must be conducted only in locations designated for such repairs.
- Trucks in need of repairs to the electrical system must have the battery disconnected before such repairs.
- Only use replacement parts that are currently recommended by the manufacturer.

## **37.6 Training**

Trainees may operate a forklift only:

- Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence; and
- Where such operation does not endanger the trainee or other employees.

Training will consist of a combination of:

- Formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, and/or written material)
- Practical training (demonstrations performed by the trainer and practical exercises performed by the trainee)
- And evaluation of the operator's performance in the workplace.

All operator training and evaluation will be conducted by persons who have the knowledge, training, and experience to train PIT operators and evaluate their competence.

### **37.6.1 Initial**

Forklift operators will receive initial training in the following topics, except in topics which can be demonstrated are not applicable to safe operation of the truck.

#### **37.6.1.1 PIT related topics:**

- Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate.
- Differences between the truck and an automobile.
- Truck controls and instrumentation: where they are located, what they do, and how they work.
- Engine or motor operation
- Steering and maneuvering

- Visibility (including restrictions due to loading)
- Fork and attachment adaptation, operation, and use limitations
- Vehicle capacity
- Vehicle stability
- Vehicle inspection and maintenance that the operator will be required to perform.
- Refueling and/or charging and recharging of batteries
- Operating limitations

#### **37.6.1.2 Workplace-related topics:**

- Surface conditions where the vehicle will be operated.
- Composition of loads to be carried and load stability.
- Load manipulation, stacking, and un-stacking.
- Pedestrian traffic in areas where the vehicle will be operated.
- Narrow aisles and other restricted places
- Hazardous (classified) locations where the vehicle will be operated.
- Ramps and other sloped surfaces that could affect the vehicles stability.
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

#### **37.6.2 Refresher**

Management will conduct refresher training, including an evaluation of the effectiveness of that training, as required to ensure that the operator has the knowledge and skills needed to operate the forklift safely. Refresher training in relevant topics will be provided to the operator when:

- The operator has been observed to operate the vehicle in an unsafe manner.
- The operator has been involved in an accident or near-miss incident.
- The operator has received an evaluation that reveals that the operator is not operating the truck safely.
- The operator is assigned to drive a different type of truck.
- A condition in the workplace changes in a manner that could affect safe operation of the truck.

#### **37.6.3 Certification**

Management will verify that each operator has been trained and evaluated as required by this section. The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

#### **37.6.4 Recertification**

An evaluation of each PIT operator's performance will be conducted at least once every three years.

### **37.7 Reference**

SHA Standard 29 CFR 1910.178

### **37.8 Appendix**

- Daily Forklift Inspection: Fuel Powered
- Daily Forklift Inspection: Batter Powered
- Performance Evaluation Test for Forklift Operators
- Types of Powered Industrial Trucks

## Daily Forklift Inspection – Fuel Powered


**INSERT CLIENT LOGO**

Week of / (Semana de):

Department:

Shift:

Forklift:

Drive Hour Meter:

Model / Serial #:

Hoist Hour Meter:

Report any operational deficiencies to your supervisor for corrective action.

Reporte cualquier deficiencia que vea a su supervisor

Inspection Items		Su D	M L	T M	W Mi	Th J	F V	Sa S
Any of these defective? Take out of service! Algo de esto defectuoso? ¡Poner fuera de servicio!	Capacity Plate / Placa de Capacidad							
	*Horn / Bocina							
	*Brakes / Frenos							
	*Parking Brake / Freno de mano							
	*Seat Belt / Cinturon de seguridad							
	*Steering / Volante							
	*System Gauges and Lights / Indicadores y luces							
	*Backup Alarm if Equipped / Sirena marcha atras							
	*Fuel Leaks / Perdida Combustible							
	Chains / Cadenas							
Mast / Mastil								
Lights / Luces								
Oil Level / Nivel de aceite								
Coolant Level / Nivel liquido refrigeracion								
Hydraulic Fluid Level / Nivel fluido hidraulico								
Overhead Guard / Capa de proteccion								
Forks / Horquillas								
Load Backrest / Soporte pinchos								
Controls / Controles								
Hoses / Mangueras								
Tires / Ruedas								
No Deficiencies Noted / No deficiencias								
Inspected by: (initials) / Inspeccionado por (iniciales)								

**Note any deficiencies with an 'X' (Anote cualquier deficiencia con una 'X')**

### Daily Forklift Inspection – Battery Powered

**INSERT CLIENT LOGO**

Week of / (Semana de):

Department:

Shift:

Forklift:

Drive Hour Meter:

Model / Serial #:

Hoist Hour Meter:

Report any operational deficiencies to your supervisor for corrective action.

Reporte cualquier deficiencia que vea a su supervisor

Inspection Items		Su D	M L	T M	W Mi	Th J	F V	Sa S
Any of these defective? Take out of service! Algo de esto defectuoso? ¡Poner fuera de servicio!	Capacity Plate / Placa de Capacidad							
	*Horn / Bocina							
	*Brakes / Frenos							
	*Parking Brake / Freno de mano							
	*Seat Belt / Cinturon de seguridad							
	*Steering / Volante							
	*System Gauges and Lights / Indicadores y luces							
	*Backup Alarm if Equipped / Sirena marcha atras							
	*Battery Restraint System / Sistema de retencion de la Bateria							
	Battery Water Level / Nivel del agua de la Bateria							
	Battery Charged / Bateria Cargada							
	Chains / Cadenas							
	Mast / Mastil							
	Lights / Luces							
	Coolant Level / Nivel liquido refrigeracion							
	Hydraulic Fluid Level / Nivel fluido hidraulico							
	Overhead Guard / Capa de proteccion							
	Forks / Horquillas							
	Load Backrest / Soporte pinchos							
	Controls / Controles							
Hoses / Mangueras								
Tires / Ruedas								
No Deficiencies Noted / No deficiencias								
Inspected by: (initials) / Inspeccionado por (iniciales)								

**Note any deficiencies with an 'X' (Anote cualquier deficiencia con una 'X')**

---

**Performance Evaluation for Forklift Operators**

---

**EMPLOYEE:** \_\_\_\_\_ **DATE:** \_\_\_\_ / \_\_\_\_ / \_\_\_\_ **TIME:** \_\_\_\_ : \_\_\_\_ **AM/PM**

- ☐ Shows familiarity with truck controls.
- ☐ Gave proper signals when turning.
- ☐ Slowed down at intersections.
- ☐ Sounded horn at intersections.
- ☐ Obeyed signs.
- ☐ Kept a clear view of direction of travel.
- ☐ Turned corners correctly - was aware of rear end swing.
- ☐ Yielded to pedestrians.
- ☐ Drove under control and within proper traffic aisles.
- ☐ Approached load properly.
- ☐ Lifted load properly.
- ☐ Maneuvered properly.
- ☐ Traveled with load at proper height.
- ☐ Lowered load smoothly/slowly.
- ☐ Stops smoothly/completely.
- ☐ Load balanced properly.
- ☐ Forks under load all the way.
- ☐ Carried parts/stock in approved containers.
- ☐ Checked bridge-plates/ramps.
- ☐ Placed loads within marked areas.
- ☐ Stacked loads evenly and neatly.
- ☐ Drove in reverse when necessary.
- ☐ Checked load weights.
- ☐ Placed forks on the floor when parked, controls neutralized, brake on set, power off.
- ☐ Followed proper instructions for maintenance - checked both at beginning and end.

**Total Rating:** \_\_\_\_\_**Evaluator:** \_\_\_\_\_

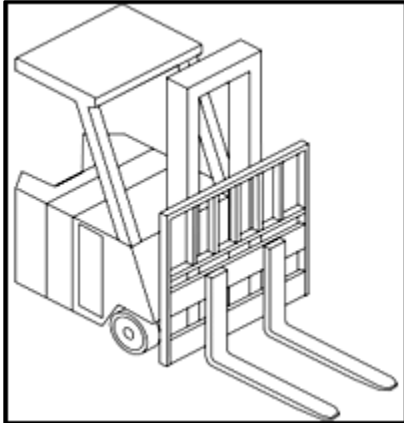
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**Types of Powered Industrial Trucks**

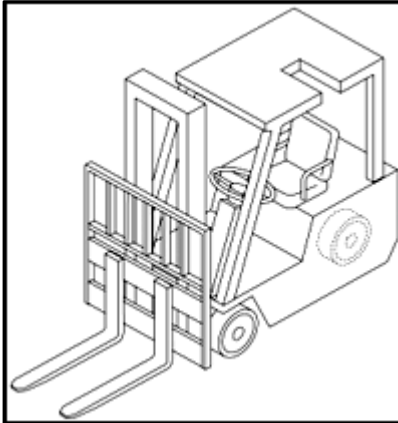
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**Class I: Electric Motor Rider Trucks**

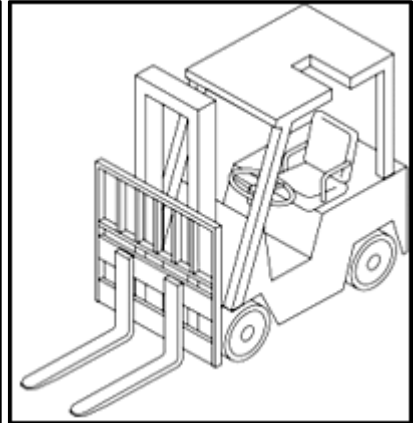
The following are examples of Class I powered industrial trucks.



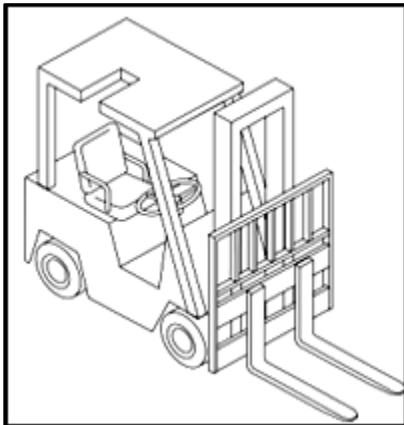
**Lift Code 1: Counterbalanced Rider Type, Stand Up.**



**Lift Code 4: Three Wheel Electric Trucks, Sit Down.**



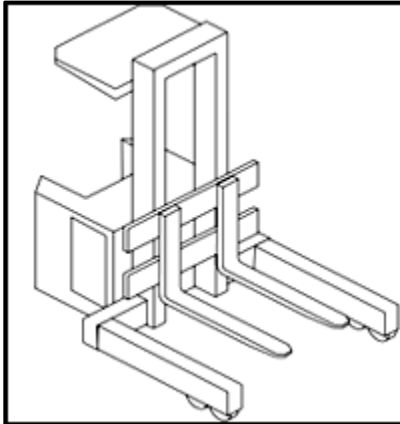
**Lift Code 5: Counterbalanced Rider, Cushion Tires, Sit Down.**



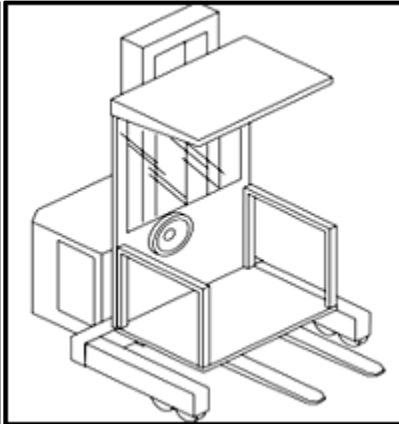
**Lift Code 6: Counterbalanced Rider, Pneumatic or Either Type Tire, Sit Down.**

**Class II: Electric Motor Narrow Aisle Trucks**

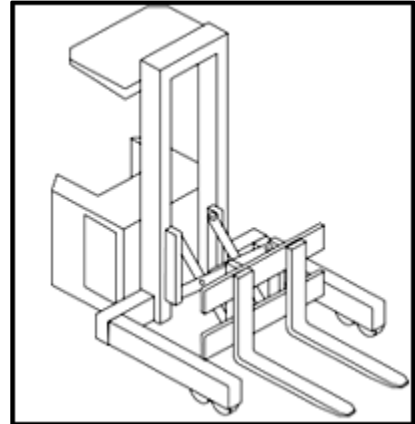
The following are examples of Class II powered industrial trucks.



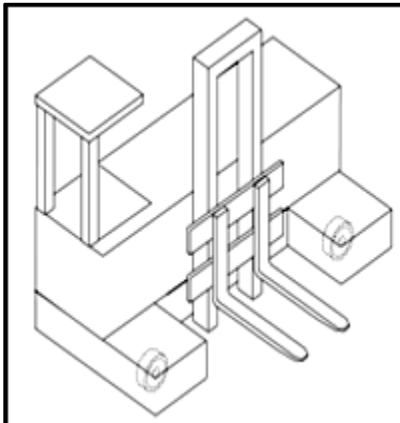
Lift Code 1: High Lift Straddle.



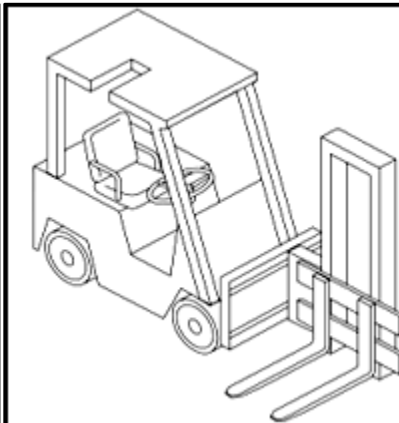
Lift Code 2: Order Picker.



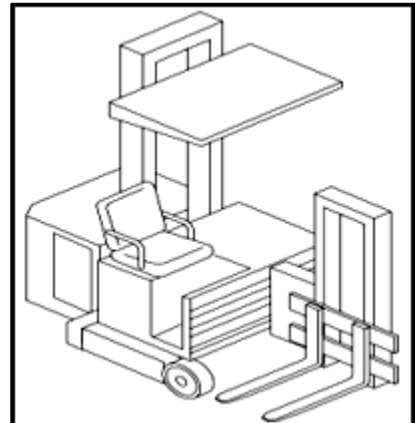
Lift Code 3: Reach Type Outrigger.



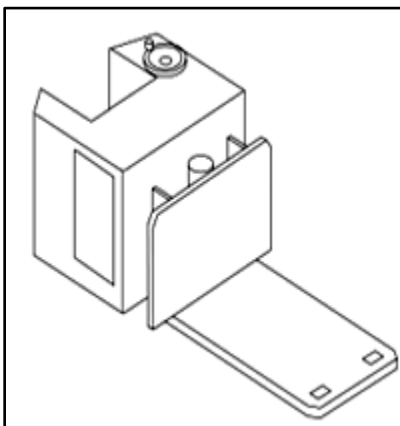
Lift Code 4: Side Loaders: Platforms.



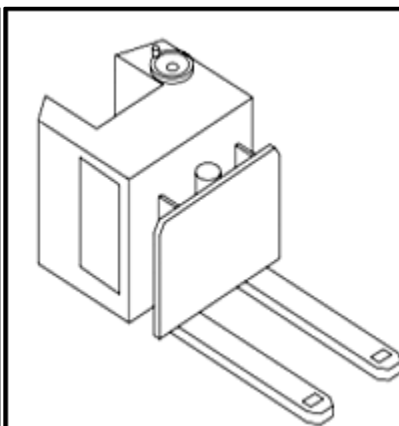
Lift Code 4: Side Loaders: High Lift Pallet.



Lift Code 4: Turret Trucks.



Lift Code 6: Low Lift Platform.

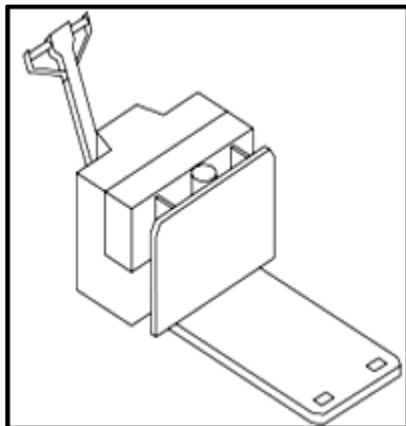


Lift Code 6: Low Lift Pallet.

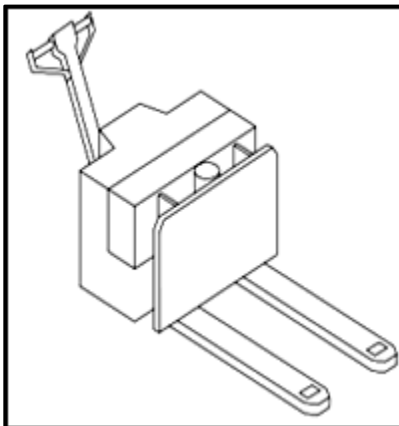


**Class III: Electric Motor Hand Trucks or Hand/Rider Trucks**

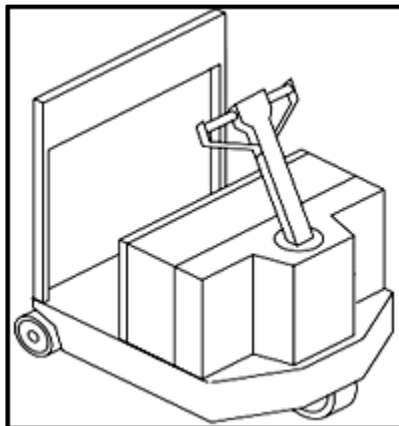
The following are examples of Class III powered industrial trucks.



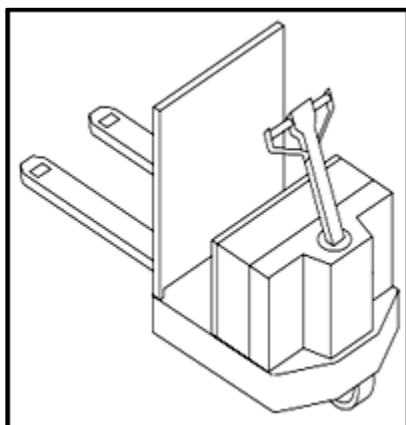
Lift Code 1: Low Lift Platform.



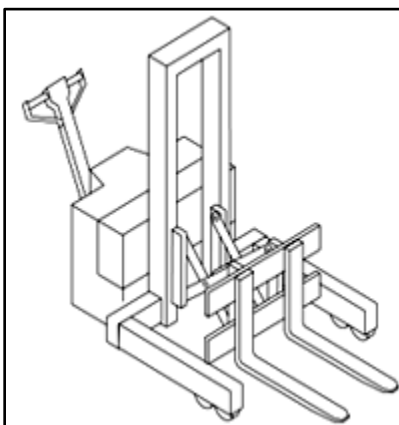
Lift Code 2: Low Lift Walkie Pallet.



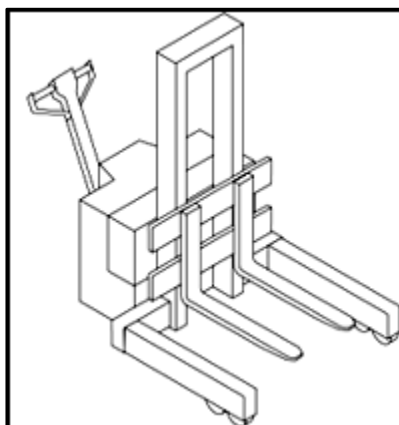
Lift Code 3: Tractors



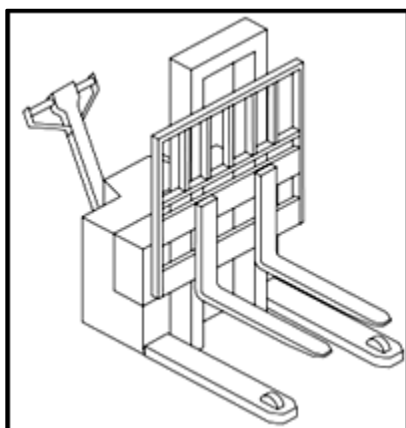
Lift Code 4: Low Lift Walkie/Center Control.



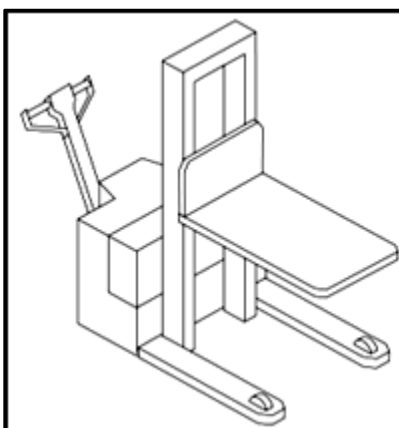
Lift Code 5: Reach Type Outrigger.



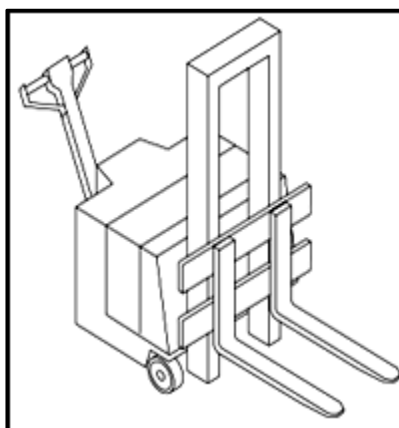
Lift Code 6: High Lift Straddle.



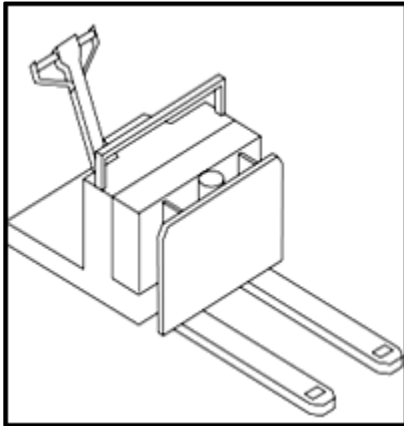
Lift Code 6: Single Face Pallet.



Lift Code 6: High Lift Platform.



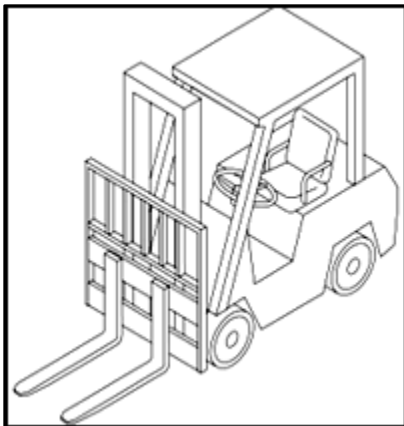
Lift Code 7: High Lift Counterbalanced.

**Class III: Electric Motor Hand Trucks or Hand/Rider Trucks (Continued)**

**Lift Code 8: Low Lift Walkie/Rider  
Pallet and End Control.**

**Class IV: Internal Combustion Engine Trucks (Solid/Cushion Tires)**

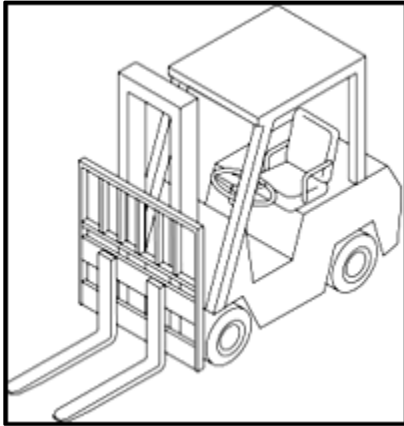
The following are examples of Class IV powered industrial trucks.



**Lift Code 3: Fork, Counterbalanced  
(Cushion Tire).**

**Class V: Internal Combustion Engine Trucks (Pneumatic Tires)**

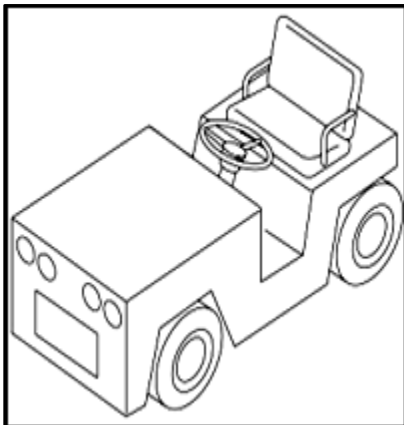
The following are examples of Class V powered industrial trucks.



**Lift Code 4: Fork, Counterbalanced  
(Pneumatic Tire).**

**Class VI: Electric and Internal Combustion Engine Tractors**

The following are examples of Class VI powered industrial trucks.



**Lift Code 1: Sit-Down Rider  
(Draw Bar Pull Over 999 lbs.).**

## Class VII: Rough Terrain Forklift Trucks

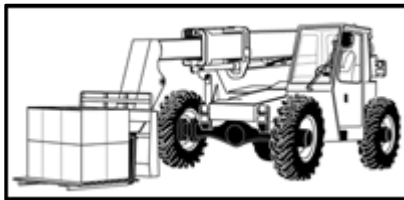
Class VII – Rough terrain forklift is a generic term used to describe forklifts typically intended for use on unimproved natural terrain and disturbed terrain construction sites. However, the term “rough terrain” does not imply that the forklift can be safely operated on every conceivable type of terrain.

There are three basic types of rough terrain forklift:



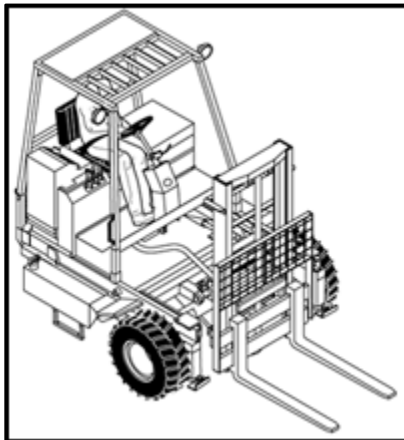
**Vertical mast type.**

This is an example of a ruggedly constructed forklift and is designed to be used primarily outdoors.



**Variable reach type.**

This is an example of a vehicle equipped with a telescoping boom, which enables it to pick and place loads at various distances and lift heights in front of the machine. The ability to reach out in front of the forklift allows the operator flexibility in the placement of a load.



**Truck/trailer mounted.**

This is an example of a portable self-propelled rough terrain forklift that is typically transported to the job site. It is mounted on a carrier to the back of a truck/trailer and is used to unload heavy items from the truck/trailer at the job site. Note that not all truck/trailer mounted forklifts are rough terrain forklifts.

## **Chapter 38 Mobile Elevating Work Platforms (MEWP)**

### **38.1 Purpose, Scope, and Policy**

#### **38.1.1 Purpose**

The purpose of this program is to provide an understanding of the associated dangers and the hazard control measures that will be implemented when using equipment classified as Mobile Elevating Work Platforms (MEWPs).

#### **38.1.2 Scope**

This program applies to the operation of all powered mobile elevating work platforms including scissor-lifts, mobile elevating work platforms, boom lifts, and truck-mounted lifts such as bucket-trucks, cherry pickers, and bridge inspection platforms.

#### **38.1.3 Policy**

MEWPs will be operated only by trained and authorized employees. Employees are restricted to the operation of only the specific make and model MEWPs for which they have been trained, familiarized, and authorized to use.

### **38.2 Roles & Responsibilities**

#### **38.2.1 Employer Responsibilities**

It is management's responsibility to understand the requirements established in this program and to provide employees with the proper training, tools, equipment, and resources to fulfill them. Management will communicate the requirements of this program to operators, occupants, and all affected employees as necessary to ensure safe operation of MEWPs.

Management shall ensure that MEWP operators are trained and certified in the use of the assigned equipment and shall perform periodic evaluations to ensure the equipment is being operated properly.

#### **38.2.2 Employee Responsibilities**

Employees are responsible for following safety precautions and policies set forth by management in this program.

Operators will only operate the specific make and model MEWPs on which they have been trained and authorized.

Employees will attend and participate in all safety training as outlined in this program.

Employees are responsible for reporting any unsafe conditions or concerns related to MEWPs to management. Any equipment identified as being in an unsafe condition shall be taken out of service until inspected and necessary repairs have been affected.

### **38.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xx</sup>

#### **38.3.1 Classifications**

Mobile Elevating Work Platforms are classified by the movement and control capability of the aerial platform.

##### **38.3.1.1 Groups**

Group classification is based on the movement of the platform of the aerial lift.

- Group A – Any MEWP equipped with a platform that does not extend outside the tipping lines. A scissor-lift is an example of a Group A MEWP.
- Group B – Any MEWP in which the platform has the ability to extend past the machine's chassis and support provision. Extendible and articulating boom platforms are examples of Group B MEWPs.

### 38.3.1.2 Types

MEWPs are further classified into one of three type classifications based on the ability to drive the MEWP.

- Type 1 – A MEWP that can only be driven when the platform is in the stowed, or down, position.
- Type 2 – A MEWP that can be driven when the platform is elevated but is controlled from the ground level or chassis.
- Type 3 – A MEWP that can be driven when the platform is elevated and is controlled at the elevated platform by the operator.

## 38.4 Program Elements

The following elements will be addressed in this program:

- Hazards associated with the use of MEWPs
- Selection, provision, and use of MEWPs and other associated equipment
- Access, preparation, and maintenance of the site
- Hazard control measures
- Risk assessment and rescue plan
- Maintenance, repairs, and inspections
- Documentation and recordkeeping
- Training and authorization

## 38.5 Hazards

Hazards associated with MEWP operation can lead to potentially serious or fatal injuries.

### 38.5.1 Falls

Falls from height may occur if fall restraint and/or fall protection systems are either not used, defeated, or bypassed, or are used improperly.

### 38.5.2 Electrocution

Electrocution, or death by exposure to electrical energy, is one of the most common injuries related to MEWPs. Electrocution can occur when working near power lines and either the lift or the employee contacts energized power lines.

### 38.5.3 Struck-by/Strike-against

Affected persons on the ground can be struck by moving equipment. Operators and occupants can strike overhead obstructions when raising and lowering the platform or be struck by moving overhead hazards. Crane loads and moving hoists are examples of moving overhead hazards. Severe head/neck and crush injuries can result from a struck-by or strike-against injury.

### 38.5.4 Crushed-by/Caught-between

Crushed-by/caught-between injuries may occur due to being caught between the moving parts of the MEWP and another object such as a structure or an obstruction at the ground level. Workers and affected persons can also be crushed by overturned MEWPs when used on unstable ground surfaces.

## 38.6 Hazard Control Measures

### 38.6.1 Operator Pre-operation Responsibilities

Before operating a MEWP, the operator shall ensure the following measures are followed:

- Stabilizing devices including, but not limited to; outriggers, extendible axles, and any other stability-enhancing devices are deployed and locked in place as required by the manufacturer. Brakes will be set while stabilizing devices are in use
- Guardrails and access points (gates, openings) are in good condition and in appropriate configuration as designed by the manufacturer
- Loads and load distribution on the work platform and any platform extension do not exceed the manufacturer's load rating

The MEWP operator shall orient all occupants on the work platform not authorized to operate the equipment to the following:

- Emergency shutdown and lowering procedures (lowering the platform to the ground position). This does not authorize the occupants as operators and is for emergency use ONLY
- If fall protection is required; requirements for fall protection including personal fall arrest systems (PFAS) when applicable
- How the occupant(s) can affect the stability of the MEWP
- Any MEWP accessories that are in use, and how to use them safely
- Work-specific procedures related to MEWP work
- Any hazards related to the operation and the appropriate hazard control measures identified to eliminate or reduce the risk of exposure to those hazards
- Warnings and instructions provided by the manufacturer

#### **38.6.1.1 Fall Protection**

Guardrails shall be; installed, in good condition, and in the same position and configuration as they were manufactured. Any opening and/or access gate shall be closed or in appropriate position as designed by the manufacturer. Guardrails shall not be used to carry/lift materials unless approved by the manufacturer. If approved by the manufacturer, the load rating shall not be exceeded.

Operators and occupants shall maintain footing on the floor of the work platform at all times. The toe board, mid-rail, or top rail shall not be used by occupants or operators to gain additional height or reach. Planks, ladders, or any other devices shall not be used on the work platform. Never step up on anything to gain added height or reach. Doing so will defeat the fall protection provided by the guardrail system.

Operators and occupants of ALL Type B MEWPs shall wear and use a personal fall arrest or fall restraint system and will follow the manufacturer's requirements for attaching fall protection systems to anchor points. Only engineered anchor points shall be used for fall protection, and each anchor point shall only support one employee unless otherwise designed by the manufacturer.

While working at height, whenever possible, the operator will use available devices to deactivate the controls on the platform when the platform is not in motion.

#### **38.6.1.2 Electrical Hazards**

The following requirements shall be followed by the operator when working near energized electrical conductors:

- Whenever possible, power lines in the area of work shall be de-energized
- When de-energization is not feasible, a minimum 10-foot distance shall be maintained from any body part, any part of the MEWP, and/or any conductive object from energized power lines 50kV or less in power
- If a 10-foot clearance is not feasible, an electrical transmission and distribution qualified person will be consulted to identify and implement measures such as de-energizing and grounding
- If unsure if the power lines in the work area are 50kV or greater, an electrical transmission and distribution qualified person must be consulted prior to starting work to identify acceptable clearance distance or other measures such as re-routing of power lines, de-energization, or grounding.

- ONLY employees who are qualified in electrical transmission and distribution shall work within the established clearance distance of energized electrical conductors.
- ONLY employees who are qualified to work with energized electrical equipment shall work on energized electric circuits or other equipment.
- Qualified employees working on any energized equipment shall be capable of performing the work safely, following the proper requirements for:
  - Precautionary measures
  - Personal Protective Equipment
  - Insulating and shielding materials
  - Insulated tools

#### **38.6.1.2.1 Grounding**

The MEWP shall not be used for electrical grounding to earth when welding structures alongside it, unless specifically approved by the manufacturer.

#### **38.6.1.3 Physical Hazards**

Due to the configuration of the equipment visibility can be obscured, and there may be blind spots not easily visible to the operator. Assessment of the work area for hazardous conditions that may contribute to physical injury such as struck-by, caught-between, and crush injuries must be done prior to beginning work.

##### **38.6.1.3.1 Struck-by**

When operating a MEWP at elevation it is easy to focus in on the immediate obstructions and hazards present at platform level. Prior to traveling with the MEWP the operator should perform a visual check of the area for any workers that may be in the path of travel or any obstructions that might be struck by the MEWP in motion that can contribute to equipment instability.

When in the platform, operators may strike, or be struck by, an overhead obstruction which can lead to equipment instability. If care is not taken an operator/occupant can also receive a head/neck or other physical injury by striking structures or other components in the immediate vicinity. Situational awareness and a 360° assessment of the area prior to movement or travel can reduce the likelihood of such an injury. Working beneath an active elevator is an example of a situation where an elevated overhead obstruction may not be immediately recognized as a hazard. Implementing hazard control measures to address such contingencies is necessary.

Affected persons in the area beneath the platform can struck by objects falling from the platform. Care must be exercised to prevent items from falling. Tethers can be used to secure tools or equipment to the platform. Whenever feasible, a clearance zone should be established beneath the work platform to prevent access.

##### **38.6.1.3.2 Caught-between**

Elevating work platforms are often used in areas with tight or limited clearance. Many workers have been caught between or pinched by the components of the work platform and adjacent structures or equipment. Keeping extremities within the work platform guard rails and maintaining visual observation of the travel or movement direction can help reduce the likelihood of being caught between or pinched between the components of the equipment and adjacent objects.

MEWPs with rotating structures may have a swing radius that extends beyond the wheels or support/stabilizing structures of the equipment. An affected person walking between the equipment and a wall or other structure can be caught between or crushed between the equipment and the structure.

Marking out and barricading the swing radius can help reduce the likelihood of such an injury.

##### **38.6.1.3.3 Crushed-by**



Elevating work platforms have a higher center of gravity when raised. This increases the risk of tip-over when working on slopes or unstable ground. Obstructions, soft ground surface, and holes, can also lead to vehicle tipping. Affected persons in the area can be crushed should the equipment tip and fall.

An assessment of the ground/floor surface should be made to determine stability. Whenever feasible, a clearance zone should be established around the area to restrict/limit access.

### 38.6.2 Risk Assessment

Prior to performing work on a MEWP, management shall have a qualified person perform a risk assessment. This assessment shall be used to assist in selecting the proper MEWP for the job and will be shared with all employees at the site. The operator, occupant(s), and affected employees shall comply with the control measures that are identified and established by this assessment.

The Risk Assessment will include:

- A description, location, and time frame of the task(s) being performed
- The hazard classification of the location of operation
  - When used in hazardous atmospheres or areas where the potential of a hazardous atmosphere exists, a determination shall be made to identify appropriately classified MEWPs to be used in the area.
  - The type of MEWP being used and why it is appropriate as it relates to the task, worksite restrictions, jobsite conditions, jobsite access, distance from other workers and the public, and any other applicable conditions
- Identification of the risks related to the equipment and task being performed
- Identification of hazards related to public traffic
- Identification of hazards related to ground conditions and compliance with warnings, restrictions, and instructions from the manufacturer
- Identify ground conditions that may cause the MEWP to become unstable or unlevel
  - Sub-surface voids (cellars, basements, culverts, pipes, etc.) shall be considered when determining adequate support for the MEWP in operating configuration
  - If the ground surface or soil is in such condition that the outriggers cannot be supported, a foundation or spreader pads will be used to reduce ground pressure to an acceptable level. Spreader pads shall be capable of spreading the load effectively over the required area.
- Identify hazards related to actual or potential weather conditions affecting the safe operation of the MEWP (wind, rain, lightning, ice, fog, etc.)
  - When working outdoors, MEWPs shall not be operated during thunderstorms. MEWPs can be operated indoors if there is no exposure to lightning strike
  - If wind conditions exceed the maximum allowed by the manufacturer, the MEWP will not be operated
  - When material has the potential to act as a sail (sheet materials, panels, tarps, etc.), the load shall be secured in a manner that prevents loss of load and loss of MEWP stability
  - Identify areas that have potential to shield or funnel wind, even when wind speeds in open areas are low
  - When working in airports or along roadways, consider wind effect of airplanes or passing vehicles
- Identification of other moving equipment in the work area that may conflict with operations
- Hazard control measures for all identified hazards
- Documentation of training employees have received on the Risk Assessment
- Measures to prevent unauthorized use of the MEWP

The Risk Assessment shall be reviewed by a qualified employee before operation and periodically throughout the job to identify any changes to the site, including the task(s) and the working environment, that may affect the original Risk Assessment. As conditions change or additional/new hazards are identified, the Risk Assessment shall be updated to address the changing conditions.

Changes to the risk assessment will be communicated to the operator, occupant(s), and all affected employees in the area prior to work starting and any time the assessment is revised.

### **38.6.3 Rescue**

In the event personnel require rescue or removal from a MEWP due to incapacity or equipment failure, rescue will need to be performed to safely bring the affected workers to the ground. Rescue may take the form of:

- Self-rescue (by person requiring rescue);
- Assisted rescue (by others in the work area); or
- Technical rescue (by emergency services)

Technical rescue and emergency personnel are required in the event of arrested fall, illness, and/or injury.

#### **38.6.3.1 Rescue Plan**

A rescue plan will be developed by a qualified employee.

The rescue plan will follow all requirements for safe use of MEWPs, including working near electrical hazards.

The plan will consider why prompt response is necessary and the reason the platform/employee is stuck at height.

All employees performing rescue operations must be appropriately trained for their duties and will use the ground controls or secondary lowering system when possible.

Employees will maintain all other requirements for use of MEWPs when performing rescue, including energized power line distance (10 feet minimum).

The rescue plan will include:

- Steps to stabilize and secure a MEWP that has tipped beyond the center of gravity before attempting rescue
- Steps to safely remove platform from entanglement, including removing the operator and occupants from the platform
- Actions to take when an employee(s) is suspended from a personal fall arrest system including a time limit for how long a worker can hang suspended in the air when properly restrained
- Actions to take when the machine completely malfunctions
- Steps needed to address a situation that results in the loss of the platform control functions
- Steps to take if the MEWP comes in contact with or maintains contact with power lines

Before operation and periodically throughout the job, the rescue plan will be reviewed. The review will ensure any changes to the job, including the task(s) and the working environment, do not affect the plan. If changes affect the rescue plan, the rescue plan will be revised to accommodate those changes and all changes shall be communicated to all affected employees.

Management will ensure the rescue plan is communicated to the operator, occupant(s), and all affected employees in the area prior to the job starting and any time the plan is revised.

#### **38.6.3.2 Platform to Platform Rescue**

Rescue involving a second MEWP (platform to platform) will be done only with site management authorization and only when all other feasible options have been attempted without success. All operators and occupants of the second MEWP platform will be trained and authorized. All safe use requirements apply to the second MEWP during rescue. If platform to platform rescue is approved by site management, the following measures apply:

- The MEWP being used for rescue will be positioned in a way that does not risk the safety and health of the involved employees

- The rescue platform and the working platform shall be adjacent to each other with minimal gap between them. Controls on both machines shall be switched off during the rescue transfer
- All operators and occupants of the MEWP platform shall utilize personal fall protection systems. The employee rescued will be equipped with personal fall arrest equipment and tied off to the rescue platform before transfer
- The load capacity of the rescue lift will not be exceeded. Any requirements from the manufacturer shall be followed

### **38.6.3.3 Rescuers**

Designated employees will be trained to understand and operate emergency controls for each device used. They shall review the Risk Assessment and the Rescue Plan, so they are familiar with their responsibilities regarding performing rescue tasks.

At least one designated, qualified employee to assist in rescue must be on the ground and available to assist in rescue while MEWP operations are being performed.

### **38.6.4 Jobsite Conditions**

If the operator identifies hazards during inspection or during work activity related, but not limited to ground conditions, they shall notify their supervisor and avoid the area until a qualified person can inspect the area and identify and implement appropriate hazard control measures as approved by the supervisor.

If ground conditions are such that they cause the level indicator to approach the operating limit, the operator shall lower the MEWP, and reposition or reset to ensure a level position.

#### **38.6.4.1 Slopes and Grades**

Operators shall not operate MEWPs on slopes, grades, ramps, or cambers that exceed the rating established by the manufacturer.

When using wheeled MEWP on an incline within the manufacturer's ratings, wheel chocks shall be employed whenever feasible.

#### **38.6.4.2 Stabilizing the MEWP**

The MEWP shall not be leaned or positioned against, tied to, or restrained by any other object(s) for stabilization.

#### **38.6.4.3 Overhead Clearance**

Clearance of any overhead obstructions shall be ensured by the operator.

The operator shall comply with required steps to prevent a collision when operating a MEWP within the area of moving overhead obstructions.

#### **38.6.4.4 Public Traffic**

If the operator identifies hazards during inspection or during work activity related to public traffic, they shall notify their supervisor and avoid the area until a qualified person can inspect the area and identify and implement appropriate hazard control measures as approved by the supervisor.

When loading or unloading the MEWP from a transport vehicle, on a roadway, or in an area where there is moving equipment, traffic control measures compliant with the Manual of Uniform Traffic Control Devices (MUTCD) shall be implemented.

Adequate protection and/or signaling to protect workers from public traffic will be provided by management when traveling between jobsites.

All traffic control will comply with local, state, and federal regulations.

### 38.6.5 Mobile Elevating Work Platform Operation

#### 38.6.5.1 Traveling with the MEWP

Before traveling with the MEWP, the operator shall:

- Visually inspect the area around the platform and the path that will be traveled
- Identify obstructions or ground conditions that may impede travel or lead to instability
- Ensure the area of travel is clear of persons and equipment
- Test all indicators and controls
- Confirm that the boom (if applicable) is properly cradled and the outriggers (if applicable) are in the stowed position
- Comply with the manufacturer's requirements for traveling

During travel the operator shall:

- Not allow themselves to be distracted
- Consider and ensure the safety of all occupants on the work platform
- Comply with the hazard control measures identified in the risk assessment
- Never lean over the platform control panel
- Ensure the control panel on the platform is kept clear of objects at all times
- Position their body so they are not leaning over or on guardrails while the platform is being elevated or traveling near obstructions
- Maintain a continuous clear view of the path of travel as well as the area above and below the platform
- When traveling a Group B MEWP all occupants of the work platform must utilize PFAS
- Position the platform/boom in the lowest safe position for the work area
- Maintain clearance from hazards
- Travel the MEWP at a safe speed. When working on unpaved ground, around other work or equipment, or indoors, speed should not exceed a walking pace.
- Allow for platform movement when traveling over uneven surfaces, slopes, and ramps
- Consider the potential movement of the work platform when controls are released or returned to the neutral position before coming to a complete stop

Operators shall never drive the MEWP in a reckless manner or engage in horseplay or stunt driving.

The operator shall comply with all special precautions required by local ordinance or policy when there are other vehicles and/or moving equipment in the area. When appropriate, flags, roped-off areas, flashing lights, traffic cones and barricades, and other warnings shall be used.

When a MEWP is to be operated in conjunction with a crane or other moving equipment, the user shall ensure the MEWP operation is properly planned and a safe system of work is developed and coordinated with operation of the other moving equipment. The operator shall be instructed in how to deal with any foreseeable emergencies.

#### 38.6.5.2 Material Handling

Unless approved by the manufacturer, no items larger than the platform will be carried by the operator or occupants.

Tools and materials transported, used, or handled on the work platform shall be properly secured and evenly distributed to meet the manufacturer's load capacity rating. Materials shall never be carried outside the work platform unless a carrier is specifically designed for such use and written authorization from the manufacturer is available.

MEWP platforms shall not be used as a hoisting device unless designed for such use.

Materials on the work platform floor shall be distributed in such a manner that they will not be a hazard to occupants and/or operators. Material loads must not prevent the safe positioning of operator and occupant(s) on the platform floor.

### 38.6.5.3 Load Distribution

Operators shall ensure that loads are distributed on the work platform in compliance with rated load requirements and their distribution on the MEWP and any MEWP extension(s) shall be in accordance with the manufacturer's requirements.

### 38.6.5.4 Restricted Platform

Measures to prevent the work platform, or any part of the MEWP from being caught, snagged, or prevented from moving in a normal operating manner shall be implemented.

If the platform or any part of the MEWP does become caught or snagged, and the platform cannot be safely freed using the primary or auxiliary controls, management and operators shall ensure all occupants and operators are removed from the work platform in a safe manner in accordance with the rescue plan.

Only once the occupants are removed can attempts to free the platform using the ground controls be made.

### 38.6.5.5 Entanglement

Operators shall employ measures to prevent rope, electric cables, and hoses, etc., from being entangled in the MEWP or adjacent structure or objects during operation.

### 38.6.5.6 Accessing and Egressing the Platform at Height

MEWPs are not typically designed for access or egress of the work platform at height. Accessing and egressing the work platform when elevated can only be done through a procedure developed by the manufacturer or a qualified person. The procedure must address:

- Fall prevention during transfer to and from the work platform
- How to prevent tools and materials from falling during the transfer
- Prevention of sudden movement of the work platform and/or the MEWP during transfer
- Unintentional movement and potential damage to the MEWP
- Changing or adding additional loads, how they can affect stability, not exceeding the load capacity, and potential movement of the MEWP due to load changing
- Dynamic and impact loads due to employees or objects falling
- Use of personal fall protection equipment including the use of single or double lanyards
- Access and maintenance of required fall protection for persons while they are on the structure
- Restricting access to the area by affected employees
- Use of extending decks and gates
- Horizontal and vertical distances between work platform and outside surface
- Compliance with the local authority having jurisdiction

### 38.6.5.7 Parking the MEWP

When MEWP operations are completed for the day:

- Park the MEWP in a designated secure/supervised area with the engine and/or power turned off. The parking area should be inaccessible to unauthorized users.
- Re-fuel/re-charge the MEWP following manufacturer's recommendations and the precautions listed below in the Fueling and Charging section.
- The platform shall be lowered to the ground level, with brakes engaged. Never leave the platform unattended in the elevated position unless approval by the manufacturer is obtained
- Keys should only be in the possession of authorized operators and kept by them until the work is completed
- When not in use, the keys to operate the MEWP shall be removed and kept with the authorized operator. At the end of the shift the keys should be turned in or secured to prevent unauthorized access to the equipment.

### 38.6.5.8 Ventilation

If operating in an enclosed area, electrically powered equipment is preferred. Management shall ensure adequate ventilation for enclosed areas where internal combustion powered equipment is in use. A qualified person must evaluate atmospheric conditions and identify adequate ventilation measures. Special attention should be paid to carbon monoxide (CO) levels and accumulation of flammable gas vapors. Operators shall verify compliance with their supervisor if work with a MEWP is required in enclosed areas.

### **38.6.5.9 Fueling and Charging**

#### **38.6.5.9.1 Internal Combustion Powered MEWPs**

MEWP engine shall be shut down prior to filling fuel tanks. Where fuel fill ports are near hot equipment such as exhaust manifolds and mufflers, the equipment shall be allowed to cool prior to filling.

Fueling operations shall be performed in well ventilated areas away from hot work operations including those involving open flame, sparks, arc, etc.

#### **38.6.5.9.2 Battery-Powered MEWPs**

Equipment shall be properly parked and disconnected prior to performing charging operations. Charging operations shall be performed in well ventilated designated charging area away from hot work operations including those involving open flame, sparks, arc, etc.

When disconnecting/connecting charging cables the operator must wear safety glasses. When switching out batteries the operator must wear appropriate PPE to protect against exposure to battery acid including appropriate chemical protective gloves.

#### **38.6.5.10 Transporting the MEWP**

The MEWP shall follow the manufacturer's recommendations for MEWP configuration including stabilization devices while being transported.

#### **38.6.5.11 Misuse of MEWPs**

The MEWP shall not be used for any purpose other than that for which it has been designed and manufactured unless management obtains written approval from the manufacturer. Written procedures developed by an engineer can be used for unique situations not addressed by the manufacturer.

Examples of misuse include but are not limited to using the MEWP as a crane, jack, prop, or a tie to support itself.

MEWPs shall never be used in conjunction with another lifting device or equipment to gain added reach. An example would be using a forklift to raise a scissor-lift to gain extra height. Another example might be to bridge two MEWPs with a platform to gain horizontal access.

The extending structure shall NEVER be climbed by any employee.

##### **38.6.5.11.1 Rated Forces**

Rated forces determined by the manufacturer (horizontal, dynamic, and impact loads) shall not be exceeded at any point during use of the MEWP.

Management shall plan for the weight of all material being transferred using the work platform and ensure load capacities are not exceeded. Instructions will be given to the operators by management. Operators shall comply with the instructions and verify that the load capacity is not violated at any point in the work.

##### **38.6.5.11.2 Unauthorized Use of MEWPs**

No person shall operate a MEWP unless authorized by management to do so.

The operator shall not provide an unauthorized person with access to the MEWP.

### 38.6.5.11.3 Unusual Operating Support Conditions

Except for the purpose of loading and unloading, MEWPs shall not be used from a position on trucks, trailers, rail cars, floating vessels, scaffolds, or other similar equipment unless the application and the method are approved in writing by the manufacturer.

### 38.6.6 Inspection

Inspections shall be performed only by authorized employees who are qualified in accordance with the manufacturer to inspect the specific make and model of MEWP.

Management will ensure all of the following inspections will be conducted by employees qualified to inspect the specific make and model of the MEWP being used.

Inspections will be conducted:

- Prior to the first time a MEWP is put into use;
- Before each use daily;
- When out of service for more than three months;
- Annually (No later than 13 months from the previous inspection);
- According to manufacturer established inspection cycle

#### 38.6.6.1 Equipment Inspection

##### 38.6.6.1.1 Acceptance Inspection

Prior to purchasing, leasing, or renting any MEWP from a provider, request documentation that the MEWP meets the manufacturer's specifications in its state at the time of transfer. The MEWP will not be purchased, leased, or rented if this cannot be provided.

##### 38.6.6.1.2 Daily Inspection

Daily pre-use inspections will be performed by the operator, and management will ensure these are completed. The operator's manual should be consulted for specifics but daily pre-use inspections will include (but not be limited to):

- All controls used in normal and emergency operation
- Alarms (audio and visual) and warning lights (beacons)
- Any PPE that is required when operating and working on the platform
- Pneumatic, hydraulic, and fuel systems (test for leaks)
- Electrical systems (cables, wiring harness, etc.)
- Loose, damaged, worn, or missing parts
- Tires, wheels, and wheel fasteners
- Confirmation of presence of operator's manuals
- Control panel labels
- Instruction and warning labels are present, clear, and legible
- Condition and operation of outriggers and stabilizers
- Condition of structural and external components
- Work platform; (guardrails, floor/platform, anchor points, mounting, etc.)
- General housekeeping; (cleanliness, signs of damage, etc.)
- Operation, condition, and performance of brakes
- Fluid levels; (engine coolant, engine oil, hydraulic oil, fuel/battery, etc.)
- Condition and presence of pins and pin-securing devices
- Condition and operation of extending structure and work platform
- Condition and operation of extendable and oscillating axles
- Insulated portion(s) are in manufactured condition
- Any items required by the manufacturer that are not listed

### 38.6.6.1.3 Limiting and Indicating Devices

Limiting and indicating devices required by the manufacturer will not be altered or disabled.

### 38.6.6.1.4 Frequent Inspections

Frequent inspections (Prior to first use, when the MEWP is out of service for more than three months, and if environmental conditions require the MEWP to be out of service) must be done according to manufacturer requirements and recommendations. Refer to the operator's manual for guidance. A frequent inspection includes (but is not limited to) the following items:

- Any items included in the manufacturer's requirements for frequent inspections
- Any bulletins and informational updates provided by the manufacturer are present.
- All control functions for emergency, speed, motion of the MEWP, and all auxiliary and ground level controls are working properly
- Chain and cable mechanisms are in acceptable condition and do not need adjustment
- Guards are in place, functioning, and in good condition
- Check all moving parts for need of lubrication
- Filter elements are in good condition
- Hydraulic oil, engine oils, and coolant are at acceptable levels
- Structural components: Fasteners, pins, shafts, turntable attachment and locking
- Signage (warnings, control panel labels, instructions) is in place and legible
- Hydraulic/Pneumatic systems; (proper fluid and pressure levels, proper operation, signs of leakage or damage)
- Electrical systems; (proper operation, no deterioration, corrosion, and dirt/moisture accumulation)
- Tires; (ensure damage-free and proper inflation)
- Wheel fasteners are tight
- Lights illuminate show no sign of dimming
- Batteries; (adequate fluid level and connections are secure and in good condition)
- Drive systems; (brakes, steering, and speed) are working properly)
- Alarms (audio and visual) are working properly
- Communication systems between the platform and the ground are working properly

### 38.6.6.1.5 Annual Inspection

Annual inspections must be performed according to manufacturer requirements and recommendations. Refer to the operator's manual for guidance. An annual inspection includes (but is not limited to) the following items:

- ALL items from the frequent inspections
- Items specifically required by the manufacturer for annual inspection
- Verification that the MEWP is registered with the manufacturer
- Manufacturer's bulletins are present, and any open safety-related bulletins are addressed

Annual inspections will be documented including the date of the last annual inspection, the necessary items to be reviewed during the inspection, and a statement that requires another annual inspection within the next thirteen (13) months.

The MEWP will not be put back into service until all identified deficiencies have been corrected.

### 38.6.6.2 Worksite Inspection

Before use, and during operation, the operator shall conduct an inspection of the area where the MEWP will be used. Management shall ensure completion of the inspection and shall evaluate hazards, including:

- Holes, which may be hidden by water, ice, mud, etc.
- Slopes or drop-offs
- Surface obstructions (cords, cables, uneven surfaces, bumps, etc.)
- Debris



- Overhead obstructions
- Electrical hazards
- Potentially hazardous atmospheres or locations
- Underground structures, that may not have the ability to support the weight of the MEWP, personnel, material, and tool
- Weather conditions (lightning, wind, rain, snow, etc.)
- Affected personnel in the area
- Mobile equipment in the area
- Traffic

### 38.6.6.3 Operator Reporting

When a deficiency and/or malfunction is identified during operation, the operator shall cease operation immediately and report it to management. The equipment shall be taken out of service until it can be inspected, evaluated, and repaired by a qualified person.

Before the MEWP is restored to service management will consult with a qualified person and ensure all deficiencies and/or malfunctions are repaired.

The operator shall report any hazardous atmospheres and/or locations to management and stop operation immediately.

### 38.6.7 Maintenance

Management shall ensure that anyone performing maintenance on a MEWP is trained by a qualified person to understand the inspection and maintenance requirements of ANSI A92.22 and the manufacturer.

Management shall ensure that MEWP maintenance is done in a timely manner. All identified deficiencies that affect the safe use and operation of the MEWP will be corrected by a qualified person. Before restoring the unit to service management will certify that the corrections are adequate for safe use.

A preventative maintenance program shall be developed in accordance with the manufacturer's requirements and safety-bulletins. The program will consider the workplace environment and the severity and frequency of the MEWP use. It is the responsibility of management to ensure the scheduled maintenance is being performed.

Before maintenance, including adjustments and repairs, are performed on MEWPs, the qualified person will:

- Read and follow the manufacturer's instructions and precautions
- Ensure the power plant is stopped, and means of starting rendered inoperative
- LOTO procedures are established and followed to ensure all sources of energy are neutralized and controlled from unintended activation
- All operating systems and controls are in the "OFF" or neutral position and secured from undesired operation. Keys should be retained by the person performing the service and/or maintenance.
- The working platform is lowered to the lowest possible position
- If lowering the platform to the lowest position is determined to be infeasible, it shall be secured and supported to prevent drop or undesired movement
- Before hydraulic system components are loosened or removed, hydraulic pressure will be released from the system
- Manufacturer's requirements for safety props, latches, and other securing devices will be followed

If any of the above precautions cannot be followed, refer to the manufacturer's maintenance/repair instructions for guidance or contact manufacturer.

If any component of the MEWP needs to be replaced, the replacement component will be identical/equivalent to the original part, and whenever possible direct replacement parts from the equipment manufacturer should be used.

Modifications or additions to the MEWP must be authorized by management and only implemented after obtaining written permission from the manufacturer. If the manufacturer no longer exists, an engineer with expertise in MEWPs shall be consulted and their direction will be followed. Written permission shall be maintained and shall be provided to subsequent owners (if applicable). Management shall communicate to supervisors and operators that authorization of a modification or addition must come from management.

#### **38.6.7.1 Manuals**

Manuals of operation provided by the manufacturer shall be immediately available to the operator and stored in a weather-proof compartment on the MEWP. Management shall ensure manuals of operation are provided by the owner, dealer, or broker and maintained in the compartment. Operators shall ensure the manuals are stored and available in the designated compartment at all times.

Management shall ensure the operator's manual is either read by or explained to the operator of the MEWP.

Manufacturers, dealers, owners, and brokers shall keep and maintain a copy of the service and parts manuals provided with the MEWP, or subsequently provided applicable revisions of the manuals. Management will ensure machine manuals, including revisions, are provided by the owner, dealer, or broker, and maintained in the compartment.

#### **38.6.7.2 Safety Bulletins**

The owner of the MEWP shall ensure the MEWP is registered with the manufacturer to receive safety-related bulletins. All employees shall comply with information included in the bulletins.

#### **38.6.8 Recordkeeping**

The following records will be retained for a minimum of four years:

- **Pre-delivery inspections, service, and repairs** - The owner or dealer shall ensure written records including all service and repairs made on the MEWP to include dates of work, corrective actions accomplished and identification of the entity of person(s) performing the service and/or repairs
- **Training and familiarization** - Manufacturers, dealers, and user records shall include the name of the person(s) trained/familiarized, name of person(s) providing training/familiarization, date of training/familiarization, and the MEWP classification (training) or model (familiarization)
- **Inspections, frequent and annual** - The owner or entity designated by the owner shall ensure written records including inspections performed, the date of inspection, any deficiencies found, corrective actions accomplished, and identification of the person(s) performing the inspections and repairs.
- **Transfer of ownership** - The manufacturer, dealer, owner, and broker records shall ensure written records including the name and address of the purchaser of each MEWP, both new and used, by serial number and date of delivery

### **38.7 Training**

Academic and practical training as specified in this program shall be conducted by a qualified person. The qualified person shall be experienced in the details, operations, and use of the particular MEWP being used for training, and knowledgeable on the laws, regulations, safe use practices, manufacturer's requirements, and recognition of and avoidance of hazards associated with MEWPs.

A best practice is to have training provided by a recognized outside certification agency in cooperation with a qualified person familiar with the specific equipment being used. Certification training should be performed periodically in recommended intervals not to exceed three (3) years. This recommendation is based on OSHA's training interval requirement for powered industrial trucks operation. While training by a certification agency is not specifically required, having an outside agency perform the training increases

the likelihood that the training is complete, covers all objectives, and the most current information is delivered.

Only employees who have been familiarized with the MEWP to be operated, trained on the inspection, application, and operation, and authorized by management will operate the MEWP.

### 38.7.1 Academic Training

Training shall be conducted in an area that is free of hazards and distractions. The area selected should allow all employees involved to provide, receive, and comprehend the necessary information in a productive manner. This includes proper lighting (visibility of the presentation/materials) and acoustics, adequate accommodation of the number of trainees, adequate temperature, adequate equipment, and rest rooms.

Operator training shall include academic (classroom) training and practical (in-field/hands-on) training.

Academic training shall be provided by a qualified trainer and provide the trainee with knowledge on:

- Requirements to become an authorized operator
- MEWP classifications and the appropriate selection (available options)
- Use and purpose of signage such as placards, decals, safety rules
- Operations manuals
  - Use, purpose, and understanding on why the manuals are an essential part of the MEWP
  - Proper storage inside weather-resistant compartment when not in use
- Importance of verifying completion of annual inspection (on placard if applicable)
- Understanding the importance of pre-start inspections and how to properly perform them to completion
- Responsibilities associated with problems or malfunctions affecting the operation of the MEWP
- Understanding the factors that contribute to stability being altered from normal conditions
- Identifying and understanding potential undesired outcomes, and avoiding hazards during operation
- Being able to identify unacceptable operating weather conditions (lighting, wind, lightning, etc.)
  - The platform, ground, and emergency descent controls including purpose and function
- General knowledge of various MEWPs and features and devices specified by the MEWP manufacturer to include physical characteristics and other machine options
- Applicable regulations, standards, and safety rules related to MEWPs
- PPE required:
  - When performing specific tasks
  - Specific to the worksite
  - By the manufacturer
- Safe practices and procedures while traveling the MEWP
- Potential hazards and issues when transporting the MEWP
- Requirement for the familiarization process in addition to training
- Unauthorized use must be prevented by securing the MEWP
- Identifying hazardous atmospheres
- Warnings and instructions
- Hazards employees are exposed to when working with high pressure systems
- Information operators need to communicate to occupants
- Any additional information required by the MEWP manufacturer

Management has the final ruling in the authorization process. Training alone does not authorize an operator.

### 38.7.2 Practical Training

Prior to conducting the practical training, a risk assessment will be conducted for the area where the training will take place. Hazards will be identified and eliminated or mitigated to ensure safe use of the MEWP.

Practical training shall be conducted in an area that is free of traffic (equipment and pedestrian) and warning devices such as flags, isolated areas, barricades, and flashing lights shall be used when necessary.

Under the guidance, supervision, and evaluation of the qualified trainer, the trainee will demonstrate the classroom skills learned in the operation of the MEWP.

The in-field hands-on training will include:

- A walk around of the MEWP
- Identification and function of the major components
- A pre-start inspection including documentation
- Plan the path in which the MEWP will be traveled
- Setting the MEWP for work (if applicable)
- Operation and function of all controls – completing course tasks
- Parking and securing the MEWP

### **38.7.3 Familiarization Training**

Operators must be familiarized on:

- Where the manuals are stored
- Ensuring the manuals required by the manufacturer are maintained with the MEWP
- Model specific information
  - Purpose and function of the controls
  - Operating characteristics
- Features, limitations, and devices
- Other items specified by the manufacturer

An operator can familiarize themselves on these items if authorized to do so by management. Self-familiarization can be achieved if the operator reads, understands, and follows the manufacturer's manual of operation.

After familiarization, management shall ensure the operator achieves proficiency by observing the operator operate the MEWP. A performance objective inspection form can be used to ensure all significant operations are performed and evaluated.

### **38.7.4 Occupants**

Occupants of MEWPs are not authorized to operate the MEWP except in emergency. At time of use the operator shall provide the occupant(s) with familiarization training on the following topics:

- Emergency shutdown and lowering procedures (lowering the platform to the ground position). This does not authorize the occupants as operators and is for emergency use ONLY
- If fall protection is required; requirements for fall protection including personal fall arrest systems (PFAS) when applicable
- How the occupant(s) can affect the stability of the MEWP
- Any MEWP accessories that are in use, and how to use them safely
- Work-specific procedures related to MEWP work
- Any hazards related to the operation and the appropriate hazard control measures identified to eliminate or reduce the risk of exposure to those hazards
- Warnings and instructions provided by the manufacturer

### **38.7.5 Supervisor Training**

Supervisors who have direct reports that operate MEWPs shall receive training on:

- MEWP classifications and selecting the right MEWP for the job
- ANSI A92.22 training, the familiarization process, and any other rules, regulations, and standards that apply to MEWPs
- Potential hazards and strategies to mitigate hazards related to MEWP operation

- Operations manuals:
  - Use, purpose, and understanding of why the manuals are an essential part of the MEWP
  - Proper storage inside weather-resistant compartment when not in use

### 38.7.6 Re-Training

Management shall designate a qualified person to supervise and evaluate operators on a regular basis.

Retraining shall be provided whenever there is a change in the employee's job assignments, a change in machines, equipment, or processes that present a new hazard, or when there is a change in the procedures. Additional retraining shall also be conducted whenever management has reason to believe that the employee's practice, knowledge, or understanding of safe MEWP operation is deficient. The retraining shall be designed to reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

Retraining shall be conducted when:

- The operator goes an extended period of time without operating the MEWP
- The operator is introduced to new/significantly different MEWP technology
- The operator is involved in a near miss/accident
- The operator's training certification expires (best practice, at intervals not to exceed three (3) years)

### 38.7.7 Training Records

After completion of the academic and practical training (initial as well as re-training), the qualified trainer will provide documentation that certifies the training meets ANSI A92.24 requirements. The documentation shall be maintained for at least the period of time the training is valid and shall identify:

- Name of employee who completed training
- The classification of the MEWP the training addressed
- The make and model of MEWP utilized
- Training completion date
- Name of the entity providing training
- Name of qualified person who provided the training
- Expiration date of training (if applicable)

Familiarization records shall be kept for at least four (4) years including:

- Name of employee who received familiarization
- Make and model of the MEWP to which the employee was familiarized
- Name of qualified person who provided the familiarization training

Documentation of regularly occurring operator evaluations shall be maintained by management.

## 38.8 Reference

- ANSI/SAIA A92.22 – 2018
- ANSI/SAIA A92.24 - 2018
- OSHA Standard 1910.178(l)(4)(iii) (last amended November 18, 2016)

## 38.9 Appendix

- Types of Mobile Elevating Work Platforms
- Daily Mobile Elevating Work Platform Inspection - Fuel Powered
- Daily Mobile Elevating Work Platform Inspection - Battery Powered
- MEWP Operator Performance Evaluation
- Mobile Elevating Work Platform (MEWP) Risk Assessment
- Mobile Elevating Work Platform (MEWP) Rescue Plan
- Qualified Employees to Assist in Rescue
- MEWP Trained and Authorized Employee List

## TYPES OF MOBILE ELEVATING WORK PLATFORMS

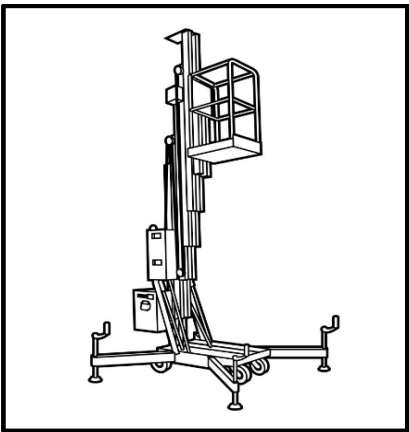
Mobile Elevating Work Platforms (MEWPs) are categorized into two groups.

**Group A:** MEWPs on which the vertical projection of the work platform always remains within the tipping lines of the equipment.

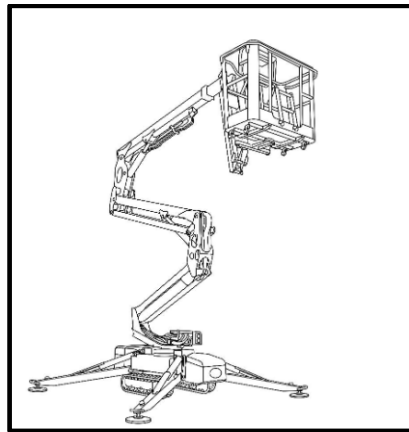
**Group B:** MEWPs not in Group A.

### Type 1

Mobile Elevating Work Platforms for which travelling is allowed only when in the stowed position



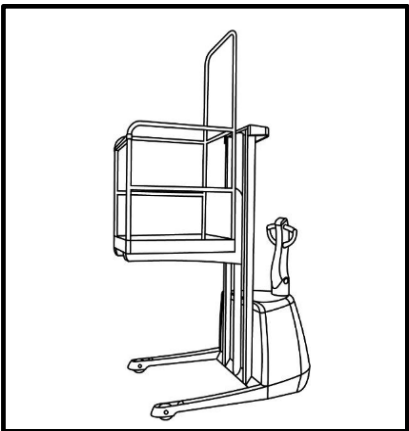
Push-around Vertical Mast Manlift  
(Group A)



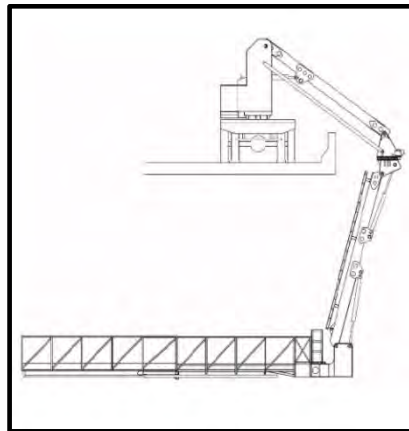
Articulating and Telescoping Atrium Manlift  
(Group B)

### Type 2

Mobile Elevating Work Platforms for which travelling with the work platform in the elevated position is controlled from a point on the chassis



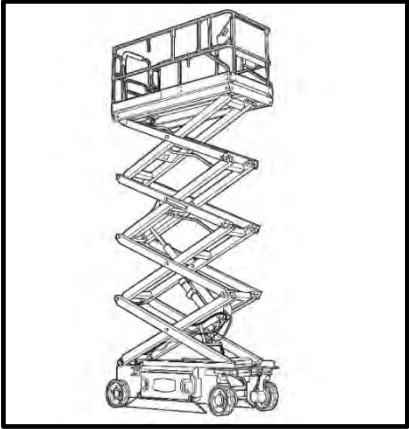
Personnel/Stocker Lift (Group A)



Truck-mounted Bridge Inspection Platform  
(Group B)

**Type 3**

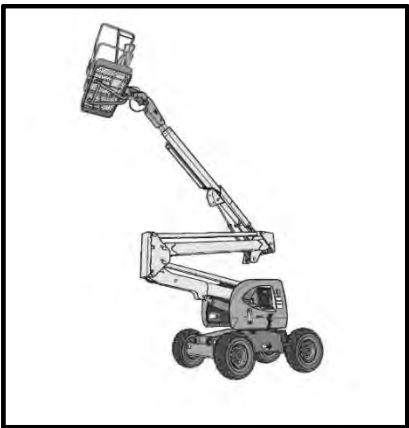
Mobile Elevating Work Platforms for which travelling with the work platform in the elevated position is controlled from a point on the work platform



**Electric Scissor Lift (Group A)**



**Telescoping and Articulating Boom Lift (Group B)**



**Articulating Boom Lift (Group B)**



**Vertical Mast Manlift (Group B)**

## DAILY MOBILE ELEVATING WORK PLATFORM (MEWP) INSPECTION FUEL POWERED

<div style="background-color: yellow; padding: 5px; display: inline-block;"><b>INSERT CLIENT LOGO</b></div>	Week of / (Semana de): <hr/> Department: <hr/> Shift: <hr/>
MEWP:	Drive Hour Meter:
Model / Serial #:	Hoist Hour Meter:

Note any deficiencies with an 'X'

Report any operational deficiencies to your supervisor for corrective action.

Inspection Items	Su	M	T	W	Th	F	Sa
<b>Visual Checks</b>							
Leaks							
Tires – Condition and Pressure							
Railing Condition							
Entrance Gate – Attached							
Hydraulic Hoses							
Welds and Pivot Pins, Retainers							
Propane Tank (LP-Gas Truck Only)							
Safety Warnings – Attached							
<b>Fluid Levels</b>							
Battery – Water/Electrolyte Level							
Hydraulic Tank Fluid Level							
Brake Fluid Level							
Transmission Fluid Level							
Engine Oil Level							
Coolant Level							
<b>Condition – Engine Compartment</b>							
Drive Belts							
Air Cleaner							
Fuel Sedimenter (Diesel Only)							
<b>Condition - Platform</b>							
Operator's Manual in Container							
Capacity Plate Attached and Legible							
Gate Latch – Adjusted & Latched							
Safety Switch (Deadman)							
Personal Fall Arrest System							



Inspection Items	Su	M	T	W	Th	F	Sa
<b>Gauges and Warning Lights</b>							
Battery Gauge or Warning Light							
Ammeter or Warning Light							
Strobe Light							
5 Degree Slope Sensor							
Oil Pressure Gauge							
Temperature Gauge or Warning Light							
<b>Controls</b>							
Service Brake – Functioning Smoothly							
Steering Operation – Functioning Smoothly							
Drive Control – Forward and Reverse							
Lift and Lowering Control							
Platform Emergency Controls							
Horn, Backup Alarm, & Lights							
Outriggers or Stabilizers*							
Extension and Retraction Control*							
Turret Rotation Control*							
Platform Tilt Control – Forward & Back*							
Platform Rotation Control*							
<b>Record of Fluids Added</b>							
<input type="checkbox"/> Engine Oil: _____ <input type="checkbox"/> Hydraulic Oil: _____ <input type="checkbox"/> Coolant: _____ <input type="checkbox"/> Brake Fluid: _____							

\*if applicable

<b>Comments:</b>

**Operator:** \_\_\_\_\_ (Name) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)

**Supervisor:** \_\_\_\_\_ (Name) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)

## DAILY MOBILE ELEVATING WORK PLATFORM (MEWP) INSPECTION BATTERY POWERED

<div style="background-color: yellow; padding: 5px; display: inline-block;"> <b>INSERT CLIENT LOGO</b> </div>	Week of / (Semana de): Department: Shift:
MEWP:	Drive Hour Meter:
Model / Serial #:	Hoist Hour Meter:

Note any deficiencies with an 'X'

Report any operational deficiencies to your supervisor for corrective action.

Inspection Items	Su	M	T	W	Th	F	Sa
<b>Visual Checks</b>							
Leaks							
Tires – Condition and Pressure							
Railing Condition							
Entrance Gate – Attached							
Hydraulic Hoses							
Welds and Pivot Pins, Retainers							
Safety Warnings – Attached							
<b>Fluid Levels</b>							
Battery – Water/Electrolyte Level							
Hydraulic Tank Fluid Level							
Brake Fluid Level							
<b>Condition – Platform</b>							
Operator's Manual in Container							
Capacity Plate Attached and Legible							
Gate Latch – Adjusted & Latched							
Safety Switch (Deadman)							
Personal Fall Arrest System							
<b>Gauges and Warning Lights</b>							
Hour Meter							
Battery Gauge							
Strobe Light							
5 Degree Slope Sensor							

Inspection Items	Su	M	T	W	Th	F	Sa
<b>Controls</b>							
Accelerator Linkage – Functioning Smoothly							
Service Brake – Functioning Smoothly							
Steering Operation – Functioning Smoothly							
Drive Control – Forward and Reverse							
Lift and Lowering Control							
Platform Emergency Controls							
Horn & Lights							
Outriggers or Stabilizers*							
Extension and Retraction Control*							
Turret Rotation Control*							
Platform Tilt Control – Forward & Back*							
Platform Rotation Control*							

**Record of Fluids Added**

☐ Hydraulic Oil: \_\_\_\_\_
 ☐ Brake Fluid: \_\_\_\_\_
 ☐ Water to Battery: \_\_\_\_\_

**\*if applicable**

**Comments:**

**Operator:** \_\_\_\_\_ (Name) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)

**Supervisor:** \_\_\_\_\_ (Name) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)

## MEWP OPERATOR PERFORMANCE EVALUATION

EMPLOYEE: \_\_\_\_\_ DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_ TIME: \_\_\_\_:\_\_\_\_ AM/PM

TRUCK: ☐ Vertical ☐ Boom ☐ Electric ☐ I.C.E.

EVALUATION TYPE: ☐ Initial ☐ 3-year Recertification ☐ Refresher  
(post-accident/near miss)

	PASS / FAIL	
Performs daily inspection	<input type="checkbox"/>	<input type="checkbox"/>
Performs worksite inspection	<input type="checkbox"/>	<input type="checkbox"/>
Function test of lower control station	<input type="checkbox"/>	<input type="checkbox"/>
Uses operator restraint system	<input type="checkbox"/>	<input type="checkbox"/>
Platform Entry – Maintains three (3) points of contact	<input type="checkbox"/>	<input type="checkbox"/>
Function test of upper control station	<input type="checkbox"/>	<input type="checkbox"/>
Check emergency controls operation	<input type="checkbox"/>	<input type="checkbox"/>
Forward and reverse operation – smooth starts and stops	<input type="checkbox"/>	<input type="checkbox"/>
Turn vehicle 360 degrees left and right, steers smoothly	<input type="checkbox"/>	<input type="checkbox"/>
Extend and retract boom (smooth operation)	<input type="checkbox"/>	<input type="checkbox"/>
Rotate 360 degrees left and right, (smooth operation)	<input type="checkbox"/>	<input type="checkbox"/>
Tilt platform in all directions, (smooth operation)	<input type="checkbox"/>	<input type="checkbox"/>
Turn off machine using emergency stop function	<input type="checkbox"/>	<input type="checkbox"/>
Park and shut down aerial lift	<input type="checkbox"/>	<input type="checkbox"/>
Dismount safely – Maintains three (3) points of contact	<input type="checkbox"/>	<input type="checkbox"/>
Deploy/setup and store outriggers (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
Obeys plant safety rules	<input type="checkbox"/>	<input type="checkbox"/>
Stows and secures platform properly	<input type="checkbox"/>	<input type="checkbox"/>
Demonstrates proper refueling/recharging procedures	<input type="checkbox"/>	<input type="checkbox"/>

**Comments:**

**Total Rating:** \_\_\_\_\_

**Evaluator:** \_\_\_\_\_

## MOBILE ELEVATING WORK PLATFORM (MEWP) RISK ASSESSMENT

Task Specific Information
<b>Task Description:</b> _____ _____ _____
<b>Location:</b> _____
<b>Effective Dates:</b> _____ to _____
<b>Risk Assessment Performed By:</b> _____ <b>Date:</b> _____ <div style="display: flex; justify-content: space-around; font-size: small;"> <span>(name)</span> <span>(signature)</span> </div>

MEWP Job Hazard Analysis		
Condition	Hazards	Safe Work Measures / Procedures
Terrain:		
Obstructions:		
Public Traffic: (vehicle, pedestrian, other workers)		
Weather:		
Working at Height:		
Unauthorized Use of Lift:		
Need for Rescue: (Site/Task-specific Rescue Plan Required)		

MEWP Specific Information	
<input type="checkbox"/> <b>Group A:</b> MEWPs where the work platform always remains within the tipping lines of the equipment such as a scissors lift.	<input type="checkbox"/> <b>Type 1:</b> MEWPs that can only be travelled in the stowed position.
<input type="checkbox"/> <b>Group B:</b> MEWPs not in Group A such as a telescoping boom lift.	<input type="checkbox"/> <b>Type 2:</b> MEWPs where travelling is controlled only at the chassis.
	<input type="checkbox"/> <b>Type 3:</b> MEWPs where travelling is controlled from the work platform.
<b>Model:</b>	<b>Serial #:</b>

MEWP Selection Justification	
Task:	
Worksite Restrictions:	
Jobsite Conditions: (Ex: Terrain, clearances)	
Jobsite Access: (Ex: Restricted entrance to work area):	
Pedestrian / Worker Distance:	
Other applicable conditions:	

## MOBILE ELEVATING WORK PLATFORM (MEWP) RESCUE PLAN

Task Specific Information
Task Description: _____ _____ _____
Location: _____
Effective Dates: _____ to _____
Emergency Rescue Services Contact: _____ Phone: (    ) _____ - _____
Rescue Plan Developed By: _____ Date: _____ <div style="display: flex; justify-content: space-between; font-size: small;"> <span>(name)</span> <span>(signature)</span> </div>

MEWP Specific Information	
<input type="checkbox"/> <b>Group A:</b> MEWPs where the work platform always remains within the tipping lines of the equipment such as a scissors lift.  <input type="checkbox"/> <b>Group B:</b> MEWPs not in Group A such as a telescoping boom lift.	<input type="checkbox"/> <b>Type 1:</b> MEWPs that can only be travelled in the stowed position.  <input type="checkbox"/> <b>Type 2:</b> MEWPs where travelling is controlled only at the chassis.  <input type="checkbox"/> <b>Type 3:</b> MEWPs where travelling is controlled from the work platform.
<b>Model:</b> _____ <b>Serial #:</b> _____	

\*Prior to beginning rescue operations all scenarios should address:

- 1) Securing the scene by preventing unauthorized access
- 2) Identifying the cause of the unsafe condition and neutralizing any hazardous conditions (power line contact, unstable ground/equipment, etc.)
- 3) Call for expert assistance if necessary (required if illness/injury occurs)

Rescue Scenario	Rescue Steps
Operator loses normal operating upper platform control functions in the elevated position	
Operator loses function of the platform normal operating controls and auxiliary controls in the elevated position	
Operator becomes incapacitated while in the elevated position	

The normal operating ground controls have failed	
All normal and auxiliary controls have failed	
MEWP contacts power lines	
MEWP has tipped beyond center of gravity	
Platform is entangled or otherwise obstructed	
Employee is suspended from a Personal Fall Arrest System	



### EMPLOYEES QUALIFIED TO ASSIST IN RESCUE

\*List the names of qualified ground person(s) on site, trained and authorized to lower the work platform in the event of an emergency or a machine malfunction.

[illegible]

MEWP TRAINED AND AUTHORIZED EMPLOYEE LIST

Name	Operator	Occupant	Training Current (Confirmed) YES / NO
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

## Chapter 39 Construction Crane Program

### 39.1 Purpose, Scope, and Policy

#### 39.1.1 Purpose

Cranes are a vital part of many of the construction operations undertaken by COMPANYNAME. The safety of the operator and the ground crew are of utmost importance. To ensure that cranes handle their loads properly, safely, and with the greatest efficiency, the following procedures will be followed.

#### 39.1.2 Scope

This program applies to power-operated equipment used in construction that can hoist, lower, and horizontally move a suspended load as well as the attachments and rigging used with this equipment.

#### 39.1.3 Policy

Proper preplanning of the lifting activity is critical to ensure adequate crane selection and placement on the project site. Therefore, the procedures found in this section must be taken into consideration well before mobilization.

### 39.2 Roles & Responsibilities

#### 39.2.1 Management Responsibilities

It is the responsibility of management to ensure that all crane operators and riggers are trained, evaluated, licensed, and certified on the type of crane to be operated.

#### 39.2.2 Supervisor Responsibilities

Supervisors must direct activities to result in proper methods to control hazards and monitor employee performance for safe work practices.

#### 39.2.3 Employee Responsibilities

Employees are responsible for following safety guidelines and performing work in a safe manner.

#### 39.2.4 Controlling Entity Responsibilities

The controlling entity is defined as the prime contractor, general contractor, construction manager, or other legal entity with overall responsibility for the planning, quality, and completion of the project.

The controlling entity must:

- Ensure that ground conditions are adequate for safe crane operations.
- Inform both the user and the operator of any known hazards beneath the set-up area including but not limited to unstable ground, tanks, utilities, voids, etc.
- Institute a system to coordinate operations when any part of a crane is within the working radius of another crane.

In the event there is no controlling entity, the responsibility to ensure safe ground condition rests on the employer who has the authority to make or arrange for ground preparations.

#### 39.2.5 Company Operating the Crane Responsibilities

Determine if ground conditions are thought to be adequate to the best of their ability with the information provided by the controlling entity.

Discuss any issues regarding ground conditions with the controlling entity and have such issues corrected prior to beginning operations.

### 39.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.<sup>xxi</sup>

### 39.4 Hazards

- Inadequate supporting surface
- Electrical Exposure/Electrocution
- Crush/Caught-in
- Struck-by
- Equipment failure
- Deficient and improper use of slings
- Environment
- Critical lifts
- Crane suspended platforms
- Multiple crane lifts
- Crane accident or serious event

### 39.5 Hazard Control Measures

#### 39.5.1 Ground Conditions

A critical factor related to proper crane setup is a “firm supporting surface”. For maximum capacity, the crane must be level. However, to maintain a level condition, the ground surface must be adequate to support the dynamic load of a “working crane”. Prior to assembling any crane, it must be determined that ground conditions are adequate.

Cranes may not be assembled or used unless ground conditions are drained, firm, and graded to the extent where manufactures specifications are met regarding adequate support and degree of level.

Inspect the ground for the following:

- Unstable or uncompacted working surface
- Underground hazards such as underground utilities or tunnels under the surface
- Saturated ground conditions due to proximity to waterways, beaches, floodplains, and landfills
- Nearby open excavations or slopes

Ensure the crane is set up away from the edges of excavations and slopes as pressure from the crane may cause the sides of the excavation or sloped area to collapse.

Consider the use of ground penetrating radar to identify soft spots or voids beneath the surface such as underground utilities, abandoned underground structures, underground cavities, sinkholes, water tables, or other factors that may contribute to an unstable ground surface.

#### 39.5.2 Crane Assembly/Disassembly

When assembling or disassembling a crane, the company performing such operations shall comply with either:

- the manufacturer’s procedure, or
- the employer’s procedure if such procedure has been developed by a person qualified in crane assembly and disassembly. If using a company procedure, it must, at a minimum:
  - prevent unintended dangerous movement or collapse of the equipment
  - provide for adequate stability and support of all equipment
  - minimize employee exposure to unintended movement or collapse of equipment

##### 39.5.2.1 The Assembly/Disassembly Director

The Assembly/Disassembly (A/D) Director must direct all operations regarding both the assembly and disassembly of cranes. This individual must meet the specifications of **both a qualified and a competent person** or by a competent person who is assisted by one or more qualified persons.

The A/D director shall:

- ensure site conditions will support the equipment

- determine the correct matting, blocking, and cribbing for stability and ensure its use
- determine safe use of assist cranes when used
- determine safe attachment of rigging to booms and jibs
- determine the center of gravity for load handling to maintain stability of the crane
- ensure boom sections are properly rigged or supported prior to the removal of the pins
- prevent unintended movement from counterweights that are being hoisted or are not properly supported
- determine if environmental conditions including wind speed are a hazard

### **39.5.2.2 The Crew**

Prior to the start of operations, the A/D Director must ensure each member of the crew:

- understands their task
- knows the hazards of their particular task
- recognizes hazardous areas and positions and knows how to avoid them
- understands that in the event they must perform work outside of the operator's view, the operator must be informed of the situation. At such time the operator shall not move any part of the crane until the employee has returned to a safe location.

### **39.5.2.3 The Rigger**

Only employees who meet the definition of qualified riggers may be used to perform rigging applications during the assembly or disassembly operation.

### **39.5.3 Power Line Safety**

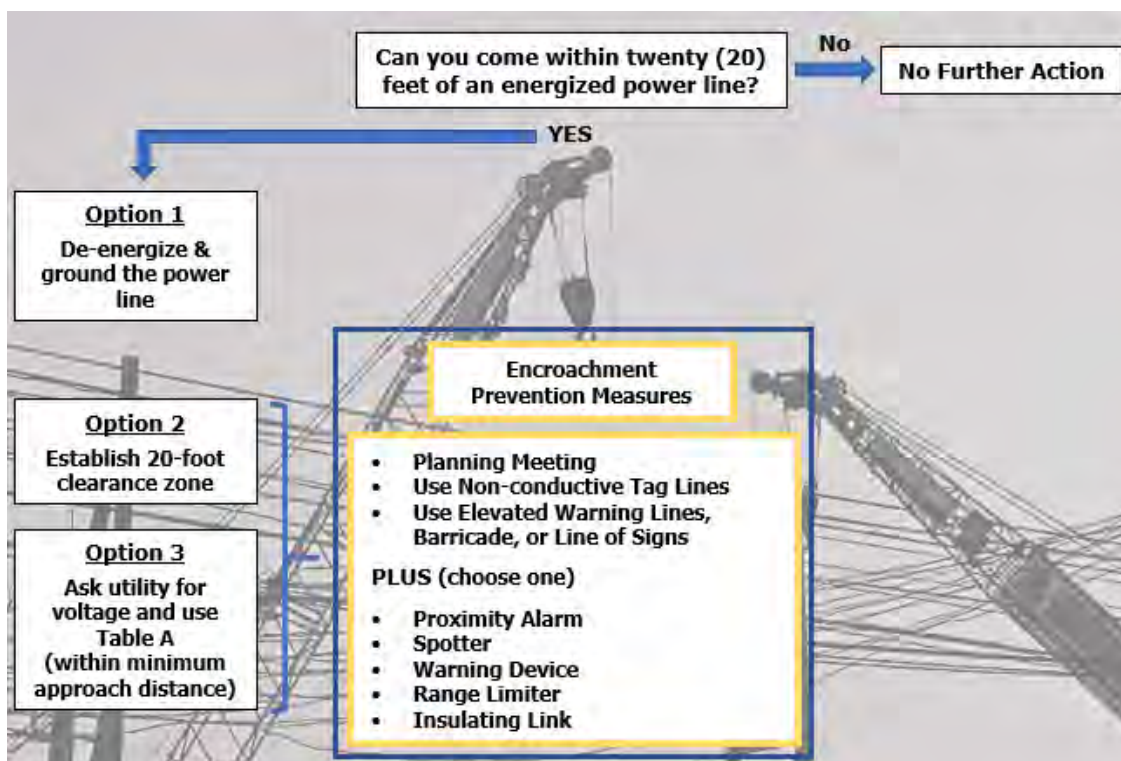
Each operator and crew member assigned to work with cranes near powerlines must be trained on the following:

- Powerlines are presumed to be energized
- Powerlines are presumed to be uninsulated
- The limitations of protective devices if used
- Proper grounding procedure/limitations
- Procedures to follow in the event of electrical contact
- Dedicated spotters must be trained

#### **39.5.3.1 Safe Work Zone**

Due to the nature of crane operations, minimum approach distances for cranes are different than for other equipment. The following minimum approach distances must be maintained for all crane operations:

- The minimum approach distance for all cranes, crane loads, or load lines to power lines that are less than 350,000 volts is twenty (20) feet.
- For power lines that are 350,000 volts or greater the minimum approach distance is fifty (50) feet.
- Determining a safe work zone can be accomplished in one of the following two ways:
  - Ensure that no part of the crane, load, or load line can get closer than twenty (20) feet to a power line even at its maximum working radius.
  - Establish a required work zone by identifying boundaries using such items as elevated flags, range limit devices, or range control warning devices to warn operators of the minimum twenty (20) foot boundary and that operations beyond this point are prohibited.



### 39.5.3.1.1 20-Foot Clearance Alternatives

Voltage (kV)	Minimum Clearance Distance (feet)
Up to 50	10
50 to 200	15
200 to 350	20
350 to 500	25
500 to 750	35
750 to 1000	45
Over 1000	As established by the line owner

(Table A): In the event that the power lines voltage has been identified and confirmed by the power line's owner,

Table A may be used to determine the minimum clearance distance.

### 39.5.3.2 Alternate Minimum Approach Distance Boundaries

If it is determined that any part of the crane, load, or load line will come closer than the minimum approach distance, the line must be de-energized and grounded, or the following measures must be taken to use the alternate minimum approach distances listed in Table A from 29 CFR 1926.1408:

- Conduct meeting with crew and operator regarding location of the power line
- Use non-conductive tag lines
- Erect and maintain elevated warning lines, barricades, or flags that can be seen by the crane operator. If they cannot be seen by the operator a dedicated spotter must be used to warn the operator when approaching the warning line.

In addition, one of the following must also be used:

- A dedicated spotter (see requirements below)
- A proximity alarm
- A device that will tell the operator to stop movement such as a range warning device
- A range of movement device
- An insulating link that must be installed between the end of the load line and the load

If using a dedicated spotter, the spotter:

- must be equipped with a visual aid to assist in identifying the minimum clearance distance such as a flag line or a line painted on the ground
- must be positioned to be able to judge approach distance
- if required, have equipment that will allow direct communication to the operator
- must be able to provide sufficient warning to maintain clearance distances
- must have been properly trained

If the crane operations will need to breach the Alternate Minimum Approach Distances listed on Table A from 29 CFR 1926.1408 then the line must be de-energized and grounded.

### **39.5.4 Crane Inspection**

#### **39.5.4.1 Annual Inspection**

All cranes shall have a valid annual inspection certificate showing a certified third-party inspection posted on the crane or in the cab.

Wire rope inspections must also be performed on each shift, monthly, and annually.

#### **39.5.4.2 Shift Inspection**

Prior to each use, a competent person must visually inspect the equipment to be used. Removal of equipment parts or booming down is not required to perform this inspection unless the inspector deems it necessary due to an item requiring further investigation.

All inspection records, daily, monthly, and annual, shall be kept with the crane. If during any safety inspection, the operator or supervisor cannot produce the required crane inspection sheets, the crane shall immediately be shut down and inspected.

#### **39.5.4.3 Monthly Inspections**

Monthly inspections will be done using the same checklist that is used to perform the shift inspection. In addition, the following items must be documented and maintained by the employer for a minimum of three months:

- Items checked and results of the inspection
- The name and signature of the employee who conducted inspection as well as the date the inspection was performed.

#### **39.5.4.4 Annual/Comprehensive Inspection**

Annual crane inspections must be conducted by a qualified person.

##### **39.5.4.4.1 Documentation of annual/comprehensive inspection**

Documentation of the annual inspection must be maintained by the employer for a minimum of twelve (12) months:

#### **39.5.4.5 Corrective Action**

If any deficiency identified by the qualified person conducting the inspection is considered a safety hazard, the equipment must be taken out of service.

#### **39.5.4.6 Post-assembly Inspections**

Prior to use, the equipment must be inspected by a qualified person to ensure it meets the manufacturer's assembly criteria.

#### **39.5.4.7 Severe Service Inspections**

When equipment has been used in such a manner that damage may be possible due to such issues as exceeding the rated capacity, shock loading, or extended exposure to a corrosive atmosphere, the crane must be removed from service and inspected by a qualified person.

#### **39.5.4.8 Inspection of Equipment Not in Regular Use**

If equipment has not been used for three or more months, prior to operation, it must be inspected by a qualified person using the criteria for a monthly inspection.

#### **39.5.4.9 Inspection of Modified Equipment**

When any modifications or additions have been made that may affect the safe operations or capacity of the crane, prior to use it must be inspected by a qualified person once modifications or additions have been completed. Any such modification must be approved in writing by the manufacturer or a registered professional engineer. Once the inspection is complete a function test must also be performed to ensure safe operations.

#### **39.5.4.10 Inspection of Repaired/Adjusted Equipment**

After any repair or adjustment that relates to the safe operation of equipment, the equipment must be inspected by a qualified person prior to use. The qualified person must also determine if such repairs or adjustments meet the manufacturer's criteria.

#### **39.5.4.11 Wire Rope Inspection**

Wire rope rigging must be inspected each shift, and on a monthly as well as an annual basis. The shift, monthly, and annual inspections shall include the entire visible length of the rope.

##### **39.5.4.11.1 Electrical Contact with Power Line**

In the event the equipment, any wire rope, or the load has made contact with a power line, the wire rope must be immediately taken out of service even if there are no visible signs of damage.

##### **39.5.4.11.2 Defects That Require Removal from Service or Servicing**

The following defects require the wire rope be severed and removed from service:

- Visible broken wires:
  - In running wire rope: six randomly distributed broken wires in one rope lay, or three broken wires in one strand in one rope lay, where a rope lay is the length along the rope in which one strand makes a complete revolution around the rope.
  - In rotation resistant rope: two randomly distributed broken wires in six rope diameters, or four randomly distributed broken wires in thirty (30) rope diameters.
  - In pendant or standing wire rope: more than two broken wires in one rope lay located in rope beyond end connections, or more than one broken wire in a rope lay located at an end connection.



- Five (5) percent diameter reduction from normal
- Core protrusion or distortion indicating core failure in rotation resistant rope
- A broken strand

### 39.5.5 Safety Devices & Operational Aids

Cranes must be equipped with certain types of safety equipment such as safety devices and operational aids. All safety devices must be in working order for the equipment to be operated. If an operational aid is not working the equipment may still be operated but only for a limited time and only if alternative measures have been taken.

#### 39.5.5.1 Compliance with Rated Capacity

The equipment must not be operated in excess of its rated capacity.

The definition of Rated Capacity means the maximum working load permitted by the manufacturer under specified working conditions. Such working conditions typically include a specific combination of factors such as equipment configuration, radius, boom length, and other parameters of use (Load Chart).

The weight of all auxiliary handling devices such as hoist blocks, headache balls, hooks, and rigging shall be considered as part of the total load. Additionally, the weight of all items added to the load at the site must be determined and be added to the total weight. The operator shall be provided with a copy of the Bill of Lading with the item weight clearly legible. This will be used to determine total load weight.

#### 39.5.5.2 Operator Safety Rules

Crane operators shall work in compliance with the following rules:

- Never engage in any practice which may divert the operator's attention while engaged in crane operation including the use of a cell phone (except for signaling purposes).
- Operators must remain at the controls while the load is suspended.
- Out of Service tags must be placed on the cab of a crane that is out of service stating the crane must not be used.
- Prior to starting the engine, the operator must verify the controls are in the required position for startup and all employees are clear.
- Side loading of material is prohibited.
- The operator must test the brakes each time a load that is ninety (90) percent or more of the maximum line pull is handled by lifting the load a few inches and applying the brakes. In duty cycle and repetitive lifts where each lift is ninety (90) percent or more of the maximum line pull, this requirement applies to the first lift but not to successive lifts.
- Never allow the load or the boom to be lowered to a point where less than two full wraps of rope remain on the drum
- Do not operate the crane if physically or mentally unfit, or if taking prescription drugs that may impair vision, balance, or produce other adverse effects.
- Trainees shall not be permitted to make initial lifts. The operator shall perform the first lift to determine lift stability, crane function, and safety in general.
- Upon request, operators shall demonstrate the ability to determine total load weight and its relationship to the crane load charts.
- Riding the load and lifting personnel with the crane are prohibited practices unless a procedure has been implemented by the Safety Coordinator in accordance with applicable OSHA and ANSI regulations.
- Whenever there is a concern for safety, the operator has full authority to stop operations until a qualified person has determined any unsafe condition has been corrected.

#### 39.5.5.3 Handling the Load

No crane shall be loaded beyond its rated capacity, except for test purposes.

**39.5.5.3.1 Attaching the Load:**

- The load shall be attached to the hook by means of slings or other approved devices.
- No open hooks shall be used for lifts higher than two (2) feet. Hooks used for lifts in excess of two (2) feet shall have hook safety latches or be safety wired to secure the load.

**39.5.5.3.2 Hoisting the Load:**

When hoisting the load, the operator shall:

- determine that the crane is level to within one (1) degree and, where necessary, properly cribbed and blocked.
- determine that the load is properly secured and balanced before making the hoist.
- determine that the rope is properly seated on the drum and in the sheaves, the load line is not kinked, and multiple part lines are not twisted around each other.
- ensure all loads have a tagline attached to them.

During hoisting the operator shall not:

- suddenly accelerate or decelerate a moving load.
- permit the load to contact any obstruction.
- swing loads over personnel.
- permit side loading of booms or drag the load.

Lifts shall be limited to freely suspended loads.

**39.5.6 Rigging Requirements**

- All loads must be safely slung by a competent person, within safe working limits of the lifting equipment, using hooks with safety catches, netting loose loads, and attaching tie lines.
- All rigging equipment sets (multi-point slings, bridles) shall have permanently affixed identification stating size, grade, rated capacity, and manufacturer.
- All rigging devices including slings, chains, and wire rope shall have permanently affixed identification stating size, grade, rated capacity, and manufacturer.
- Rigging not in use shall be removed from the immediate work area and stored properly.
- Rigging, including slings, shall be hung on a rigging frame so that bends and kinks do not develop.
- Wire rope slings shall be lubricated as necessary during use. Slings shall be lubricated no less than every four (4) months when in storage.
- "Shop-made" grabs, hooks, clamps, or other lifting devices shall not be used unless proof tested to 125 percent of their rated load by an approved testing agency. Approved devices shall have the capacity permanently affixed.
- Slings shall not be left lying on the ground or otherwise exposed to dirt and the elements.
- Eyes in wire rope bridles, slings, or bull wires shall not be formed by wire clips or knots
- Protruding ends of strands in splices on slings or bridles shall be covered or blunted.
- All rigging equipment in use shall have a safety factor of five (5).

**39.5.6.1 Inspection and Record Keeping**

Rigging inspections shall be performed on a regular basis as determined by:

- severity of service conditions
- frequency of sling use
- nature of lifts
- experience gained on the service life of slings used in similar use

Inspection period intervals shall not exceed twelve (12) months.

### 39.5.6.2 Inspection Criteria

Wire rope slings shall be removed from service when:

- there is wear or scraping of one-third the original diameter of outside individual wires.
- kinking, crushing, bird caging, or similar damage.
- end attachments are cracked, deformed, or worn.
- there is exposure to temperatures in excess of 200° F. (fiber-core) or 400° F (non-fiber core).
- corrosion of the rope or end attachments occurs.

Natural and synthetic fiber rope slings shall be removed from service when:

- abnormal wear is observed
- powdered fibers are found between strands
- fibers are cut or broken
- there are variations in the size or roundness of strands
- there is discoloration or rotting
- there is distortion of sling hardware
- exposed to temperatures in excess of 180° F
- there is no visible identification tag explaining the maximum load it can lift

Synthetic web sling shall be removed from service when:

- colored warning fibers are visible
- subjected to acid or caustic burns
- melting or chaffing of any part of the sling surface occurs
- snags, punctures, tears, or cuts are observed
- stitches are worn or broken
- fittings are distorted
- exposed to temperatures in excess of 180° F (synthetic web) or 200° F (polypropylene web).
- there is no visible identification tag explaining the maximum safe workload.

### 39.5.6.3 Repairs

The following slings may be repaired in accordance with manufacturer's direction:

- Metal mesh slings
- Wire rope slings

Sling repairs must be performed by the manufacturer or equivalent entity. Once repaired, each sling shall be permanently marked or tagged, and a record of the repair maintained.

### 39.5.6.4 Safe Rigging Practice

- Slings shall not be shortened by the use of knots, bolts, or other makeshift devices.
- Wire rope slings shall be padded, or softeners used to protect from damage due to sharp corners.
- Slings used in a basket hitch shall have the loads balanced to prevent slippage.
- Loads handled by slings shall be landed on cribbing or dunnage so that slings will not be crushed by the load.
- Slings subjected to shock loading shall be immediately removed from use and destroyed.

## 39.5.7 Signals

### 39.5.7.1 Signal Person Required

In all of the following situations a signal person must be provided:

- The crane operator does not have a full view of the point of operation
- The operators view is obstructed while the equipment is traveling

- When the operator or person handling the load determines safety conditions warrant the need for a signal person

In the event a signal person is used, communication between the operator and signal person must be maintained. In the event communication is interrupted, all operations must stop until proper communication has been reestablished.

Only one person is allowed to give signals to the crane operator at a time. However, anyone can give the emergency stop signal.

### **39.5.7.2 Types of Signals**

Hand, voice, or audible signals are acceptable means of signaling. The proper means of signaling shall be determined by site conditions. In addition, all signals given shall be from the operator's perspective.

#### **39.5.7.2.1 Hand Signals**

Standard hand signals shall be used. In the event non-standard signals are required, the signal person, operator, and lift director (if exist) must meet prior to beginning operations to establish signals to be used. Hand signal charts must be posted on the equipment in use or in the vicinity of the hoisting area.

#### **39.5.7.2.2 Voice Signals**

When voice signals are used, the operator, signal person, and lift director (if exist) must meet prior to beginning operations and establish voice signals to be used. In addition, when using voice signals:

- the device used to transmit signals must be tested on site prior to beginning operations
- single transmission must be through a dedicated channel, except:
  - when multiple cranes are used, one or more signal persons may share a channel to coordinate operations
  - when cranes are used near railroad tracks and communication between the operator and trains or other equipment must be coordinated
  - the operators must use a hands-free system

#### **39.5.7.2.3 Audible Signals**

These signals may be in the form of a bell, horn, whistle, etc. As with any other type of signal, prior to commencement of operations the signal person, operator, and lift director (if exist) must meet prior to beginning operations to establish audible signals to be used.

### **39.5.8 Fall Protection**

Falls from heights can occur during the assembly/disassembly of cranes and while employees are attempting to gain access to work stations or while working on elevated cranes.

Fall protection must be used when employees are on walking/working surfaces with an unprotected edge that is six (6) feet above a lower level.

The following situations apply:

- When moving from one point to another on:
  - non-lattice booms (whether horizontal or not horizontal)
  - lattice booms that are not horizontal
  - horizontal lattice booms where the fall distance is fifteen (15) feet or more
- While at a work station on any part of the equipment except when the employee is at or near draw-works when the equipment is running or when the employee is in the cab or on the deck.

### **39.5.8.1 Boom Walkways:**

When lattice boom cranes are assembled and disassembled, it is sometimes necessary for employees to walk and work on the boom sections to install and remove pins or for other purposes. To provide a safer surface on which to walk and work, booms with walkways are those more than six feet from cord centerline to cord centerline manufactured after November 8, 2011 must have built-in walkways at least twelve (12) inches wide. These walkways need not be protected by guardrails, railings, or other permanent fall protection attachments.

### **39.5.8.2 Steps, Handholds, Ladders, Grabrails, Guardrails, and Railings:**

If these devices were originally installed on equipment they must be maintained in good condition.

### **39.5.8.3 Fall Protection During Assembly/Disassembly Work**

Fall protection must be used when employees are exposed to an unprotected side or edge that is fifteen (15) feet above a lower level except when the employee is at or near draw-works when the equipment is running, or when the employee is in the cab or on the deck.

### **39.5.8.4 Anchorage:**

Personal Fall Arrest Systems (PFAS) must be anchored to a substantial part of the equipment that would meet the criteria for fall protection in the OSHA Construction Standard (29 CFR 1926 subpart M). A PFAS may be anchored to the crane/derrick's hook (or other part of the load line) where all of the following requirements are met:

- A person who meets the requirements of a qualified person has determined that both the set-up and rated capacity of the crane hook, load line, and rigging meets or exceeds the requirements for fall protection as stated in the OSHA Construction Standard (29 CFR 1926 subpart M).
- The crane operator is at the work site and informed that the equipment is being used for the purpose of an anchorage point
- There is no load suspended from the load line

### **39.5.9 Work Area Control**

To prevent an employee from being crushed or struck by the crane's rotating superstructure, the following is required:

- All employees must be trained on the struck-by and caught-between hazards associated with the rotating superstructure
- Control lines, warning lines, railings, or similar barriers must be erected to mark the boundaries of the hazardous area. In the event it is infeasible to erect such barriers due to site conditions, the area must be marked with both warning signs and high visibility markings on the equipment in an effort to identify the hazardous area. All employees must be trained on and understand the meaning of such markings.
- If an employee is required to go into an area that is out of the operator's visibility, that employee must inform the operator of their actions. Until the operator has confirmation that the employee has moved to a safe location, they may not rotate the superstructure.

### **39.5.10 Critical Lifts**

A "critical lift" is defined as any non-routine crane lift requiring detailed planning and additional or unusual safety precautions. Critical lifts include:

- lifts performed where the load weight is greater than 75% of the rated capacity of the crane
- lifts performed using more than one crane
- lifts which require the load to be lifted, swung, or placed out of the operator's view
- lifts involving non-routine or technically difficult rigging arrangement

- lifts presenting a potentially unacceptable risk of personnel injury or property damage
- lifts which may result in a significantly undesirable condition such as a chemical spill or release
- hoisting personnel with a crane or derrick
- any lift which the crane operator believes should be designated as a critical lift.

#### 39.5.10.1.1 Plan Development

Before beginning a critical lift, crane operation the operation must be planned. The plan must meet the following requirements:

- Be developed by a qualified person.
- Ensure the requirements of OSHA Standard 29 CFR 1926 Subpart CC are met.
- Where the qualified person determines that engineering, expertise is needed for the planning, the employer must ensure that it is provided.

#### 39.5.10.1.2 Plan Implementation

Critical lifts must be directed by a person meeting the criteria for **both a qualified and a competent person**, or by a competent person who is assisted by one or more qualified persons (lift director).

The lift director must review the plan in a meeting with all workers who will be involved with the operation.

### 39.5.11 Lifts Using Other Equipment

#### 39.5.11.1 Forklifts and Telescoping Boom Forklifts

Hoisting a suspended load rigged directly to the forks or fork carriage of the forklift is prohibited without written approval from the forklift manufacturer to perform the task. Written approval should identify lift parameters, load capacities, limitations, and rigging and attachment requirements for safe operation.

Hoisting loads attached to the forklift with a lifting attachment device such as a lift boom approved by the forklift manufacturer is permitted by OSHA when used according to manufacturer design and recommendations.

#### 39.5.11.2 Excavators

When using an excavator as a crane always know the weight of the load to be lifted. Use the equipment specific load chart to identify load capacity limitations at all points of the lift operation. The equipment must be configured exactly as referenced in the load chart. Consider that some load charts do not take into account the weight of the bucket.

When lifting always use the manufacturer provided lift points and an approved hook or attachment device capable of handling the weight of the load. Do not suspend the load from the teeth of the bucket or by wrapping rigging around any point of the equipment not designed for the purpose. Vertically lifted and moved loads must be performed with the load securely attached to the lifting device. This means using hooks equipped with working safety latches and/or shackles. An exception to this rule is when using a safety hook or shackle would place a worker in a greater hazard. In such cases workers must be kept well clear of the load lifting operation.

#### 39.5.11.3 Front End Loaders

Using a front-end loader (FEL) to lift with chains, wire rope, or other rigging can be a very dangerous operation leading to the tipping and rollover of the equipment. Some manufacturers specifically prohibit the attaching of any rigging to a loader bucket while using the loader and prohibit the lifting or pulling of any load using rigging attached to the bucket.

Before using a FEL to perform lifting operations refer to the operating manual and adhere to all manufacturer recommendations related to the task.

When lifting always use the manufacturer provided lift points and an approved hook or attachment device capable of handling the weight of the load. Do not suspend the load from the teeth of the bucket or by wrapping rigging around any point of the equipment not designed for the purpose. Vertically lifted and moved loads must be performed with the load securely attached to the lifting device. This means using hooks equipped with working safety latches and/or shackles. An exception to this rule is when using a safety hook or shackle would place a worker in a greater hazard. In such cases workers must be kept well clear of the load lifting operation.

#### **39.5.11.4 Knuckle-Boom Cranes**

Knuckle-boom truck cranes are excluded from the crane standard only when used to perform a task that is not specifically related to construction. For example, using a knuckle-boom crane to unload materials from the truck to the ground or to an elevated level solely for the purpose of unloading the truck the general industry standard applies. When using the knuckle-boom crane to place materials in order to facilitate the performance of a construction activity, or to hold, support, or stabilize materials at elevated work areas to perform construction activity such as lifting a truss in place or lowering a manhole ring into position for installation, then the construction crane standard applies.

#### **39.5.12 Catastrophic Event**

In the event a crane collapses, turns over, drops a load, or otherwise fails, the following steps should be taken:

- Do not enter an unsafe area or climb amongst fallen crane members.
- Render emergency first-aid only if safe to do so.
- Do not allow the crane, its components, or the load to be moved unless vital to rescue operations until a complete and thorough investigation has been completed.

### **39.6 Training**

#### **39.6.1 Employee Training**

All employees assigned to work with a crane must be trained on how to avoid electrocution hazards. The following topics must be addressed:

- Electrocution due to simultaneously touching the equipment and the ground
- How to safely exit equipment that may be energized
- Possible energized zones around equipment
- Avoiding the possibility of approaching and or touching energized equipment
- Required clearance distances from power lines
- Limitations of safety devices such as proximity alarms, insulating links, etc.
- Proper grounding of equipment and its limitations

#### **39.6.2 Operator Qualifications and Certification**

All crane operators must be certified by a nationally accredited organization such as the Operating Engineer's Certification Program (OECF) or the National Commission for the Certification of Crane Operators (NCCCO). The certification is specific to the type of crane being used.

- Operator certifications are valid for five (5) years. At the end of five (5) years all operators must recertify to ensure they have maintained the required knowledge and skills to safely operate a crane.
- The employer is responsible for ensuring the operator has a valid crane operator's certificate.
- Trainees may operate crane as long as the operator in training is continuously monitored by an individual "operator's trainer".
- An operator in training may not operate the crane under the following conditions:

- Any part of the equipment, load, load line, rigging, or lifting accessories could get within twenty (20) feet of a power line up to 350kV or fifty (50) feet of a power line over 350kV.
- When hoisting personnel.
- Performing multiple-equipment lifts.
- When working over shafts, cofferdams, or in a tank farm.
- When performing multiple-lift rigging operations unless the trainer deems the operator-in-training possesses the required skills to perform this task.
- No one other than the above personnel shall be in or on the crane during operations. Exceptions are oilers or supervisors whose duties may require their presence.

### 39.6.3 Signal Person Qualifications

Each employee assigned to perform signaling operations must meet the following requirements:

- Know and understand the requirements for proper signaling.
- Know and understand each type of signal used. In the event hand signals are used, the employee must know and understand the Standard Method used for hand signals.
- Be competent in the signals to be used.
- Possess a basic understanding of crane operations including but not limited to load swing, boom deflection, and safe hoisting methods.
- Be able to demonstrate through a written exam and practical test that they are competent to perform signaling operations.

### 39.6.4 Refresher Training

Refresher training will be administered when the following situations occur:

- Changes in equipment, the workplace, or the type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## 39.7 Reference

OSHA Standard 29 CFR 1926 Subpart CC  
ASME B30.5

## 39.8 Appendix

- Hoisting Personnel
- Powerline Safety Flow Chart - Crane Operations
- Crane Hand Signals - Construction Cranes
- Daily Inspection - Construction Cranes
- Standard Pre-Lift Crane Plan/Checklist
- Critical Lift and Permit
- Crane Operator Experience Attestation Form



## Hoisting Personnel

## Use of Personnel Platform

- The personnel platform and attachment/suspension system used for hoisting personnel must be designed by a qualified person familiar with structural design.
- The system must allow the platform to remain within the required clearances.
- The suspension system must be designed to allow for movement of the platform due to movement of the personnel.
- The personnel must be protected by a personal fall arrest system that is designed to arrest a fall at and at least five (5) feet above the platform.
- All welding of the platform must be done by a certified welder in accordance with the design.
- The personnel platform must meet the requirements of OSHA Standard 1910.67, which requires that the toeboard to the platform must be at least 18 inches from the toeboard to the platform and the openings no greater than 1/2 inch (1.27 cm) in diameter. The platform must be attached to the structure and must meet the requirements of the design.
- A grab rail must be provided on the platform except for access gates and doors.
- Access gates and doors must be designed to prevent swinging, sliding, or other movement that could cause injury to the platform occupant.
- The platform must be designed to prevent a one-person platform, which is designed for one person, from being occupied by more than one person.
- The platform must be designed to prevent the platform occupant from falling from the platform.
- Headroom must be maintained on the platform.
- In addition to the use of hard hats, employees must be protected by overhead protection on the personnel platform when employees are exposed to falling objects. The platform overhead protection must not obscure the view of the operator or platform occupants (such as wire mesh that has up to 1/2 inch openings), unless full protection is necessary.
- All edges exposed to employee contact must be smooth enough to prevent injury.
- The weight of the platform and its rated capacity must be conspicuously posted on the platform with a plate or other permanent marking.

The total load of suspended personnel platforms (with the platform loaded, including the hook, load line, and rigging) must not exceed fifty (50) percent of the rated capacity for the radius and configuration of the equipment, except during proof testing.

When using boom-attached personnel platforms, the total weight of the loaded personnel platform must not exceed fifty (50) percent of the rated capacity for the radius and configuration of the equipment (except during proof testing).

When the occupied personnel platform is in a stationary working position, the load and boom hoist brakes, swing brakes, and operator actuated secondary braking and locking features (such as pawls or dogs), or automatic secondary brakes must be engaged.

### Attachment and Rigging

#### Hooks and other detachable devices

Hooks used in the connection between the hoist line and the personnel platform (including hooks on overhaul ball assemblies, lower load blocks, bridle legs, or other attachment assemblies or components) must be:

- of a type that can be closed and locked, eliminating the throat opening.
- closed and locked to the intended load applied.

Shackles used in place

- a bolt, nut, and washer.
- of the screw type.

Where other detachable devices are used, they must be the same extent as the devices listed above.

#### Rope bridles

When a rope bridle is used, it must be connected to the master link or shackle.

Rigging hardware (including shackles, pins, and bolts) must be capable of supporting the intended load applied or transmitted to that hardware. The hardware must be capable of supporting without failure the intended load applied.

Eyes in wire rope sling

Bridles and associated hardware must be used only for the platform work. The bridles and associated rigging must be capable of supporting the intended load applied.

#### Trial Lift and Inspection

A trial lift with the unoccupied platform must be made from ground level, or any other location where employees will enter the platform, to each location at which the platform is to be hoisted and positioned. Where there is more than one location to be reached from a single set-up position, either individual trial lifts for each location, or a single trial lift, in which the platform is moved sequentially to each location, must be performed; the method selected must be the same as the method that will be used to hoist the personnel.

The trial lift must be performed immediately prior to each shift in which personnel will be hoisted. In addition, the trial lift must be repeated prior to hoisting employees in each of the following circumstances:

- The equipment is moved and set up in a new location or returned to a previously used location.
- The lift route is changed, unless the competent person determines that the new route presents no new factors affecting safety.

The competent person must determine that:

**If client engages in hoisting personnel using a crane, delete this box.**

**Otherwise, delete this section.**

- safety devices and operational aids required by this section are activated and functioning properly. Other safety devices and operational aids must meet the requirements of § 1926.1415 and § 1926.1416.
- nothing interferes with the equipment or the personnel platform in the course of the trial lift.
- the lift will not exceed fifty (50) percent of the equipment's rated capacity at any time during the lift.
- the load radius to be used during the lift has been accurately determined.

Immediately after the trial lift, the competent person must:

- conduct a visual inspection of the equipment, base support or ground, and personnel platform, to determine whether the trial lift has exposed any defect or problem or produced any adverse effect.
- confirm that, upon the completion of the trial lift process, the test weight has been removed.

Immediately prior to each lift:

- The platform must be hoisted a few inches with the personnel and materials/tools on board and inspected by a competent person.
- The following conditions must exist before the lift of personnel proceeds:
  - Hoist ropes must be inspected and found to be in good condition.
  - Multiple personnel must be properly secured.
  - The primary and secondary hoist ropes must be properly secured.
  - If the load is to be hoisted, ensure that all ropes are properly secured.

Any condition found to violate this standard or other applicable requirements must be corrected before the lift.

### Proof Testing

At each jobsite, prior to the platform and rigging test may be done concurrently.

The platform must be in a suspended position for a minimum of five (5) minutes.

After proof testing, a competent person must determine if the test has been passed. If any defects are found, the platform must not be used to hoist personnel until a competent person determines that the test has been passed.

Personnel hoisting must not be conducted until the competent person determines that the platform and rigging have successfully passed the proof test.

### Work Practices

Hoisting of the personnel platform must be performed in a slow, controlled, cautious manner, with no sudden movements of the equipment or the platform.

Platform occupants must:

- keep all parts of the body inside the platform during raising, lowering, and horizontal movement. This provision does not apply to an occupant of the platform when necessary to position the platform or while performing the duties of a signal person.
- not stand, sit on, or work from the top or intermediate rail or toeboard, or use any other means/device to raise their working height.
- not pull the platform out of plumb in relation to the hoisting equipment.

**If client engages in hoisting personnel using a crane, delete this box. Otherwise, delete this section.**

Before employees exit or enter a hoisted personnel platform that is not landed, the platform must be secured to the structure where the work is to be performed, unless the employer can demonstrate that securing to the structure would create a greater hazard.

If the platform is tied to the structure, the operator must not move the platform until the operator receives confirmation that it is freely suspended.

Tag lines must be used when necessary to control the platform.

### Platforms Without Controls

Where the platform is not equipped with controls, the equipment operator must remain at the equipment controls, on site, and in view of the equipment, at all times while the platform is occupied.

### Platforms with Controls

Where the platform is equipped with controls, all of the following requirements must be met at all times while the platform is occupied:

- The occupant must be trained in the proper use, including emergency procedures, of the platform.
- The equipment operator must be trained in the functions of the platform controls.
- The operating procedures must be clearly posted on the platform.

### Environmental Conditions

Employees being hoisted must be protected from the elements by the operator.

#### Wind

When wind speed (such as gusts) is high, a qualified person must determine if the lifting operation must be stopped.

#### Other Weather and Environmental Conditions

A qualified person must determine if existing danger exists, such as lightning, if already in progress, or other impending or existing danger.

#### Fall Protection

Except over water, employees must use a fall arrest system. The system must be anchored to a secure structure.

#### Other Load Lines

No lifts must be made on any other of the equipment's load lines while personnel are being hoisted, except in pile driving operations.

### Traveling Equipment Other than Derricks

Hoisting of employees while the equipment is traveling is prohibited, except for:

- equipment that travels on fixed rails; or
- where the employer demonstrates that there is no less hazardous way to perform the work.
- this exception does not apply to rubber-tired equipment.

Where employees are hoisted while the equipment is traveling, all of the following criteria must be met:

- Equipment travel must be restricted to a fixed track or runway.

**If client engages in hoisting personnel using a crane, delete this box.**

**Otherwise, delete this section.**

- Where a runway is used, it must be a firm, level surface designed, prepared, and designated as a path of travel for the weight and configuration of the equipment being used to lift and travel with the personnel platform. An existing surface may be used as long as it meets these criteria:
  - Equipment travel must be limited to boom length.
  - The boom must be parallel to the direction of travel, except where it is safer to do otherwise.
  - A complete trial run must be performed to test the route of travel before employees are allowed to occupy the platform. This trial run can be performed at the same time as the required trial lift which tests the lift route.

**Traveling Derricks.**

Derricks are prohibited from traveling while personnel are hoisted.

**Pre-lift Meeting**

A pre-lift meeting must be:

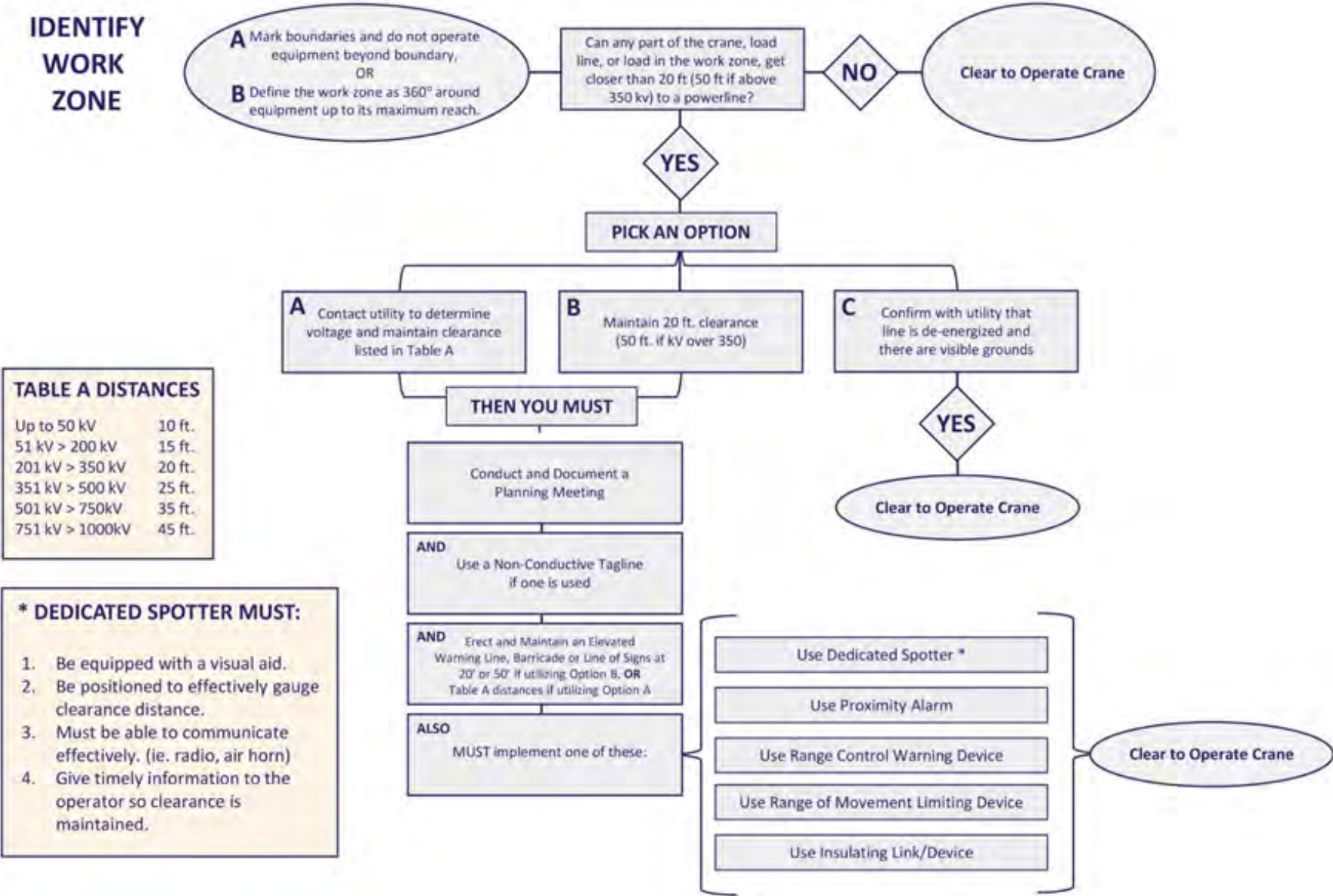
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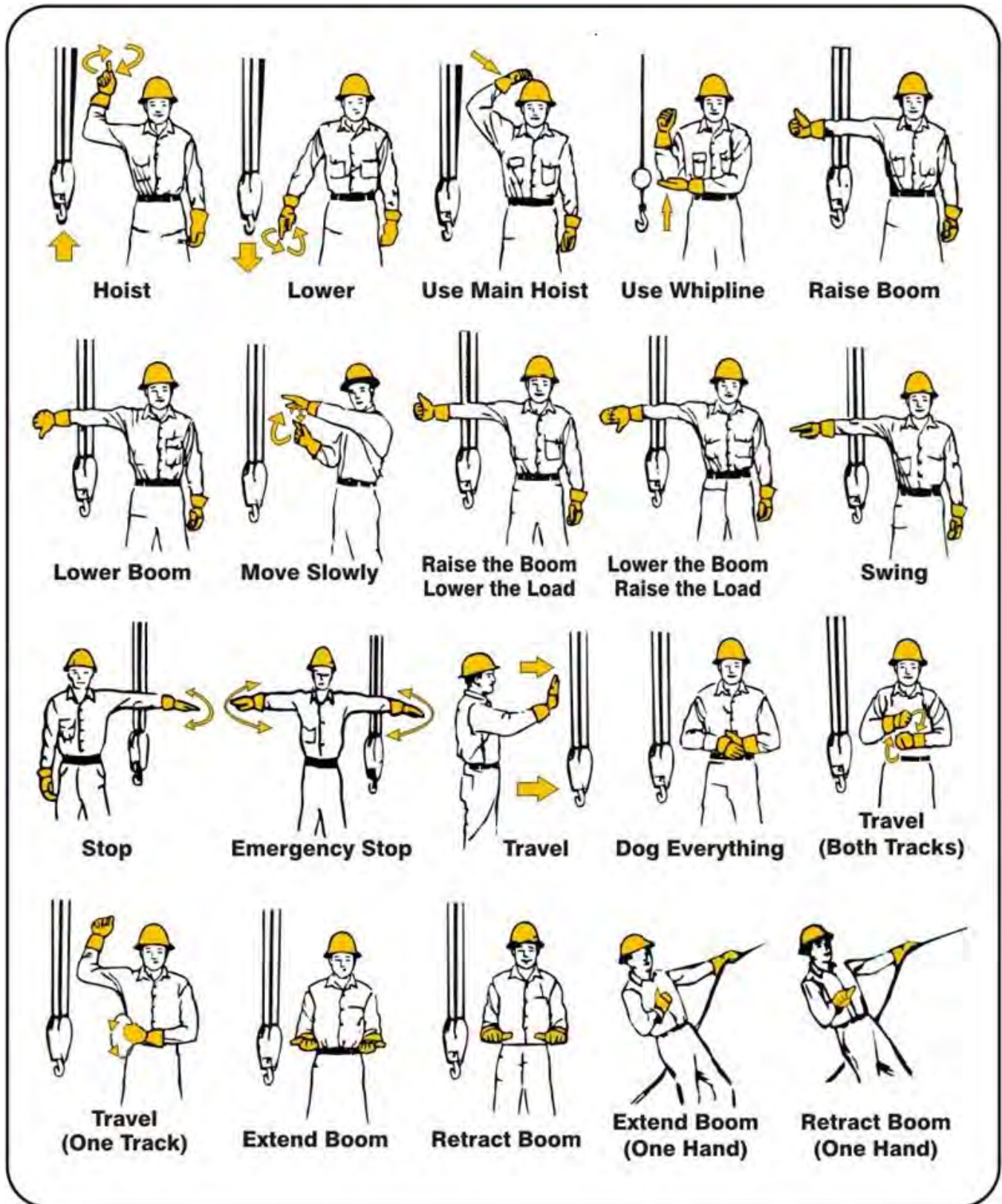
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employees to be hoisted,  
any employees newly

Powerline Safety Flow Chart





## Crane Hand Signals - Construction Cranes



### Daily Inspection - Construction Cranes

A complete visual inspection must be performed prior to start-up and operational test. The following checks shall be performed in accordance with all manufacturer instructions, specifications, and requirements. Review the Operator's Manual for detailed instructions on proper maintenance, adjustment, and operational procedures. Any deficiencies shall be repaired, or defective parts replaced prior to use.

#### Crane Information

Unit #:	Make/Model:	Serial #:	Hours:	Job:	Date:
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**S = Satisfactory   U = Unsatisfactory   N/A = Not Applicable**

		S	U	N/A
<b>1.0 Pre-Operation Items</b>				
1.1	Monthly and annual inspection records on hand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Operator's Manual on hand (correct manual, in cab, legible)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3	Identified deficiencies repaired	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.4	Operational test of all functions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2.0 Safety/warning devices</b>				
2.1	Load chart for specific configuration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2	Load indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3	Boom angle and radius reading correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.4	Anti-two block system present and working	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.5	Line riders in place for lift crane service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.6	Signal horn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.8	Swing warning devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.0 Cab</b>				
3.1	Seat and seat belt/restraints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2	Mirrors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3	Glass, windows, and wipers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4	Lights (headlights, signal and marker lights, area lighting)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.5	Instrument panel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.6	Steps and handholds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.7	Controls properly and legibly identified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.8	Identification plates and warning labels in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.9	Fire extinguisher present and within annual inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.10	Steering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.11	Travel alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.12	Travel brakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.13	Parking brake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.14	Swing brake operation, adjustment, and condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.15	Swing radius protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>4.0 Mechanical Items</b>				
4.1	Daily grease points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2	Fluid levels (oil, coolant, hydraulic oil, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3	Engine air cleaner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4	Belts and hoses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5	Fuel system sedimenters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6	Main engine clutch/disconnect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7	Cooling system (engine and hydraulic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.8	Air system (condensate drain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



4.9	Leaks - cylinders, hoses, connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.10	Guards and covers in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>5.0 Crane Items</b>				
5.1	Weight and capacity of blocks, balls, and below-the-hook rigging identified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2	Swing brake operation, adjustment, and condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.3	Positive swing/house lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.4	Turntable bearing, ring, and pinion gears	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.5	Load hoists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.6	Drum rotation indicators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.7	Wire rope spooling properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.8	Wire rope condition - Lubricate weekly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.9	Wire rope end terminations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.10	Pins, keepers, and retainers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.11	Boom and jib condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.12	Boom head machinery, sheaves, and guards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.13	Boom slider pads in place and lubricated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.14	Structural cracks or damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.15	Outrigger pads and latches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.16	Positive locks for mid-point outriggers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.17	Rear axle oscillation system for pick-and-carry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.18	Physical damage to machine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>6.0 Crawler Crane</b>				
6.1	Crawler tracks - check adjustment and for cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.2	Drive chains, sprockets, and shafts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>7.0 Additional Items</b>				
7.1	Boom hoist brake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.2	Boom hoist pawl operation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.3	Boom hoist worm gear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.4	Load hoist clutches and pedal stroke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.5	Load hoist clutches - weekly adjustment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.6	Load hoist brakes and pedal stroke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.7	Load hoist brakes - weekly adjustment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.8	Water drained from deck sump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.9	Boom and/or jib lattice or chord damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.10	High boom angle kickout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.11	Boom stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.12	Air system pressure/leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.13	Travel dawgs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.14	Boom hoist reeving and sheaves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.15	Auto lube system working and full	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.16	Freefall operation and indicator lights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.17	Brake pedal(s) operation and latching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.18	Hook and load rollers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Notes/Comments

## Approvals

**Crane Operator:**

\_\_\_\_\_

Name

**Signature**

Date

### Mechanic:

Name

**Signature**

Date

**Supervisor:**

Name

**Signature**

Date \_\_\_\_\_

### Standard Pre-Lift Crane Plan/Checklist - Construction Cranes

This plan/checklist applies to cranes, derricks, hoists, and power-operated equipment that is used to hoist, lower, and/or horizontally move a suspended load including excavators, loaders, forklifts, rough-terrain equipment, and other powered equipment when used with rigging.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM / PM Location: \_\_\_\_\_

Completed by: (competent person): \_\_\_\_\_  
 (name) (signature)

#### Critical Lift Evaluation

**If the answer to any of the following questions is 'YES' this is a critical lift requiring additional information and assessment and authorization by a licensed professional engineer.**

- |   |  |
|---|--|
| 1) Will crane need to 'walk' with loads?                        | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 2) Will the pick require the use of multiple cranes?            | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 3) Will the pick be made over an occupied building or facility? | YES <input type="checkbox"/> NO <input type="checkbox"/> |

#### Crane Considerations

1	Is the lift within the device's rated capacity? (based on boom height, length, etc.)	YES <input type="checkbox"/> NO <input type="checkbox"/>
2	Have boom deflections been considered?	YES <input type="checkbox"/> NO <input type="checkbox"/>
3	Have all potential crane boom obstructions been identified and addressed?	YES <input type="checkbox"/> NO <input type="checkbox"/>
4	Have environmental considerations been addressed? (wind, rain, weather, lightning, water accumulation, ground condition, etc.)	YES <input type="checkbox"/> NO <input type="checkbox"/>
5	Have electrical hazards been addressed? (overhead/underground) Clearance distances established? Is a spotter required? Public utility contacted?	YES <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/>
6	Is crane swing radius properly barricaded and personnel advised of hazards?	YES <input type="checkbox"/> NO <input type="checkbox"/>

#### Load Considerations

1	Have the weights and center of gravity been determined?	YES <input type="checkbox"/> NO <input type="checkbox"/>
2	Is there anything inside/outside the loads that could shift during the lift?	YES <input type="checkbox"/> NO <input type="checkbox"/>
3	Does the rigging need protection from the load?	YES <input type="checkbox"/> NO <input type="checkbox"/>
4	Have all anchor bolts, tie-downs, or fasteners been removed?	YES <input type="checkbox"/> NO <input type="checkbox"/>
5	Are load cells required to verify the loads are free?	YES <input type="checkbox"/> NO <input type="checkbox"/>
6	Are the attachment points rated for the load?	YES <input type="checkbox"/> NO <input type="checkbox"/>
7	Are the loads structurally capable of being lifted (bending and twisting issues)	YES <input type="checkbox"/> NO <input type="checkbox"/>
8	Is a Critical Lift Plan required?	YES <input type="checkbox"/> NO <input type="checkbox"/>

Rigging Considerations		
1	Has all rigging been inspected by a qualified rigger or competent person?	YES <input type="checkbox"/> NO <input type="checkbox"/>
2	Have sling angles been calculated?	YES <input type="checkbox"/> NO <input type="checkbox"/>
3	Are shackles correctly sized for the sling eyes?	YES <input type="checkbox"/> NO <input type="checkbox"/>
4	Are load softeners needed?	YES <input type="checkbox"/> NO <input type="checkbox"/>
5	Is the crane equipped with an anti-two-block system?	YES <input type="checkbox"/> NO <input type="checkbox"/>

Personnel Considerations		
1	Have the roles, responsibilities, and qualifications for personnel been defined? (Lift Supervisor, Operator, Rigger, Signal Person)	YES <input type="checkbox"/> NO <input type="checkbox"/>
2	Has a pre-lift meeting been conducted?	YES <input type="checkbox"/> NO <input type="checkbox"/>
3	Have personnel been trained to the required tasks?	YES <input type="checkbox"/> NO <input type="checkbox"/>

Area Preparation		
1	Have the locations for the load landings been inspected and prepared?	YES <input type="checkbox"/> NO <input type="checkbox"/>
2	Is blocking, cribbing, or dunnage available to set the load upon?	YES <input type="checkbox"/> NO <input type="checkbox"/>
3	Have travel paths been determined and cordoned off?	YES <input type="checkbox"/> NO <input type="checkbox"/>
4	Have personnel in the area been notified of the lift operation?	YES <input type="checkbox"/> NO <input type="checkbox"/>
5	Have ground bearing support questions been addressed?	YES <input type="checkbox"/> NO <input type="checkbox"/>

Comments

Approvals			
Crane Operator:	_____	_____	_____
	Name	Signature	Date
Signal Person:	_____	_____	_____
	Name	Signature	Date
Rigger:	_____	_____	_____
	Name	Signature	Date
Rigger:	_____	_____	_____
	Name	Signature	Date
Contractor Rep:	_____	_____	_____
	Name	Signature	Date

### Critical Lift Plan and Permit - Construction Cranes

Permits must be posted at the lift site until work is complete or a new permit is issued. This permit must be reviewed at the beginning of every shift and reissued if a change in conditions (equipment, weather, ground, etc.) or scope of work has occurred. Expired permits shall be returned to the Project Manager for filing. This permit and supporting data must be submitted before any of the following lifts are made (check all that apply):

- ☐ Multiple crane lift
- ☐ Personnel Hoisting
- ☐ Non-routine lift of twenty (20) tons or more
- ☐ Load lift at or in excess of 75% of the rated load capacity of the crane
- ☐ Lifts over electrical lines, HVAC piping, or operating facilities which may endanger personnel, bystanders, pedestrians, or traffic

#### Description of Proposed Crane Work: (Include # of items to be picked and expected # of days and location)

Proposed date for lift start:		Expected completion date:	
-------------------------------	--	---------------------------	--

#### 1. Crane Information

Make:		Model:		Capacity (Tons)	
Type:	Track <input type="checkbox"/> Tires <input type="checkbox"/>	Other:			
Total Boom Length:		Will Jib be Used?	YES <input type="checkbox"/> NO <input type="checkbox"/>	Jib Length:	
Max Boom Length Required:		Maximum Pick Radius Required:			

- ☐ Verify manufacturer's load chart indicates lifting capacity at identified load radius and boom lengths.

**NOTE:** If boom length and/or radius is between the identified or posted value on the load chart select the next lesser rating capacity. The next lesser rating capacity may be the next longer or shorter boom length.

#### 2. Stabilization

- YES ☐ NO ☐ Has the ground stability been determined to be acceptable for the imposed load?
- YES ☐ NO ☐ Has an engineer performed an assessment of the damage risk to underground utilities and structures and confirmed they are not at risk for damage?

#### 3. Rigging Information

List all rigging components including number, type, size, capacity, etc.

- YES ☐ NO ☐ Is crane equipped with Anti-Two-Block device?

**4. Load Information**

**NOTE:** Computer indicators identifying boom length, angle, and radius are safety devices only and do not relieve the operator of the responsibility to calculate a safe lift.

**NOTE:** Accessories, crane capacity, rigging capacity, and the working quadrant of the crane must be considered when calculating net crane capacities.

**Load Dimensions (meters)**

Length	<input type="text"/>	Height	<input type="text"/>	Width/Diameter	<input type="text"/>
Load Weight			<input type="checkbox"/> Tons <input type="checkbox"/> Kg		
Rigging Weight (including spreader/equalizer bar)			<input type="checkbox"/> Tons <input type="checkbox"/> Kg		
Total below the hook weight			<input type="checkbox"/> Tons <input type="checkbox"/> Kg		

**Load Description****5. Critical Lift Evaluation**

If the answer to any of the following questions is 'YES' this is a critical lift requiring additional information and assessment and authorization by a licensed professional engineer.

- |   |  |
|---|--|
| 1) Will crane need to 'walk' with loads?                        | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 2) Will the lift require the use of multiple cranes?            | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 3) Will the lift be made over an occupied building or facility? | YES <input type="checkbox"/> NO <input type="checkbox"/> |

**6. Crane Location Information**

If the answer to any of the following questions is 'YES' additional measures are required.

- |   |  |
|---|--|
| 1) Will the lift affect pedestrian or vehicular traffic?<br>(if 'YES', a traffic control plan must be submitted)                                      | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 2) Are there overhead power lines or other hazards in the lift area?  | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 3) Will the load or any part of the crane be over or within fifteen (15)<br>feet of electrical lines, pipes, process systems, or operating equipment? | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 4) Will the crane height exceed 120 feet?<br>(If 'YES', the crane must have a light beacon at the tip)  | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 5) Will the crane height exceed 200 feet?<br>(If 'YES', the FAA must be notified at least 30 days prior to the lift)                                  | YES <input type="checkbox"/> NO <input type="checkbox"/> |

**7. Wind Speed**

Lifts are not allowed when wind speed is in excess of twenty (20) miles per hour

Wind speed at time of lift	<input type="text"/>	MPH
----------------------------	----------------------	-----

8. Additional Information (Required)	
<b>Documentation of the following information must be provided.</b>	
<b>Do not proceed until all items can be marked 'YES'</b>	
1) Plot plan showing crane location, adjacent structures, roadways, utilities, etc. within crane swing radius	YES <input type="checkbox"/> NO <input type="checkbox"/>
2) Scale elevation sketch showing crane location, adjacent structures, and load	YES <input type="checkbox"/> NO <input type="checkbox"/>
3) Applicable crane load charts	YES <input type="checkbox"/> NO <input type="checkbox"/>
4) Valid crane operator's licenses for all crane operators involved in the lift operation.	YES <input type="checkbox"/> NO <input type="checkbox"/>
5) Valid third-party annual and periodic inspection certificates	YES <input type="checkbox"/> NO <input type="checkbox"/>

9. Comments, Notes, and Sketches
<div></div>

**10. Approvals**

**The Contractor, Crane Operator, and Rigger are responsible for the safe execution of the lift(s). Execution of all lift operations will be performed in compliance with OSHA regulations.**

**Complete the checklist below to ensure a safe lift. Any items not marked 'YES' must be corrected or addressed prior to performing the lift.**

- 1) Load weight confirmed. YES ☐ NO ☐
- 2) Load hook is directly over the load center of gravity. YES ☐ NO ☐
- 3) Boom angle, length, lift radius, and crane capacity verified. YES ☐ NO ☐
- 4) Outrigger pads are fully extended, pinned, and blocking is sufficient for the load. YES ☐ NO ☐
- 5) Tires are clear of the ground and the crane is level. YES ☐ NO ☐
- 6) Ground is confirmed to have the capacity to support the imposed load. YES ☐ NO ☐
- 7) Rigging has been inspected and is in safe working condition. YES ☐ NO ☐
- 8) All obstacles and obstructions have been identified. YES ☐ NO ☐
- 9) Lifts performed in close proximity to power transmission lines shall be performed meeting OSHA 29 CFR 1926.550, and applicable ANSI B30.5 safety standards. YES ☐ NO ☐
- 10) Wind speed has been confirmed to be within approved limits for lift. YES ☐ NO ☐
- 11) Operator and Signal Person have reviewed signals and signal methods YES ☐ NO ☐
- 12) The crane operator meets OSHA qualification requirements to operate the crane and has a third-party certification on file YES ☐ NO ☐
- 13) All below-the-hook devices have been examined and inspected by a competent person for damage and defects. Damaged and defective equipment has been removed from service. YES ☐ NO ☐
- 14) The crane equipment and machinery has been inspected by a competent person to ensure safe working condition. Any deficiencies must be repaired prior to use. YES ☐ NO ☐
- 15) Crane is in compliance with applicable Federal, State, and local inspection regulations. Documentation of a thorough, current annual inspection report performed by an entity recognized by the U.S. Department of Labor is on file. YES ☐ NO ☐

**Date of Last Annual Inspection:** \_\_\_\_\_ **Inspected by:** \_\_\_\_\_

**Crane Operator:** \_\_\_\_\_

**Name**

**Signature**

**Date**

**Signal Person:** \_\_\_\_\_

**Name**

**Signature**

**Date**

**Rigger:** \_\_\_\_\_

**Name**

**Signature**

**Date**

**Rigger:** \_\_\_\_\_

**Name**

**Signature**

**Date**

**Contractor Rep:** \_\_\_\_\_

**Name**

**Signature**

**Date**



## CRITICAL LIFT PLAN

## Site Plan

Show here or attach calculations, drawings, etc.

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin, dark gray lines. The grid covers the entire area of the page, leaving no margins or other markings. There are 20 columns and 20 rows of squares, creating a total of 400 square units.

## CRITICAL LIFT PLAN

### Load Chart

Show here or attach calculations, drawings, etc.

[illegible]

## CRITICAL LIFT PLAN

## Load Calculations

Show here or attach calculations, drawings, etc.

[illegible]

## CRITICAL LIFT PLAN

### Bearing Pressures and Ground Conditions

Show here or attach calculations, drawings, etc.

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin, dark gray lines. There are 20 columns and 20 rows of squares, creating a total of 400 square units. The background is white, and the grid lines are consistent in thickness and color throughout the entire page.

## CRITICAL LIFT PLAN

### Operator, Rigger, Signal Person Qualifications

Show here or attach calculations, drawings, etc.

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin, dark gray lines. The grid covers the entire area of the page, leaving no margins or other markings. There are 20 columns and 20 rows of squares, creating a total of 400 square units.

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**Crane Operator Experience Attestation Form**


---

Crane Operator's Name: \_\_\_\_\_

(First)

(Middle)

(Last)

Social Security Number: \_\_\_\_\_ Date of Birth: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

(last four digits)

(month) (day)

(year)

Home Address: \_\_\_\_\_

(Street)

(City)

(State)

(Zip Code)

Phone Number: \_\_\_\_\_ Email Address: \_\_\_\_\_

**ATTESTATION STATEMENT**

I hereby attest, under penalty of perjury:

I have at least 1,000 hours of crane-related experience in the past five (5) years and that the information provided below regarding employer information, employment dates, and specific job responsibilities applicable to my crane-related work experience is accurate, complete, and truthful.

I understand it is the policy of COMPANYNAME to conduct random audits of applications and that falsification of any information in the application will result in denial of employment.

\_\_\_\_\_  
Operator Name: (print)\_\_\_\_\_  
(Signature)\_\_\_\_\_  
(Date)**Reference #1**

Company/Organization: \_\_\_\_\_

Company Address: \_\_\_\_\_

(Street)

(City)

(State)

(Zip Code)

Supervisor: \_\_\_\_\_

(name)

(title)

(phone number)

Period of employment: From: \_\_\_\_\_ to: \_\_\_\_\_

(mm/dd/yyyy)

(mm/dd/yyyy)

Approximate number of hours of crane-related experience during this period: \_\_\_\_\_

Describe your specific job responsibilities and experience: \_\_\_\_\_

**Reference #2**

Company/Organization: \_\_\_\_\_

Company Address: \_\_\_\_\_  
(Street)\_\_\_\_\_  
(City) (State) (Zip Code)Supervisor: \_\_\_\_\_  
(name) (title) (phone number)Period of employment: From: \_\_\_\_\_ to: \_\_\_\_\_  
(mm/dd/yyyy) (mm/dd/yyyy)

Approximate number of hours of crane-related experience during this period: \_\_\_\_\_

Describe your specific job responsibilities and experience: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_**Reference #3**

Company/Organization: \_\_\_\_\_

Company Address: \_\_\_\_\_  
(Street)\_\_\_\_\_  
(City) (State) (Zip Code)Supervisor: \_\_\_\_\_  
(name) (title) (phone number)Period of employment: From: \_\_\_\_\_ to: \_\_\_\_\_  
(mm/dd/yyyy) (mm/dd/yyyy)

Approximate number of hours of crane-related experience during this period: \_\_\_\_\_

Describe your specific job responsibilities and experience: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

## **Chapter 40 Rigging Safety Program**

### **40.1 Purpose, Scope & Policy**

#### **40.1.1 Purpose**

The purpose of the rigging program is to ensure safe use of slings.

#### **40.1.2 Scope**

This program applies to all employees and those working near hoisting activities that require the use of slings. This program will cover alloy steel chain slings, wire rope and synthetic web slings.

#### **40.1.3 Policy**

All employees will comply with the rigging safety program to ensure safety and minimize the risk of incidents happening.

### **40.2 Roles & Responsibilities**

#### **40.2.1 Employer Responsibilities**

##### **40.2.1.1 Management**

Management will ensure all employees are trained in proper sling usage and the hazards associated with unsafe use of slings. Management will ensure that employees have the proper equipment needed.

##### **40.2.1.2 Supervisors**

Supervisors are responsible for overseeing and maintaining employee compliance with the program. Supervisors will ensure that employees use the proper equipment for the job and will take corrective action if employees perform unsafe acts.

#### **40.2.2 Employee Responsibilities**

Employees are responsible for following all safety rules in regard to slings and this program. Employees will attend all safety training, and immediately report any unsafe working conditions to their supervisors or management.

### **40.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual.<sup>xxii</sup>

### **40.4 Hazards**

#### **40.4.1 Crushed by the Load**

Lifting a load that is heavier than the rated capacity of the sling assembly can result in dropping the load causing death or serious injury.

#### **40.4.2 Struck by Load**

Employees can be struck by the load while it is being moved (traversed) causing death or serious injury.

#### **40.4.3 Rigging Failure**

Rigging can fail not only if subjected to loads heavier than the rated capacity, but also due to damage or excessive wear.



## **40.5 Hazard Control Measures**

### **40.5.1 By Hazard**

#### **40.5.1.1 Crushed by the Load**

- Obtain the weight of the load from documents, measurements, and reference tables.
- Assure the sling assembly (all the components used to rig the load) have a Working Load Limit greater than the load being hoisted.
- Inspect all sling assemblies consistent with frequency of use and severity of conditions.
- Use tag lines when necessary.

#### **40.5.1.2 Struck by the Load**

- Inspect all sling assemblies each day before use.
- Ensure that all tags and markings are legible.
- Maintain safe distances from hoisting operations.
- Inspect all sling assemblies consistent with frequency of use and severity of conditions.
- Use tag lines when necessary.

#### **40.5.1.3 Rigging Failure**

- Do not exceed the rated capacity of the rigging.
- Make sure all rigging is equipped with a maximum capacity rating tag.
- Inspect all rigging prior to use and follow regulated inspection requirements as well as those required by the manufacturer.
- Remove from service all rigging that is damaged, showing signs of excessive wear, or is not equipped with a maximum capacity tag.

### **40.5.2 Specific Types of Slings**

#### **40.5.2.1 Alloy Steel Chain Slings**

The permanently affixed identification tag will have the size, grade, rated capacity, and sling manufacturer information legible at all times. All attachments used with alloy steel chains, including hooks, rings, oblong links, pear-shaped links, welded or mechanical coupling links, must have a rated capacity at least equal to the chain.

Job or shop made hooks, links, fasteners, or any other attachments are strictly prohibited.

In addition to pre-shift inspections, alloy steel chains will be thoroughly inspected at least every 12 months and possibly more often depending on the frequency of sling use, severity of service conditions, nature of lifts being made, and experience gained on the service life of slings used in similar circumstances. These periodic thorough inspections will be documented, and records maintained for at least 12 months.

Alloy steel chains will be removed from service for any of the following:

- Elongated or stretched links
- Failure to hang straight
- Bent, twisted, or cracked links
- Gouges, chips, or scores
- There is no visible identification explaining the maximum safe workload.

Whenever a wear point of any chain link exceeds the maximum allowable wear for its chain size the entire chain assembly will be removed from service.

Chain repairs will be made by the manufacturer. Chain beyond repair will be cut with a torch into short pieces.

**Maximum Allowable Wear at any Point of Link**

<b>Chain Size (inches)</b>	<b>Maximum Allowable Wear (inches)</b>	<b>Chain Size (inches)</b>	<b>Maximum Allowable Wear (inches)</b>
1/4	3/64	1	3/16
3/8	5/64	1 - 1/8	7/32
1/2	7/64	1 - 1/4	1/4
5/8	9/64	1 - 3/8	9/32
3/4	5/32	1 - 1/2	5/16
7/8	11/64	1 - 3/4	11/32

#### 40.5.2.2 Wire Rope Slings

- Wire rope slings will be lubricated as necessary during use and no less than every four months when in storage.
- Eyes in wire rope bridles, slings or bull wires must not be formed by wire clips or knots.
- Protruding ends of strands in splices on slings or bridles will be covered or blunted
- Avoid sharp corners. Use pads or softeners to prevent damage.
- Wire rope slings will be removed from service for any of the following:
  - More than ten broken wires in one rope lay or five in one strand in one rope lay
  - More than one broken wire at an attached fitting.
  - There is wear or scraping of one-third the original diameter of outside individual wires.
  - Kinking, crushing, bird caging or similar damage.
  - Core protrusion, bulges in rope or gaps between strands
  - End attachments are cracked, deformed, or worn.
  - There is exposure to temperatures in excess of 200 degrees F. (fiber-core) or 400 degrees F (non-fiber core).
  - Corrosion of the rope or end attachments occurs.
  - Frozen - Do not use. Avoid sudden loading of cold ropes to prevent failure.
  - There is no visible identification tag.

#### 40.5.2.3 Synthetic Web Slings (nylon, polyester, and polypropylene)

This type of sling is susceptible to environmental conditions. Proper care and storage is necessary to maintain the sling in proper condition. Be aware of the following conditions:

- Chalky exterior – Indicates overexposure to sunlight (UV rays). Suspect slings will be removed from service and inspected by the manufacturer.
- Frozen - Thaw and dry at room temperature before use.

Synthetic web slings will be removed from service for any of the following:

- Colored warning fibers are visible
- Subjected to acid or caustic burns
- Melting or chaffing of any part of the sling surface occurs
- Snags, punctures, tears, or cuts are observed
- Stitches are worn or broken
- Fittings are distorted
- Oil-contaminated
- There is no visible identification explaining the maximum safe workload.

#### **40.5.2.4 Shackles**

Shackles for hoisting will be used within the rated capacities indicated on the shackle by permanently affixed and legible identification markings provided by the manufacturer.

Shackles will be manufactured of forged alloy steel. The shackle pin must never be replaced with a bolt as the pins are designed and manufactured to match shackle capacity. Shackles will never be used where it will be pulled or loaded at an angle as this severely reduces its capacity and opens up the legs.

Shackles will be removed from service for any of the following:

- Worn, distorted, or opened
- The crown is worn
- Cracked, corroded, or twisted
- Bent pin

#### **40.5.2.5 Hooks**

The manufacturer's recommendations will be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer's recommendations are available must be tested to twice the intended safe working load before they are initially put into use. Records of the dates and results of these tests will be maintained.

Hooks will be equipped with safety latches (except for sorting or grab hooks). Hooks must be loaded at the middle of the hook to avoid applying the load to the tip and other areas where the working load limit is considerably reduced.

Hooks will be removed from service for any of the following:

- Wear and deformation are found
- Cracks and twisting
- Corrosion
- Missing safety latch
- Hook is stretched open

### **40.6 Training**

Training will be conducted for all employees that will work with hoisting activities.

#### **40.6.1 Initial**

Initial training will be done prior to employees working with any type of sling assemblies.

#### **40.6.2 Refresher**

Refresher training will be done if employees show a lack of safety knowledge in regard to use of sling assemblies.

### **40.7 Reference**

OSHA Standard 29 CFR 1926.251

## Chapter 41 Hand and Power Tools Program

### 41.1 Purpose, Scope, and Policy

#### 41.1.1 Purpose

COMPANYNAME workers utilize many different types of hand and power tools in the performance of their tasks. It is vital to their health and well-being that they understand the hazards presented and the corrective measures to be used to reduce exposure to illness and injury.

#### 41.1.2 Scope

This program outlines responsibilities for management and all employees.

#### 41.1.3 Policy

All employees are required to follow the procedures and recommendations outlined in this program.

### 41.2 Roles and Responsibilities

#### 41.2.1 Employer

It is management's responsibility to train employees on proper usage and safety of hand and powered tools. Management will replace any defective tool and ensure employees are following safety policies.

#### 41.2.2 Employee

It is the employee's responsibility to attend training sessions and follow all safety procedures regarding the use of hand and powered tools. Never use tools without proper training. Employees will ensure that guards are in place and must remove from service and report any unsafe or defective tools.

### 41.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xxiii</sup>

### 41.4 Hazards

- Hazards associated with using hand and powered tools include (but are not limited to):
- Laceration
- Puncture
- Amputation
- Permanent disability
- Eye and facial injury
- Noise-induced hearing loss

Employees risk serious injury by not using tools properly, using unsafe tools, and by not wearing proper PPE. Injuries may be incurred by direct exposure to the point of operation, being struck by falling objects or by flying particulate matter such as dust and chips. Workers can also be exposed to fumes, mists, vapors, and gases which can lead to skin, eye, and respiratory injury.

### 41.5 Hazard Control Measures

#### 41.5.1 Employee Use of Personal Tools

The employer is responsible for providing workers with a safe and healthful work environment. This includes the tools that are used in the performance of work tasks. COMPANYNAME provides their employees with

the tools they need to do their job. Any personal tools used by employees must be approved by COMPANYNAME and must be maintained and used in accordance with the requirements of this program. Maintenance and repair costs are the responsibility of the employee.

#### **41.5.2 General**

- Always follow the manufacturer's guidelines for safe and effective use of the tool.
- Only use good quality tools and maintain them in a clean, safe condition.
- Inspect tools prior to use to ensure they have not been damaged since the last use.
- Do not use the tool unless properly trained and you have a good understanding of the hazards of using the tool, and how to protect yourself from hazard exposure.
- Always use the personal protective equipment required to prevent injury. Wear safety glasses whenever there is a flying particulate matter hazard.
- Keep the work area free of trip hazards and allow plenty of room to work. Look out for overhead hazards as well.
- Be aware of the potential for line-of-fire exposure. Have the tools pointed or operated in a safe direction and keep others out of the area where they can be struck by thrown objects including the workpiece as well as tool parts.
- Long hair, loose clothing, jewelry, gloves, etc. will not be allowed near rotating or powered equipment due to the hazard of the worker being pulled into the equipment.
- Store tools properly in their designated location after use.

#### **41.5.3 Hand Tools**

##### **41.5.3.1 Wrenches**

There are various types of wrenches used to turn, tighten, and loosen fittings, pipes, nuts, and bolts including adjustable jaw, open end, box end, combination, and pipe wrenches. There are also specialized wrenches used for specific purposes.

##### **41.5.3.1.1 Hazards**

Hazard exposures when using wrenches may include:

- The tool slipping off the workpiece.
- Sudden release of tension due to the workpiece breaking or suddenly loosening.
- Repetitive stress due to frequent manipulation of the tool.

##### **41.5.3.1.2 Safe Practices When Using Wrenches**

- Use the correct wrench for the job.
- Discard any damaged wrenches such as those with cracks, twists, opened jaw throats, or other physical damage beyond cosmetic damage.
- Select the correct jaw size to avoid slippage.
- Position your body in a way that will prevent you from losing balance if the wrench slips or something suddenly breaks.
- Ensure that the wrench jaws are in full contact with the nut or bolt before applying pressure.
- When using an adjustable wrench, the direction of the turn should be towards the fixed jaw.
- Make sure adjustable wrenches do not "slide" open during use. Maintain proper jaw adjustment to keep wrench engaged with the workpiece.
- When using a pipe wrench, ensure that the teeth are sharp and free of oil and debris and the pipe or fitting is clean to prevent unexpected slippage.
- Apply a small amount of pressure to the wrench to ensure it is fully engaged with the workpiece before increasing pressure to tighten or loosen.

- When using socket extensions, support the head of the ratchet wrench to maintain control of the tool and avoid slippage.
- Pull rather than push on wrenches. Pull smoothly and steadily rather than using sudden movements that can shock the wrench or workpiece.
- Do not use “persuader bars” or pipes to increase leverage. If you need more leverage, you need a longer handled wrench. The jaws may not be strong enough to hold up to the increased force and can break.
- Do not weld wrenches or expose them to excessive heat. Doing so may negatively affect the temper of the tool, weakening it.

#### **41.5.3.2 Pliers and Wire Cutting Tools**

Pliers are made in various sizes and for various uses but generally are used for gripping round objects, twisting wires (electrical), or cutting wires. Some pliers perform multiple tasks including gripping and cutting, some are adjustable (slip-joint or arc-joint), and some are specialized for specific tasks such as insulated lineman’s pliers for electrical work. Adjustable and locking pliers are also available.

##### **41.5.3.2.1 Hazards**

Hazard exposures when using pliers and wire cutters may include:

- The tool slipping off the workpiece.
- Sudden release of tension due to the workpiece breaking or suddenly loosening.
- Pinch and laceration due to being caught in the tool.
- Repetitive stress due to frequent manipulation of the tool or using a tool that is too large or small for the hand.

##### **41.5.3.2.2 Safe Practices When Using Pliers and Wire Cutting Tools**

- Choose pliers or wire cutters that have a grip span of 2-½” to 3-½” to prevent pinch injury when using the tool.
- Use adjustable pliers that allow you to firmly grip the workpiece firmly while maintaining a comfortable grip.
- Keep the jaw teeth are clean and sharp. Greasy or worn-down jaws can require increased force to hold the workpiece which, can increase the risk of muscle fatigue and repetitive strain injuries.
- Clean and maintain tools regularly to ensure optimal operation.
- Pull rather than push when using pliers. Pull smoothly and steadily rather than using sudden movements that can shock the tool or workpiece.
- Do not expose pliers or wire cutters to excessive heat.
- Do not bend stiff wire with light pliers or adjustable pliers. The tool can be damaged by the side-twisting motion. Use lineman’s pliers instead. This is especially applicable to needle-nose or adjustable pliers.
- Tools with cushioned handles are not necessarily electrically insulated. Cushioned grips are for comfort primarily and do not protect against electric shock. Use rated electrically insulated pliers and tools for electrical work. Whenever feasible, prior to performing electrical work, ensure the work is in an electrically safe condition (power disconnected and secured from re-energization). Any work done on energized equipment must be done by a qualified person under an Energized Electrical Work Permit.
- Do not use pliers on nuts and bolts; use a wrench.
- Do not cut hardened wire unless the pliers or wire cutters are specifically manufactured for this purpose.
- Cut at right angles and avoid rocking motions which can damage the tool.
- Make sure that the cutting edges are sharp. Dull and worn-down cutting edges require many times more force needed for cutting.

### 41.5.3.3 Screwdrivers

Screwdrivers are used to turn screws and bolts. There are various types including standard (slotted), Phillips-head, Torx-head, Robertson (square-tipped head), and Allen-head as well as specialty screwdrivers such as offset, insulated, and those having magnetic tips.

#### 41.5.3.3.1 Hazards

Hazard exposures when using screwdrivers may include:

- The tool slipping off the workpiece.
- Impalement due to poor hand placement should the tool slip off the workpiece.
- Electric shock when working on energized electrical equipment with non-insulated or improperly insulated tools.
- Sudden release of tension due to the workpiece breaking or suddenly loosening.
- Repetitive stress due to frequent manipulation of the tool or using a tool that is too large or small for the hand.

#### 41.5.3.3.2 Safe Practices When Using Screwdrivers

- Always match the screwdriver to the screw head, both in terms of size and type.
- Choose contoured handles that fit the shank tightly, with a flange to keep the hand from slipping off the tool.
- For cross head screws, use the correct size and type of screwdriver. There are different sized and types of crosshead screwdrivers. Make sure the size and angle of the tip match up with the screw head.
- Keep the screwdriver handle clean. A greasy handle can lead to unexpected slippage and/or hand strain.
- Prior to performing electrical work ensure the work is in an electrically safe condition (power disconnected and secured from re-energization). Any work done on energized equipment must be done by a qualified person under an Energized Electrical Work Permit.
- Do not lean or push on a screwdriver with any more force than is necessary to maintain contact with the screw. Keep the screwdriver shank in line with the screw to prevent slippage.
- When working with loose stock do not hold the workpiece in one hand while using the screwdriver with the other. If the screwdriver slips you may cut or impale your hand.
- Do not use a screwdriver for prying, punching, chiseling, scoring, scraping, or stirring paint.
- Do not expose a screwdriver blade to excessive heat such as welding or using a blow torch. Excessive heat can affect the temper of the metal and weaken the tool.
- Do not carry screwdrivers in your pockets.

### 41.5.3.4 Hammers (Striking Tools)

Hammers are striking tools used primarily to drive nails or other fasteners, to bend or shape metal, and breaking objects such as stone, masonry, and concrete. There are specific hammers designed for intended purposes.

#### 41.5.3.4.1 Hazards

- The primary hazard when working with hammers is striking oneself with the hammer or being struck by flying particulate matter. Safety glasses must be worn whenever working with striking tools.
- Hazards include:
- Smashed fingers or struck body parts due to poor positioning, improper use, or unexpected movement of the workpiece.
- Struck by flying fasteners, detached hammer heads, or debris.

- Repetitive stress injury.
- Broken handles.

#### **41.5.3.4.2 Safe Practices When Using Hammers**

- Inspect the tool before use and ensure that the head of the hammer is firmly attached to the handle, there is no mushroom or chip damage, and there are no cracks in the metal.
- Do not use a hammer with a loose or damaged handle or handles that are rough, cracked, broken, splintered, sharp-edged, or loosely attached to head.
- Select a hammer that is comfortable to use and is the proper size and weight for the job. Misuse can cause the striking face to chip, possibly causing a serious injury. Use the correct hammer for the intended task.
- Consider choosing a hammer with ergonomic features such as shock-absorbing or cushioned handle to protect you from vibration, impact, and squeezing pressure.
- When striking with the hammer strike squarely with the striking face parallel to the surface being struck. A glancing blow can lead to loss of control, damaged work or tool, and struck-by injury.
- Keep area clear including above and behind you when using the tool. Watch out for overhead electrical equipment and hazards as well. Keep enough clearance from fellow workers and maintain secure footing, and balance.
- Do not use hammers with sharp edges on the handle as doing so can reduce circulation in your finger after long periods of use.
- Avoid awkward positions when using the hammer to prevent strains.
- Do not redress, grind, or weld a hammer head. Use a file to smooth off chipped or mushroomed edges.
- Do not strike with the side or top of the hammer. Use only the striking surfaces engineered into the tool.

#### **41.5.3.5 Struck Tools**

Struck tools are made for various purposes and include chisels, punches, drift pins, nail sets, wedges, and others. Use the correct tool for the intended task. Safety glasses and hand protection must be worn whenever working with struck tools. Hand protection may be engineered into the tool such as a rubber shield on the tool shaft. If necessary, the tool can be held in position with tongs or a tool-specific holder to avoid placing the hand near the activity.

##### **41.5.3.5.1 Hazards**

- Smashed fingers or struck body parts due to poor positioning, improper use, or unexpected movement of the workpiece.
- Struck by the hammer, flying chips, debris, or other particulate matter.
- Repetitive stress injury.
- Laceration from sharp edges.

##### **41.5.3.5.2 Safe Practices When Using Struck Tools**

- Inspect the tool prior to use. If the tool is not in a safe working condition correct the unsafe condition or replace the tool. Tool edges should be sharp, and the impact surface must be free of mushrooming and chips.
- When using a chisel, hold the chisel at an angle which permits the bevel of the cutting edge to lie flat against the shearing plane.
- Do not allow chisels to be hand-held by one employee and struck by another. Use tongs or a chisel holder to guide the chisel to avoid hand injury.
- Do not use struck tools if the cutting edge is dull or chipped, or if the point of a punch is slanted or damaged.



- Metal chisels should have clean sharp edges. When necessary, redress the cutting edge to its original shape. Grind to a slightly convex cutting edge. The point angle of the chisel should be 70° for hard metals, 60° for soft.
- Do not apply excessive pressure when grinding a chisel. The heat generated can remove the temper. Immerse the chisel in cold water periodically when grinding.
- Do not use struck tools if the impact surface is chipped or mushroomed. Redress burred or mushroomed heads. Whenever possible, use a file to redress rather than a grinder to avoid changing the temper of the metal.
- When using punches and pins on rounded surfaces, hold them firmly in position before striking.
- Do not use cold chisels for cutting or splitting stone or concrete.
- Do not use a drift pin punch (also called an aligning punch) as a pin punch intended for driving, removing, or loosening pins, keys, and rivets.

#### **41.5.4 Power Tools**

##### **41.5.4.1 General Safety Practices**

- Prior to use, review the owner's/operation's manual to familiarize yourself with proper use, safety features, and precautions as established by the manufacturer.
- Inspect the tool to ensure it has not been damaged since last use. The inspection should include operational controls, guard operation, electrical cords and other means of supplying power, and general physical condition. Cutting edges should be confirmed sharp and in good condition. The tool should be free from any physical damage beyond cosmetic damage. Warning labels and information must be clearly legible.
- Use the correct tool for the intended task.
- Never carry, raise, or lower a tool by the cord, or hydraulic or pneumatic hoses.
- Prior to servicing tools including blade, bit, wheel, or other changes, unplug or disconnect the tool from the power source and maintain control of the cord or hose to establish an energy isolated condition.
- Do not wear loose clothing, jewelry, or dangling objects when operating power tools. Workers with long hair or facial hair should control and contain their hair to prevent it from being caught in rotating or moving tool parts.
- Out of service tools or tools that are unsafe to use should be removed from service and clearly marked with an "Out Of Service. Do Not Use." label, tag, or sticker.
- When not in use, return and properly store the tool in its designated location.

##### **41.5.4.2 Guarding**

- Tool guards are typically provided to protect the worker from the point of operation, nip points, rotating and moving machine parts, and flying chips and other particulate matter.
- Maintain proper trigger discipline. Keep your fingers off the switch when carrying plugged-in power tools, always check that the switch is in the neutral or off position before plugging in the tool or inserting a battery.
- Power tools must be equipped with a safety switch that:
  - Is of the momentary ON/OFF type;
  - has a lock-on control provided that deactivation can be accomplished by a single motion of the same finger or fingers used to activate it; or
  - requires constant pressure to run and will shut off when the pressure is released, such as required for hand-held gasoline-powered chain saws.
- When designed to accommodate guards, the tool will be equipped with such guards when in use. Inspect the guard(s) before each use to ensure they are not damaged and are installed and working properly.
- Point of operation guards will be in place and not defeated on tools such as table saws, circular saws, jointers, shears, cutters, presses, milling machines, jointers, etc.

- Reciprocating, rotating, or moving parts of equipment will be guarded if such parts are exposed to contact by employees or otherwise create a hazard.
- Examples include belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, etc. Guarding shall meet the requirements as set forth in American National Standards Institute, B15.1-1953 (R1958), Safety Code for Mechanical Power-Transmission Apparatus.
- Use push sticks or other tools when working close to the point of operation to reduce risk of contact with equipment.
- If a tool guard is missing, remove it from service and clearly mark it with an "Out of Service. Do Not Use." label, tag, or sticker. Then notify the Supervisor.
- Fans and other air movers have blades that spin at high speeds. When the edges of the fan blades are less than seven feet (7') from the walking or working surface they must be guarded by screening having openings of no greater than one-half inch (½").

#### 41.5.4.3 Electric Tools

- Never yank a cord or unplug it by yanking on the cord. When unplugging the cord grasp the plug and pull from smoothly from the socket.
- All corded power tools must be 3-wire grounded or double insulated and must be listed by Underwriter's Laboratory (UL) or another recognized listing agency.
- Never stand in water when operating corded power tools.
- Always use ground-fault circuit interrupters (GFCI) when using power tools. This is especially important in damp or wet environments or areas where water has accumulated.
- Use the proper extension cord for the tool. Extension cords should not be more than 100' in length (combined), must be of the 3-wire grounded type, at least 14gauge wire (12g preferred), and moisture resistant. A heavy-duty outdoor use extension cord is usually adequate provided it meets these requirements.
- When selecting an extension cord consider the cord letter rating.
  - S (multi-purpose)
  - W (weather resistant)
  - J (300V insulated)
  - T (Vinyl thermoplastic sheathing [heat-resistant])
  - P (Indoor use)
  - E (Thermoplastic elastomer rubber [extra heavy-duty use, especially in cold environments])
  - O (Oil-resistant)
  - N (Nylon sheathing [flame resistant])

For most industrial and construction purposes, a cord rated SJTW is ideal. A cord rated 'P' is not recommended for heavy-duty industrial or construction use.

#### 41.5.4.4 Portable Generators

Working with portable fuel-powered generators can expose workers to electrical energy, mechanical energy (moving parts), hazardous chemicals (fuel), and carbon monoxide poisoning.

- Always inspect the generator for damage, missing guards and protective covers, leaking or loose fuel lines, and damaged electrical outlets.
- Test GFCIs before use. If the generator is not equipped with integral GFCIs then use a pigtail GFCI for each extension or power cord running off the generator.
- If GFCIs are not available then the generator must be operated using an assured grounding program. See the electrical safety program for more information.
- Keep the generator dry and protected from weather exposure. Maintain and operate it according to the manufacturer's instructions.
- Fuel powered generators should not be operated indoors, or in enclosed spaces such as garages, crawl spaces, and basements. If the generator must be used indoors then adequate ventilation

must be provided. A carbon monoxide detector should be used to alert workers of buildup of carbon monoxide gas.

- Generators should be used outdoors, but never place a generator near doors, windows, or ventilation shafts where CO can enter and build up inside enclosed buildings, rooms, or spaces.
- Make sure the generator has a minimum four-foot (4') clearance on all sides and above to ensure adequate airflow around the equipment.
- If workers in the area begin showing signs and symptoms of CO poisoning—dizziness, headaches, nausea/vomiting, tiredness, confusion, unconsciousness—get to fresh air immediately and seek medical attention. Do not re-enter the area until it is determined to be safe by trained and properly equipped personnel

#### 41.5.4.5 Hydraulic Tools

Hydraulic tools can generate a great deal of force and under high-pressure. Workers can be exposed to severe crush injury, impact injury should the tool or workpiece slip or break, or fluid-injection injury if exposed to a catastrophic failure of a pressurized line or component. Hydraulic tools such as cutters, rams, and jacks are often used in the workplace.

These tools must be used only by workers who are trained to recognize and understand the hazards of working with these tools, the protective measures recommended by the manufacturer, and in the proper use of the tool. Review the owner's/operator's manual and always use the tool only for the purposes for which it is designed.

Hydraulic fluid used in these tools must be fire-resistant and must retain its operating characteristics at the most extreme temperatures (both hot and cold) to which it will be exposed.

Never exceed safe operating pressures for hoses, valves, pipes, filters, and other fittings as established by the manufacturer.

#### 41.5.4.6 Pneumatic Tools

Pneumatic tools often operate at higher pressures (usually >90 psi) and can generate a great deal of force. Additionally, they can generate excessive noise levels and can cause permanent hearing damage even in short-duration exposures. Eye, face, and hearing protection must be worn any time using pneumatic tools. Pneumatic tools such as sprayers, chippers, hammers, nailers, staplers, riveters, drills, grinders, and sanders are often seen in use at the workplace.

- Pneumatic power tools that are fed by air hoses having an inside diameter of one-half inch (½") or greater shall have the couplings secured by use of a safety pin or wire through the provided points on the couplings, or a 'whip-check' device to prevent hose line whip should the couplings accidentally disconnect. The couplings must be secured at the tool end, the power supply end, and any couplings in between.
- Pneumatic power tools that are fed by air hoses having an inside diameter of less than one-half inch (½") shall have the couplings secured by some positive means to prevent accidental disconnection. Quick connect/disconnect couplings can be use provided they require two actions to disconnect.
- Safety clips or retainers will be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
- Set up screens to protect nearby workers from being struck by flying fragments and other particulate matter.
- Never pressurize the tool or hose lines beyond the manufacturer recommended pressure.
- All hoses with an inside-diameter exceeding one-half inch (½" ID) must be equipped with a safety device to reduce pressure should the hose fail.

- All pneumatic nailers, staplers, and other similar tools provided with automatic fastener feeds which operate at more than 100 psi pressure to the tool, must be equipped with a working safety device on the point of operation to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface. This safety device must never be removed, altered, or defeated.
- Be aware of the potential for line-of-fire exposure. Compressed air guns must always be pointed in a safe direction. Keep others out of the area where they can be struck by thrown objects including the workpiece as well as tool parts. Users must never 'dead-end' the tool against themselves or anyone else.
- Supplied compressed air will not be used for cleaning purposes except when reduced to thirty pounds per square inch (30 psi) and then only with effective chip guarding and with proper PPE.
- When used for cleaning purposes the nozzle must be equipped with a 'safety tip' to provide for blowoff of excess pressure if 'dead-ended' against an employee's skin.
- Abrasive blast cleaning nozzles will be equipped with a 'dead man' switch that stops the flow of pressure and abrasive media when released.

#### 41.5.4.7 Fuel-Powered Tools

- All fuel-powered tools will be shut off during refueling, servicing, or maintenance. Allow the equipment to cool down to prevent contact burns from hot components, especially the muffler and the engine block.
- Fuel containers must be less than five gallons in capacity, fire-resistive (metal), and be equipped with a self-closing lid or spout and have a flame arrestor screen in place at the opening.
- Fuel will be transported, handled, and stored in accordance with USEPA and USDOT rules and procedures. They should be stored in a well-ventilated area free from exposure to ignition sources or activity that could cause damage to the container.
- Fuel-powered tools should not be used indoors. If it is necessary to use fuel-powered tools indoors then it should be done only in a well-ventilated area. Atmospheric monitoring must be done while using the equipment to ensure the air quality is within permissible exposure limits. Carbon monoxide is an asphyxiant and gasoline and diesel fumes are carcinogenic and can cause serious, long-lasting health effects.

#### 41.5.4.8 Bench and Angle Grinders

- Abrasive wheel bench grinders will have all guarding in place. This guarding will include end covers, tongue guards and tool rests. The tongue guards will be properly adjusted to within one-quarter inch ( $\frac{1}{4}$ " ) of the wheel. The tool rest will be properly adjusted to within one-eighth inch ( $\frac{1}{8}$ " ) of the wheel. The guarding will never be adjusted while the wheel is in motion.
- Operators of abrasive wheel grinders will not stand directly in front of the machine during start up. This is to prevent injury caused by breakup of the wheel during startup.
- Grinding wheels must be inspected before use to ensure they have not been cracked. Use the ring test on abrasive grinding (stone, vitrified and silicate) wheels to check for cracks and damage.
- All abrasive wheels will match the rpm specifications of the grinder to which they are attached.
- When using angle grinders equipped with grinding or cutting wheels the guard and T-handle must be properly installed and used.
- All power transmission components including, but not limited to gears, belts, sprockets, pulleys, couplings, motors, etc. will be properly guarded to prevent employee contact with hazardous areas.
- Tools must be stored properly in their designated location when not in use.

#### 41.5.4.9 Powder-Actuated Fastening Tools

Only employees who have been trained in the operation of the specific tool in use shall be allowed to operate a powder-actuated tool. A certification card documenting the training must be available on request.

- Powder-actuated fastening tools shall be tested each day before loading to ensure the safety devices are in proper working condition. The method of testing shall be in accordance with the

manufacturer's recommended procedure. Any tool found not to be in proper working order shall be immediately removed from service, tagged out of service, and secured until repairs are made.

- Powder-actuated tools shall be tagged and removed from service if any of the following defects are present:
  - Tool has visible signs of worn or damaged parts.
  - Missing or malfunctioning parts or accessories.
  - Missing operator's instruction manual or missing power load and fastener chart.
  - Tool misfires more than one time during use.
- Employees using powder-actuated fastening tools shall wear personal protective equipment in accordance with the OSHA requirements and manufacturer recommendations.
- Safety glasses and face shields shall be worn when using the tool.
- Personnel, other than the tool operators shall stay clear of the area while the tool is being used.
- Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any employees. Hands shall be kept clear of the open barrel end.
- Loaded tools shall not be left unattended.
- Powder-actuated fastening tools shall not be used in an explosive or flammable atmosphere.
- All tools shall be used with the correct shield, guard, or attachment recommended by the manufacturer.
- Fasteners shall not be driven into very hard or brittle materials such as cast iron, glazed tile, surface hardened steel, glass block, live rock, face brick or hollow tile.
- Fasteners shall not be driven into soft materials unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the opposite side.
- Unless a special guard, fixture, or jig is used, fasteners shall not be driven directly into materials such as brick or concrete within three inches (3") of the unsupported edge or corner, or into steel surfaces within ½ inch of the unsupported edge or corner. When fastening other material, such as 2" x 4" lumber to a concrete surface, fasteners of greater than 7/32-inch shank diameter shall not be used, and fasteners shall not be driven within two inches (2") of the unsupported edge or corner of the work surface.
- Fasteners shall not be driven through existing holes unless a positive guide is used to secure accurate alignment.
- No attempt shall be made to drive a fastener into a spalled area caused by an unsatisfactory fastening.
- In case of a misfire, the operator shall hold the tool in the operating position for at least thirty (30) seconds and shall continue to hold the muzzle against the work surface during disassembly or opening of the tool and removal of the powder load.
- Neither tools nor powder charges shall be left unattended in places where they would be available to unauthorized persons.
- Powder-actuated tools used by employees shall meet all other applicable requirements of American National Standards Institute, A10.3-1970, Safety Requirements for Explosive-Actuated Fastening Tools.

A sign at least 8" x 10", using boldface type no less than one inch (1") in height, shall be posted at all approaches within fifty feet (50') of the area where the tool is being used. The sign shall bear the following wording:

**WARNING**  
**POWDER-ACTUATED**  
**TOOLS IN USE**



## **41.6 Training**

### **41.6.1 Initial**

Initial training will be conducted through new hire orientation or prior to the use of the hand or power tool for the first time by the employee.

### **41.6.2 Refresher**

Refresher training will be administered when the following situations occur:

- Changes in equipment, the workplace, or the type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## **41.7 Reference**

- OSHA Standard 29 CFR 1910 Subpart P
- OSHA Standard 29 CFR 1926 Subpart I

## Chapter 42 Machine Guarding Program

### 42.1 Purpose, Scope, and Policy

#### 42.1.1 Purpose

The purpose of COMPANYNAME's machine safeguarding policy is to ensure the safety of our employees by establishing appropriate machine safeguarding procedures for any machine part, function or process that may cause injury.

#### 42.1.2 Scope

This program outlines responsibilities for all employees.

#### 42.1.3 Policy

This written Machine Guarding Plan describes rules and regulations that this company mandates for safety use of machines, equipment, and tools that can be read and understood by all managers, supervisors, and employees. Only qualified personnel may install or repair equipment. Employees must notify the Safety Coordinator or your project manager if machinery or equipment needs any type of repair.

### 42.2 Roles & Responsibilities

#### 42.2.1 Employer Responsibilities

It is management's responsibility to ensure all machinery is maintained with the guarding originally provided by the manufacturer.

#### 42.2.2 Employee Responsibilities

It is the employee's responsibility to attend training sessions regarding machine equipment safety. Employees will not remove or bypass any guards on machines. Employees will report any unsafe equipment to management and also not operate machinery if the guard is not in place.

### 42.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.<sup>xxiv</sup>

### 42.4 Hazards

Hazards associated with unguarded or improperly guarded machines can lead to laceration, fractures, amputations, or death.

### 42.5 Hazard Control Measures

All machines consist of three fundamental areas; the point of operation, the power transmission device, and the operating controls. Despite all machines having the same basic components, their safeguarding needs widely differ due to varying physical characteristics and operator involvement. The following pages address the general requirements for machinery set forth by OSHA, the motions and actions that contribute to different machine hazards and additional considerations that entail overall machine and operator safety.

#### 42.5.1 Prevent contact

The guards prevent hands, arms, or any part of an employee's body or clothing from contacting dangerous moving parts.

### 42.5.2 Secure

Guards are not easy to remove or alter. Guards and safety devices are made of durable material that will withstand the conditions of normal use. They are firmly secured to the machine.

### 42.5.3 Protect from falling objects

The guards ensure that no objects can fall into moving parts.

### 42.5.4 Create no new hazards

If a guard creates a hazard of its own such as shear point, a jagged edge, or an unfinished surface which can cause a laceration, then employees must not use the piece of machinery or equipment.

### 42.5.5 Pre-Operational Procedures

All machinery must be inspected prior to use to ensure that:

- Employees may not use any machinery if a guard is defective, damaged, or in any way does not meet the requirements of these procedures, and employees must immediately notify the Safety Coordinator or your project manager.
- Employees must wear the necessary and appropriate personal protective equipment (PPE) before and during use of any machinery or equipment.
- Clothing and jewelry that could become entangled in the machinery or equipment should always be removed prior to operating any machinery.
- When lockout/tagout procedure is in place on a piece of machinery or equipment, never remove or operate the machinery or equipment.
- Never operate equipment while under the influence of intoxicating substances (including medication).
- Employees may not remove a guard for any reason while operating any piece of machinery or equipment.
- Electric cables and cords are kept clean and free from kinks. Equipment may never be carried by the cord.

### 42.5.6 Enforcement of Policy

All employees and supervisors need to understand how to operate the machinery, tools, and equipment in a safe manner and in compliance with all safety rules. Supervisors and management will issue disciplinary warnings and possible termination of any employee who doesn't follow these guidelines.

## 42.6 Training

All employees who will be exposed to machinery shall be trained about the machinery prior to starting the job, including identifying the hazards associated with the machines they work around.

### 42.6.1 Initial

Initial training will be conducted through new hire orientation or prior to the use of equipment/machinery for the first time by the employee.

### 42.6.2 Refresher

Refresher training will be administered when the following situations occur:

- Changes in equipment, the workplace, or the type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly



## **42.7 Reference**

OSHA Standard 29 CFR 1926.600

## Chapter 43 Hot Work Safety Program

### 43.1 Purpose, Scope, and Policy

#### 43.1.1 Purpose

The purpose of this program is to protect life and property from fire and hazards associated with welding, cutting, brazing, and grinding operations.

#### 43.1.2 Scope

This program applies to all employees who perform welding, cutting, brazing, or grinding (Hot Work) as part of their job functions in a construction setting

#### 43.1.3 Policy

It is our policy that all employees involved in welding and cutting will be trained, certified, or licensed, as necessary to perform hot work safely. Any employee violating the safety policy of COMPANYNAME, or observed by supervision to commit unsafe acts involving hot work may be subject to disciplinary action up to and including termination, or retraining.

### 43.2 Roles & Responsibilities

#### 43.2.1 Employer Responsibilities

##### 43.2.1.1 Management

Management is responsible for training its employees on the safe working processes involved with cutting, welding, and brazing. It is management's responsibility to ensure safe usage of welding, cutting, and brazing equipment.

##### 43.2.1.2 Supervisors

Supervisors are responsible for ensuring that employees are following established safety protocols during welding, cutting, and brazing operations.

- Ensure the safe handling and operation of welding, cutting, and brazing equipment
- Determine the combustible materials and hazards present or likely to be present at the work location
- Remove combustibles or protect from ignition
- Assign an individual or individuals as fire watch when required, as specified below

#### 43.2.2 Employee Responsibilities

It is ultimately the employee's responsibility to follow management's safety policies and be responsible for their own safety as well as that of their coworkers. Employees are responsible for wearing the proper PPE and following safety procedures to prevent injuries or fires from occurring. Employees must secure approval that conditions are safe before welding and cutting and must report any hazardous conditions observed to management. Employees have the right to refuse unsafe work. Violations of these roles and responsibilities may be grounds for disciplinary action.

### 43.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.<sup>xxv</sup>

### 43.4 Hazards

Workers performing hot work such as welding, cutting, brazing, and grinding are exposed to the risk of fires from ignition of flammable or combustible materials in the space, and from leaks of flammable gas into the space, from hot work equipment.

- Burns by fires or explosions during hot work.
- Burns from a flash fire or explosion that results from an accumulation of flammable gases, such as Methane or Hydrogen Sulfide.
- Injury and illness caused by welding fumes, UV light, sparks, noise, or skin injury.
- Struck-by or trip and fall injuries from improper gas cylinder storage.
- Grinding that results in sparks, noise, eye, and skin injury from flying metal particles, grinding wheel pieces, etc.
- Having fingers or hands caught in the grinding wheel, resulting in amputation.
- Being struck by portable grinder.

## **43.5 Hazard Control Measures**

### **43.5.1 Fire and Explosive Hazards**

When performing hot work in an area containing any fire protection equipment (i.e. smoke detectors, sprinkler heads, heat detectors, etc.) the appropriate measures must be taken to disable or protect it.

All flammable materials (i.e. gasoline, propane, etc.) and combustible materials (i.e. cardboard, wood, plastics, etc.) must be removed from the area before hot work begins. If combustible materials cannot be moved, they must be covered with a fire-resistant protective shield.

Welding blankets are the primary means of preventing sparks and slag from falling to levels below. Where their use is not feasible, an assessment of the fire hazards on the floors below is required prior to the start of work. Flammable liquids and combustible materials will be removed on these lower floors and a controlled access zone will be established and manned at all times by a second dedicated fire guard.

Do not perform hot work where flammable vapors or combustible materials exist. Work and equipment should be relocated outside of the hazardous areas, when possible.

Make suitable fire-extinguishing equipment immediately available. Such equipment may consist of water hoses or portable extinguishers.

Assign additional personnel (fire watch) to guard against fire while hot work is being performed. Fire watchers are required whenever welding or cutting is performed in locations where anything greater than a minor fire might develop.

Fire Watchers must:

- Have a charged 10 lb. or greater ABC fire extinguisher readily available and be trained in its use.
- Be familiar with facilities for sounding an alarm in the event of a fire.
- Watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm.
- Inspect the work area thirty minutes after completion of welding or cutting operations and again at sixty minutes after completion of Hot Work to detect and extinguish possible smoldering fires.

Supervisors must be immediately notified of any incident involving hot work, regardless of how minor. Fires of all sizes must be reported to Management, even if they're immediately extinguished.

### **43.5.2 Fire Prevention**

#### **43.5.2.1 General Precautions**

- Good housekeeping is crucial to prevent fires from occurring
- Welding, cutting, and brazing work should be moved at least 35 feet away from combustibles whenever possible

- If the work cannot be readily moved, all movable fire hazards in the vicinity will be moved at least 35 feet away from the work
- If the work cannot be readily moved and all fire hazards cannot be removed, guards will be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards
- If none of the above requirements can be followed, then welding and cutting will not be performed
- Schedule welding, cutting, and brazing operations so that they are not started when work operations would cause an increased risk for fire
- Ensure that fire protection and extinguishing equipment are available

#### **43.5.2.2 Special Precautions**

- Wherever floor openings, floor cracks, open doorways, holes in the walls, open or broken windows, or openings that cannot be closed are present, precautions will be taken so that no readily combustible materials on the floor below or other side of walls will be exposed to sparks that may pass through the cracks or openings
- Suitable fire extinguishing equipment will be maintained in a state of readiness for instant use

#### **43.5.2.3 Designated Safe Work Area**

Where feasible, a Designated Hot Work Area will be established for the purposes of performing Hot Work. For a space to be classified as a Designated Hot Work Area, it must meet the following requirements:

- Noncombustible, fire-resistive construction
- Free of combustible and flammable contents
- Suitably segregated from adjacent areas
- Equipped with an appropriate fire extinguisher
- Inspected and approved by the Safety Coordinator or designee

#### **43.5.2.4 Authorization**

Before cutting, welding, or brazing is permitted, the area will be inspected by the individual responsible for authorizing welding, cutting, and brazing operations. The Hot Work Safety Checklist will be used to assist in performing a complete inspection.

#### **43.5.2.5 Hot Work Permit**

A Hot Work Permit must be utilized any time work involves open flame, welding, and high spark production except in designated Hot Work Areas.

Where Hot Work must be performed in an area other than a designated Hot Work Area, a Hot Work Permit will be completed to identify the work being performed, the responsible parties who have performed the necessary inspections, and Fire Watch.

##### **43.5.2.5.1 Prevention**

Where possible, move the work to a safe location or designated Hot Work Area. If the object cannot be readily moved, then the work area must be cleared of all moveable fire hazards.

If the work cannot be relocated to a designated Hot Work Area and fire hazards in the work area cannot be moved, then all fire hazards must be covered with fire-resistant tarps or coverings.

All holes in floors and walls including cracks, gaps, open doorways, open or broken windows, gratings, and floor drains must be covered to prevent sparks or slag from falling to lower elevations or into adjacent areas.

##### **43.5.2.5.2 Fire Watch**

A Fire Watch will be established whenever cutting, welding, or brazing is performed in locations where there is a risk for greater than a minor fire, or any of the following conditions exist:

- Appreciable combustible material in the building's construction or contents is closer than 35 feet to the point of operation
- Appreciable combustibles are more than 35 feet away but are easily ignited by sparks
- Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas including concealed spaces in walls or floors
- Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation
- Fire watchers will have fire extinguishing equipment readily available and be trained in its use
- When fire watchers are required, they will be available at the site for one half hour after completion of welding, cutting, and brazing processes
- Fire watchers may be required in adjoining areas and areas above and below the work

#### **43.5.2.6 Floors**

- If there are combustible materials such as paper clippings, wood shavings, or textile fibers on the floor, the floor will be swept clean for a radius of 35 feet
- Combustible floors will be kept damp, covered with damp sand, or protected by fire-resistant shields

#### **43.5.2.7 Prohibited Areas**

Cutting or welding will not be permitted in the following situations:

- Areas not authorized by management
- In buildings with sprinklers, while such protection is impaired
- In the presence of explosive atmospheres
- In areas near storage of large quantities of exposed readily ignitable materials

#### **43.5.3 Welding, Cutting, and Brazing**

Inspect the work area to ensure that all fuel and ignition sources are isolated by shielding, clearing the area, or employing lockout/tagout.

Workers performing hot work must wear the required personal protective equipment including a burn jacket, gloves, welding helmet or burn glasses, etc. In addition, a screen is to be used when welding for the protection of other workers. All power tools (i.e. handheld grinders, chop saws, etc.) must be used only with all required guards in place. Face shields and safety glasses must be worn when using tools that produce sparks or slag.

For any hot work requiring the use of respiratory protection, workers must be medically evaluated and fit-tested for respirator use.

Hoses and welding leads must be properly connected and free of cuts, burns and other damage. Cylinder regulator gauges must be operational. Compressed gas cylinders must be checked daily for leaks and cracks.

Inspect welding and cutting equipment before use (arc or gas welding/burning).

Leak test gas torches, gauges, and hoses.

Ensure the availability of adequate fire watch/fire protection equipment.

Ensure adequate ventilation from toxic welding and cutting fumes.

For hot work performed in enclosed areas, a smoke eater could be used at the burning point for the protection of the worker performing the hot work and other workers.

Ventilate toxic metal fumes mechanically, if entering a confined space, such as inside of a mud tank, water tank, oil tanks, hoppers, sump, pit, or cellar.

Prior to any welding of exotic metals (i.e. galvanized steel, lead, stainless steel cadmium, chromium, etc.), a pre-task plan must be developed to ensure compliance with OSHA 1926.353(c), and OSHA 1926 Subparts D and E.

Use a written permit system to document authorization to enter, the work to be performed, and the results of the gas monitoring where there is a potential for toxic, flammable, or oxygen-deficient atmosphere. Both a hot work and confined entry permit may be required for welding, cutting, or brazing within a confined space.

All work to be performed in a confined space requires a complete hazard assessment of the space to include air monitoring as well as completion of a pre-task plan and meeting which specifically addresses the need for ventilation, attendants, and rescue. Compressed gas cylinders must not be taken into confined spaces. Prior to performing any hot work on a tank or vessel that formerly housed a flammable or explosive gas or liquid, certification of the proper purging and cleaning of this tank or vessel is required.

#### **43.5.4 Grinding**

Wear appropriate PPE, including a face shield with safety glasses and gloves.

Inspect grinding equipment before use to ensure good condition including the proper guards and handles are in place.

Ensure the availability of adequate fire watch/fire protection equipment.

#### **43.5.5 General Welding, Cutting, and Heating**

Welding, cutting, and heating, not involving conditions or materials may normally be done without mechanical ventilation or respiratory protective equipment, but where, because of unusual physical or atmospheric conditions, an unsafe accumulation of contaminants exists, suitable mechanical ventilation or respiratory protective equipment will be provided.

Employees performing any type of welding, cutting, or heating will be protected by suitable eye protective equipment. Refer to the Shade Tables chart in the appendix.

Before welding, cutting, or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test will be made by a competent person to determine its flammability. Preservative coatings will be considered to be highly flammable when scrapings burn with extreme rapidity.

Precautions will be taken to prevent ignition of highly flammable hardened preservative coatings. When coatings are determined to be highly flammable, they will be stripped from the area to be heated to prevent ignition.

#### **43.5.6 Compressed Gas Cylinders**

##### **43.5.6.1 Transporting, Moving, and Storing Compressed Gas Cylinders**

- Valve protection caps will be in place and secured.
- When cylinders are hoisted, they will be secured on a cradle designed for this purpose.
- They will not be hoisted or transported by means of magnets or choker slings.
- Cylinders will be moved by carefully tilting and rolling them on their bottom edges.
- They will not be intentionally dropped, struck, or permitted to strike each other violently.
- When cylinders are transported by powered vehicles, they will be secured in a vertical position.
- Valve protection caps will not be used for lifting or moving cylinders from one vertical position to another.
- Bars will not be used under valves or valve protection caps to pry cylinders loose when frozen. Warm, not boiling, water will be used to thaw cylinders loose.
- Unless cylinders are firmly secured on a special carrier intended for this purpose, regulators will be removed, and valve protection caps put in place before cylinders are moved.

- A suitable cylinder cart, chain, or other steadying device will be used to keep cylinders from being knocked over while in use.
- When work is finished, when cylinders are empty, or when cylinders are moved at any time, the cylinder valve will be closed.
- Compressed gas cylinders will be secured in an upright position at all times except, if necessary, for short periods of time while cylinders are actually being hoisted or carried.

Oxygen cylinders in storage will be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet (6.1 m) or by a noncombustible barrier at least 5 feet (1.5 m) high having a fire-resistance rating of at least one-half hour.

Inside of buildings, cylinders will be stored in a well-protected, well-ventilated, dry location, at least 20 feet (6.1 m) from highly combustible materials such as oil or excelsior. Cylinders should be stored in definitely assigned places away from elevators, stairs, or gangways. Assigned storage places will be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized persons. Cylinders will not be kept in unventilated enclosures such as lockers and cupboards.

#### **43.5.6.2 Placing Cylinders**

Cylinders will be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them. When this is impractical, fire resistant shields will be provided.

- Cylinders will be placed where they cannot become part of an electrical circuit.
- Electrodes will not be struck against a cylinder to strike an arc.
- Fuel gas cylinders will be placed with valve end up whenever they are in use.
- They will not be placed in a location where they would be subject to open flame, hot metal, or other sources of artificial heat.
- Cylinders containing oxygen or acetylene, or other fuel gas will not be taken into confined spaces.

#### **43.5.6.3 Treatment of Cylinders**

- Cylinders, whether full or empty, will not be used as rollers or supports.
- No person other than the gas supplier will attempt to mix gases in a cylinder.
- No one except the owner of the cylinder or the person they authorize will refill a cylinder.
- No one will use a cylinder's contents for purposes other than those intended by the supplier.
- All cylinders used will meet the Department of Transportation requirements published in 49 CFR Part 178, Subpart C, and Specification for Cylinders.
- No damaged or defective cylinder will be used.

#### **43.5.6.4 Use of Fuel Gas**

COMPANYNAME will thoroughly instruct employees in the safe use of fuel gas, as follows:

- Before a regulator to a cylinder valve is connected, the valve will be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.)
- The person cracking the valve will stand to one side of the outlet, not in front of it.
- The valve of a fuel gas cylinder will not be cracked where the gas would reach welding work, sparks, flame, or other possible sources of ignition.
- The cylinder valve will always be opened slowly to prevent damage to the regulator.
- For quick closing, valves on fuel gas cylinders will not be opened more than 1 1/2 turns.
- When a special wrench is required, it will be left in position on the stem of the valve while the cylinder is in use so that the fuel gas flow can be shut off quickly in case of an emergency.
- In the case of manifold or coupled cylinders, at least one such wrench will always be available for immediate use.
- Nothing will be placed on top of a fuel gas cylinder, when in use, which may damage the safety device or interfere with the quick closing of the valve.

- Fuel gas will not be used from cylinders through torches or other devices which are equipped with shutoff valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.
- Before a regulator is removed from a cylinder valve, the cylinder valve will always be closed, and the gas released from the regulator.
- If, when the valve on a fuel gas cylinder is opened, there is found to be a leak around the valve stem, the valve will be closed, and the gland nut tightened. If this action does not stop the leak, the use of the cylinder will be discontinued, and it will be properly tagged and removed from the work area. In the event that fuel gas should leak from the cylinder valve, rather than from the valve stem, and the gas cannot be shut off, the cylinder will be properly tagged and removed from the work area. If a regulator attached to a cylinder valve will effectively stop a leak through the valve seat, the cylinder need not be removed from the work area.
- If a leak should develop at a fuse plug or other safety device, the cylinder will be removed from the work area.

#### **43.5.6.4.1 Hose**

- Fuel gas hose and oxygen hose will be easily distinguishable from each other.
- The contrast may be made by different colors or by surface characteristics readily distinguishable by the sense of touch.
- Oxygen and fuel gas hoses will not be interchangeable.
- A single hose having more than one gas passage will not be used.
- When parallel sections of oxygen and fuel gas hose are taped together, not more than 4 inches out of 12 inches will be covered by tape.
- All hose in use, carrying acetylene, oxygen, natural or manufactured fuel gas, or any gas or substance which may ignite or enter into combustion, or be in any way harmful to employees, will be inspected at the beginning of each working shift. Defective hose will be removed from service.
- Hose which has been subject to flashback, or which shows evidence of severe wear or damage, will be tested to twice the normal pressure to which it is subject, but in no case less than 300 p.s.i.
- Defective hose, or hose in doubtful condition, will not be used.
- Hose couplings will be of the type that cannot be unlocked or disconnected by means of a straight pull without rotary motion.
- Boxes used for the storage of gas hose will be ventilated.
- Hoses, cables, and other equipment will be kept clear of passageways, ladders, and stairs.

#### **43.5.6.4.2 Torches**

- Clogged torch tip openings will be cleaned with suitable cleaning wires, drills, or other devices designed for such purpose.
- Torches in use will be inspected at the beginning of each working shift for leaking shutoff valves, hose couplings, and tip connections.
- Defective torches will not be used.
- Torches will be lighted by spark igniters or other approved devices, and not by matches, butane lighters or from hot work.

#### **43.5.6.4.3 Regulators and Gauges**

Oxygen and fuel gas pressure regulators, including their related gauges, will be in proper working order while in use.

#### **43.5.6.4.4 Oil and Grease Hazards**

- Oxygen cylinders and fittings will be kept away from oil or grease.
- Cylinders, cylinder caps and valves, couplings, regulators, hose, and apparatus will be kept free from oil or greasy substances and will not be handled with oily hands or gloves.



- Oxygen will not be directed at oily surfaces, greasy clothes, or within a fuel oil or other storage tank or vessel.

### **43.5.7 Electric/Arc-Welding Equipment**

#### **43.5.7.1 Manual Electrode Holders**

Only manual electrode holders which are specifically designed for arc-welding and cutting and are of a capacity capable of safely handling the maximum rated current required by the electrodes, will be used.

Any current-carrying parts passing through the portion of the holder which the arc welder or cutter grips in their hand, and the outer surfaces of the jaws of the holder, will be fully insulated against the maximum voltage encountered to ground.

#### **43.5.7.2 Welding Cables and Connectors**

All arc-welding and cutting cables will be of the completely insulated, flexible type, capable of handling the maximum current requirements of the work in progress, considering the duty cycle under which the arc welder or cutter is working.

Only cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder is connected will be used, except that cables with standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted.

When it becomes necessary to connect or splice lengths of cable one to another, substantial insulated connectors of a capacity at least equivalent to that of the cable will be used. If connections are affected by means of cable lugs, they will be securely fastened together to give good electrical contact and the exposed metal parts of the lugs will be completely insulated.

Cables in need of repair will not be used. When a cable, other than the cable lead referred to in paragraph (b)(2) of this section, becomes worn to the extent of exposing bare conductors, the portion thus exposed will be protected by means of rubber and friction tape or other equivalent insulation.

#### **43.5.7.3 Ground Returns and Machine Grounding**

A ground return cable will have a safe current carrying capacity equal to or exceeding the specified maximum output capacity of the arc-welding or cutting unit which it services. When a single ground return cable services more than one unit, its safe current-carrying capacity will equal or exceed the total specified maximum output capacities of all the units which it services.

Pipelines containing gases or flammable liquids, or conduits containing electrical circuits, will not be used as a ground return. For welding on natural gas pipelines, the technical portions of regulations issued by the Department of Transportation, Office of Pipeline Safety, 49 CFR Part 192, Minimum Federal Safety Standards for Gas Pipelines, will apply.

When a structure or pipeline is employed as a ground return circuit, it will be determined that the required electrical contact exists at all joints. The generation of an arc, sparks, or heat at any point will cause rejection of the structures as a ground circuit.

When a structure or pipeline is continuously employed as a ground return circuit, all joints will be bonded, and periodic inspections will be conducted to ensure that no condition of electrolysis or fire hazard exists by virtue of such use.

The frames of all arc-welding and cutting machines will be grounded either through a third wire in the cable containing the circuit conductor or through a separate wire which is grounded at the source of the current. Grounding circuits, other than by means of the structure, will be checked to ensure that the circuit between the ground and the grounded power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

All ground connections will be inspected to ensure that they are mechanically strong and electrically adequate for the required current.

#### **43.5.7.4 Operating Instructions**

Employers will instruct employees in the safe means of arc-welding and cutting as follows:

- When electrode holders are to be left unattended, the electrodes will be removed, and the holders will be so placed or protected that they cannot make electrical contact with employees or conducting objects.
- Hot electrode holders will not be dipped in water; to do so may expose the arc welder or cutter to electric shock.
- When the arc welder or cutter has occasion to leave their work or to stop work for any appreciable length of time, or when the arc-welding or cutting machine is to be moved, the power supply switch to the equipment will be opened.
- Any faulty or defective equipment will be reported to the supervisor.

#### **43.5.7.5 Shielding**

Whenever practicable, all arc-welding and cutting operations will be shielded by noncombustible or flameproof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc.

When practical, objects to be welded, cut, or heated will be moved to a designated safe location or, if the objects to be welded, cut, or heated cannot be readily moved, all movable fire hazards in the vicinity will be taken to a safe place, or otherwise protected.

If the object to be welded, cut, or heated cannot be moved and if all the fire hazards cannot be removed, positive means will be taken to confine the heat, sparks, and slag, and to protect the immovable fire hazards from them.

No welding, cutting, or heating will be done where the application of flammable paints or the presence of other flammable compounds, or heavy dust concentrations creates a hazard.

Suitable fire extinguishing equipment will be immediately available in the work area and will be maintained in a state of readiness for instant use.

When the welding, cutting, or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel will be assigned to guard against fire while the actual welding, cutting, or heating operation is being performed, and for a sufficient period of time after completion of the work to ensure that no possibility of fire exists. Such personnel will be instructed as to the specific anticipated fire hazards and how the firefighting equipment provided is to be used.

When welding, cutting, or heating is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions will be taken on the opposite side as are taken on the side on which the welding is being performed.

For the elimination of possible fire in enclosed spaces as a result of gas escaping through leaking or improperly closed torch valves, the gas supply to the torch will be positively shut off at some point outside the enclosed space whenever the torch is not to be used or whenever the torch is left unattended for a substantial period of time, such as during the lunch period. Overnight and at the change of shifts, the torch and hose will be removed from the confined space. Open end fuel gas and oxygen hoses will be immediately removed from enclosed spaces when they are disconnected from the torch or other gas-consuming device.

Except when the contents are being removed or transferred, drums, pails, and other containers which contain or have contained flammable liquids will be kept closed. Empty containers will be removed to a safe area apart from hot work operations or open flames.

Drums containers, or hollow structures which have contained toxic or flammable substances will, before welding, cutting, or heating is undertaken on them, either be filled with water or thoroughly cleaned of

such substances and ventilated and tested. For welding, cutting, and heating on steel pipelines containing natural gas, the pertinent portions of regulations issued by the Department of Transportation, Office of Pipeline Safety, 49 CFR Part 192, Minimum Federal Safety Standards for Gas Pipelines, will apply.

Before heat is applied to a drum, container, or hollow structure, a vent or opening will be provided for the release of any built-up pressure during the application of heat.

#### **43.5.8 Welding, Cutting, and Heating in confined spaces**

All work to be performed in a confined space requires a complete hazard assessment of the space to include air monitoring as well as completion of a pre-task plan and meeting which specifically addresses the need for ventilation, attendants, and rescue. Compressed gas cylinders must not be taken into confined spaces. Prior to performing any hot work on a tank or vessel that formerly housed a flammable or explosive gas or liquid, certification of the proper purging and cleaning of this tank or vessel is required.

Use a written permit system to document authorization to enter, the work to be performed, and the results of the gas monitoring where there is a potential for toxic, flammable, or oxygen-deficient atmosphere. Both a hot work and confined entry permit may be required for welding, cutting, or brazing within a confined space.

General mechanical or local exhaust ventilation will be provided whenever welding, cutting, or heating is performed in a confined space.

When sufficient ventilation cannot be obtained without blocking the means of access, employees in the confined space will be protected by airline respirators and an employee on the outside of such a confined space will be assigned to maintain communication with those working within it and to aid them in an emergency.

The atmosphere must be monitored with a gas detector. If a flammable or combustible gas exceeds 10 percent of the lower explosive level (LEL), the work must be stopped.

"Lifelines." Where a welder must enter a confined space through a manhole or other small opening, means will be provided for quickly removing them in case of emergency. When safety belts and lifelines are used for this purpose, they will be so attached to the welder's body that their body cannot be jammed in a small exit opening. An attendant with a pre-planned rescue procedure will be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.

#### **43.5.9 Welding, Cutting, or Heating of Metals of Toxic Significance**

Welding, cutting, or heating in any enclosed spaces involving the metals specified in this subparagraph will be performed with either general mechanical or local exhaust ventilation.

- Zinc-bearing base or filler metals or metals coated with zinc-bearing materials;
- Lead base metals;
- Cadmium-bearing filler materials;
- Chromium-bearing metals or metals coated with chromium-bearing materials.
- Welding, cutting, or heating in any enclosed spaces involving the metals specified in this subparagraph will be performed with local exhaust ventilation, or employees will be protected by airline respirators.
- Metals containing lead, other than as an impurity, or metals coated with lead-bearing materials;
- Cadmium-bearing or cadmium-coated base metals;
- Metals coated with mercury-bearing metals;

##### **43.5.9.1 Beryllium-containing Base or Filler Metals**

Because of its high toxicity, work involving beryllium will be done with both local exhaust ventilation and air line respirators.

- Employees performing such operations in the open air will be protected by filter-type respirators.

- Employees performing such operations on beryllium-containing base or filler metals will be protected by airline respirators.
- Other employees exposed to the same atmosphere as the welders or burners will be protected in the same manner as the welder or burner.

#### **43.5.9.2 Metals Containing Cadmium or Coated with Cadmium-bearing Materials**

In confined spaces or indoors, welding or cutting operations involving cadmium-bearing or cadmium-coated base metals must be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions show that employee exposure is within the acceptable concentrations specified by 29 CFR 1910.1000. Such operations, when done outdoors, must be done using respirators, such as fume respirators, approved for this purpose by NIOSH under 42 CFR part 84.

#### **43.5.9.3 Metals Coated with Mercury-bearing Materials**

In confined spaces or indoors, welding or cutting operations involving metals coated with mercury-bearing materials, including paint, must be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions show that employee exposure is within the acceptable concentrations specified by 29 CFR 1910.1000. Such operations, when done outdoors, must be done using respirators approved for this purpose by NIOSH under 42 CFR part 84.

#### **43.5.9.4 Stainless Steel**

Oxygen cutting, using either a chemical flux or iron powder or gas-shielded arc cutting of stainless steel, shall be done using mechanical ventilation adequate to remove the fumes generated.

#### **43.5.9.5 Protection Against Toxic Preservative Coatings**

In enclosed spaces, all surfaces covered with toxic preservatives will be stripped of all toxic coatings for a distance of at least 4 inches from the area of heat application, or the employees will be protected by airline respirators. In the open air, employees will be protected by a respirator.

The preservative coatings will be removed a sufficient distance from the area to be heated to ensure that the temperature of the un-stripped metal will not be appreciably raised. Artificial cooling of the metal surrounding the heating area may be used to limit the size of the area required to be cleaned.

### **43.6 Training**

#### **43.6.1 Initial**

Employees permitted to use fire extinguishers (hot work operators / fire watch) must be trained in the general principles of fire extinguisher use and the hazards involved with incipient stage firefighting and the use of appropriate equipment upon initial employment.

Employees permitted to wear respirators will complete a medical evaluation, be provided respirator training and a fit test prior to using a respirator in the workplace.

A permit-required confined space training will be conducted prior to an employee performing the duties of an entrant, attendant or entry supervisor. This training will consist of:

- Safe work practices
- Confined space identification and evaluation
- Operation of air monitoring equipment
- Hazard recognition
- Entry equipment and techniques
- Purging and inverting procedures
- Lock out and energy isolation procedures
- Non-entry rescue procedures
- Permit use

#### **43.6.2 Refresher**

Employees permitted to use fire extinguishers (hot work operators / fire watch) must be trained in the general principles of fire extinguisher use and the hazards involved with incipient stage firefighting and the use of appropriate equipment annually.

Employees permitted to wear respirators will be retrained annually and more often as needed (e.g., if they change area/location/position and need to use a different respirator).

Respirator retraining will occur if the program administrator or supervisor determines that any employee has not retained or demonstrated the knowledge, understanding, or skill level required by the company's training program.

Employees permitted to perform the duties of an entrant, attendant or entry supervisor for confined space work will receive refresher training annually or as needed. Periodic refresher training on entry specifics may be assigned to those employees making infrequent entries throughout the year. Training will be assigned to all affected employees with the purchase of new equipment and the development of new processes or procedures.

### **43.7 Reference**

OSHA Standard 29 CFR 1926.350 – 1926.353

### **43.8 Appendix**

- PPE - Shade Tables
- Hot Work Safety Checklist
- Hot Work Permit

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**PPE Shade Tables**


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**Table 1: Filter Lenses for Protection During Shielded Metal Arc-Welding**

Operation	Electrode Size – inch (mm)	Arc Current (Amperes)	OSHA Minimum Protective Shade Number	ANSI & AWS Shade Number Recommendations*
Shielded Metal Arc Welding (SMAW)	Less than 3/32 (2.4)	Fewer than 60	7	-
	3/32 – 5/32 (2.4 - 4.0)	60 – 160	8	10
	More than 5/32 – 1/4 (4.0 – 6.4)	More than 160 – 250	10	12
	More than 1/4 (6.4)	More than 250 – 550	11	14

**Table 2: Filter Lenses for Gas Welding and Oxygen Cutting Operations**

Operation	Plate Thickness Inches	Plate Thickness mm	OSHA Minimum Protective Shade Number	ANSI & AWS Shade Number Recommendations*
Gas Welding	Under 1/8	Under 3.2	4	5
	1/4 – 1/2	3.2 to 12.7	5	6
	Over 1/2	Over 12.7	6	8
Oxygen Cutting	Under 1	Under 25	3	4
	1 to 6	25 to 150	4	5
	Over 6	Over 150	5	6

\* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. During oxygen gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light (spectrum) of the operation.

Table 3: Filter Lenses for Protection During Other Welding and Cutting Operations

Operation	Arc Current (amperes)	OSHA Minimum Protective Shade Number	ANSI & AWS Shade Number Recommendations*
Gas Metal Arc Welding (GMAW) and Flux Cored Arc Welding (FCAW)	Fewer than 60	7	–
	60 – 160	10	11
	More than 160 – 250	10	12
	More than 250 – 500	10	14
Gas Tungsten Arc Welding (GTAW)	Fewer than 50	8	10
	50 – 150	8	12
	More than 150 – 500	10	14
Air Carbon Arc Cutting (CAC-A)	Fewer than 500	10	12
Air Carbon Arc Cutting (CAC-A)	500 – 1,000	11	14
Plasma Arc Welding (PAW)	Fewer than 20	6	6 – 8
	20 – 100	8	10
	More than 100 – 400	10	12
	More than 400 – 800	11	14
Plasma Arc Cutting (PAC) (Light)**	Fewer than 300	8	9
Plasma Arc Cutting (PAC) (Medium)**	300 – 400	9	12
Plasma Arc Cutting (PAC) (Heavy)**	More than 400 - 800	10	14
Torch Brazing (TB)		3	3 or 4
Torch Soldering (TS)		2	2
Carbon Arc Welding (CAW)		14	14

\*\* Values apply where the actual arc is clearly seen. Lighter filters may be used when the arc is hidden by the workpiece.

#### Additional Information:

All protective eye and face devices must comply with ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection.

When there is the potential for objects to fly in the workers' eyes and face, the protective device(s) selected must provide side protection. Where such hazards exist, workers using a welding helmet with filter lenses must also wear glasses with side shields, or goggles.

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**Hot Work Safety Checklist**

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- ☐ Is appropriate fire-extinguishing equipment ready for use?
- ☐ Are drums, barrels, tanks, or other containers cleansed of flammable, explosive, or toxic residue that could react to heat?
- ☐ Are containers tested prior to and frequently during welding, torching, abrasive cutting, or other hot work to ensure that the containers are free of flammable or toxic vapors?
- ☐ Are shaded goggles or other suitable eye protection used when gas welding or oxygen cutting?
- ☐ Are transparent face shields or goggles used when resistance welding or resistance brazing?
- ☐ Do all welding helpers and equipment attendants use face or eye protection?
- ☐ Are helmets and hand shields worn to protect the face, neck, and ears when arc-welding?
- ☐ Do lenses have permanent distinctive markings to show the source and shade?
- ☐ Do all employees wear PPE when exposed to the hazards created by welding, cutting, or brazing?
- ☐ Is clothing that is easily ignited or highly flammable, such as that made from synthetic materials, prohibited while welding, cutting, or brazing?
- ☐ Are all electrodes removed from the holders and the machine turned off when arc-welding work is stopped for breaks, or overnight?
- ☐ Are the torch valves closed when gas welding or cutting is stopped for lunch or overnight?
- ☐ Are only approved apparatus such as torches, regulators, or pressure-reducing valves used?
- ☐ Are all compressed-gas cylinders legibly marked to identify the gas content?
- ☐ Are all compressed-gas cylinders stored away from radiators and other sources of heat?
- ☐ Do all compressed-gas cylinders have valve protection caps in place, hand-tight when not in use?
- ☐ Are all compressed-gas cylinders securely lashed in place to prevent them from falling?
- ☐ Are oxygen and fuel-gas cylinders stored separately by at least 20 feet or by a noncombustible barrier at least five feet high with a fire-resistance rating of at least one-half hour?
- ☐ Are there signs in fuel-gas storage areas that read "DANGER – NO SMOKING, MATCHES OR OPEN LIGHTS" or equivalent wording?
- ☐ Are regulators with cracked, broken, or defective parts removed from service?
- ☐ Are approved back-flow valves or flash-back valves installed between the blowpipe or torch and the hoses?
- ☐ Are arc-welder lead cables or electrode lead cables with damaged insulation or exposed conductors removed from service?



## Hot Work Permit

**This Hot Work Permit is Valid for the Time and Location Identified Below ONLY (12 hours maximum)**

Project: \_\_\_\_\_ Date: \_\_\_\_\_

Competent Person Responsible for Operation: \_\_\_\_\_  
(print name)

I understand the expectations of this Hot Work Permit  
and the responsibility to implement the requirements: \_\_\_\_\_  
(signature)

Designated Fire Watch: \_\_\_\_\_  
(print name)

(required within 50' of work, cannot be person performing hot work, must maintain unobstructed view, know who to call in the event of a fire, must have training, must inspect the hot work location no later than thirty (30) minutes after the completion of hot work and additionally as conditions warrant)

### Type and Location of Work Performed

Location of Hot Work: \_\_\_\_\_

Type of Hot Work: ☐ Welding ☐ Brazing ☐ Oxy/Acetylene Burning ☐ Grinding  
☐ Other: \_\_\_\_\_

Description of Hot Work: \_\_\_\_\_ LEL % (must be <10%) \_\_\_\_\_ %

Start Time: \_\_\_\_ : \_\_\_\_ AM / PM

Finish Time: \_\_\_\_ : \_\_\_\_ AM / PM

### Required Precautions

YES N/A

CP Init

Work area inspected for hazards above, below, and adjacent to work area	<input type="checkbox"/>	<input type="checkbox"/>	
Fire extinguisher (10# ABC minimum) present, charged, and within 20' of work area	<input type="checkbox"/>	<input type="checkbox"/>	
Flammables and combustibles removed or protected, and area swept (35' minimum)	<input type="checkbox"/>	<input type="checkbox"/>	
Wall and floor openings covered	<input type="checkbox"/>	<input type="checkbox"/>	
Welding blankets / screens provided	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Work equipment inspected and in good repair	<input type="checkbox"/>	<input type="checkbox"/>	
Smoke / heat detectors protected or taken out of service	<input type="checkbox"/>	<input type="checkbox"/>	
Sprinkler heads in area identified and protected	<input type="checkbox"/>	<input type="checkbox"/>	
Fire Watch will inspect Hot Work area at 30 minutes after Hot Work has been completed	<input type="checkbox"/>	<input type="checkbox"/>	

### Permit Closure

I verify that the location where Hot Work is being performed and adjacent areas have been inspected and applicable precautions have been checked and completed as necessary.

Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_  
(print name) (signature)

I verify that the location where the Hot Work was performed and adjacent areas to which sparks and heat may have spread was continually observed during the process and for a minimum of 30 minutes following the completion of the Hot Work was found to be safe.

Fire Watch: \_\_\_\_\_ Date: \_\_\_\_\_  
(print name) (signature)

## **Chapter 44 Electrical Safety**

### **44.1 Purpose, Scope, and Policy**

#### **44.1.1 Purpose**

COMPANYNAME has developed this electrical safety program to provide awareness and establish work policies, practices, and procedures for the prevention of employee exposure to electrical hazards in the workplace. This program covers basic electrical hazards in the workplace and does not address working with energized equipment. See the Electrical Safety-related Work Program for requirements related to working with energized equipment.

#### **44.1.2 Scope**

This program applies to qualified and non-qualified employees who are exposed to electricity as part of their job.

#### **44.1.3 Policy**

All employees are required to follow the minimum procedures outlined in this program. This program will be made available to all affected employees for reference and review.

### **44.2 Roles & Responsibilities**

#### **44.2.1 Employer**

##### **44.2.1.1 Management**

Ensure that the development of electrical safety programs and procedures is in accordance with OSHA requirements and/or as indicated by events and circumstances. Provide oversight of projects and proper tools and equipment.

##### **44.2.1.2 Supervisor**

Observe work in progress and enforce COMPANYNAME policies and procedures, ensuring all applicable electrical safety programs are implemented and maintained, using the disciplinary action program when necessary. Supervisors are responsible for ensuring that only qualified persons and/or qualified contractors perform electrical repairs or installations.

#### **44.2.2 Employee**

Employees shall exercise self-discipline and caution when using electrical equipment, tools, and appliances according to this program; for attending required training sessions when directed; and to immediately report unsafe conditions to their supervisor upon recognition. Only qualified persons may work on energized electric circuit parts or equipment. Such employees shall be familiar with the use of special precautionary techniques, PPE requirements, insulating and shielding materials, testing equipment, and the use of insulated tools.

##### **44.2.2.1 Qualified Employees**

Qualified employees shall be trained to recognize specific hazards, the relationship between the hazards and work-related injury, and understand safe work practices related to working with energized electrical equipment.

##### **44.2.2.2 Unqualified Employees**

Unqualified employees are prohibited from performing work on energized equipment. Prior to working on electrical equipment Authorized Employees shall properly shut down the equipment and place the equipment in an 'electrically safe work condition' using implemented lockout/tagout (LOTO) procedures. If procedures do not exist the supervisor shall be informed, and the work shall be postponed until procedures are developed and implemented.

Unqualified personnel are not permitted to enter spaces identified as limited to qualified person access only unless the conductors and equipment in the area have been placed in an 'electrically safe work condition'.

#### **44.2.2.3 Short Service Employees**

Short Service Employees (SSE) are employees with less than six (6) months of employment with the company. Short Service Employees are required to attend orientation training prior to initial work assignment and must comply with the policies and procedures established in the SSE Program.

SSEs will not engage in any electrical-related work unless under the direct supervision of their mentor.

### **44.3 Definitions**

See Definitions chapter at the end of the General Electrical Safety Program.<sup>xxvi</sup>

### **44.4 Hazards**

Equipment that is properly guarded, isolated, or insulated, is properly installed and maintained, and used in accordance with manufacturer instructions and requirements is considered to be in normal operating condition. When this condition is compromised workers can be exposed to injuries related to exposure to electrical energy.

Improperly monitored and maintained electrical conditions and work practices can lead to hazards including, but not limited to:

- Electric shock
- Electrocutation
- Arc flash/Arc blast
- Fire & explosion
- Bodily injury
  - Burns
  - Eye injury/blindness
  - Noise-induced hearing loss
  - Lacerations
  - Amputation

### **44.5 Hazard Control Measures**

An 'electrically safe work condition' is defined as a state in which an electrical conductor or circuit part has been disconnected from energized parts, locked, and tagged in accordance to established standards, tested to ensure the absence of voltage and grounded if determined necessary. Equipment that has not been placed in an electrically safe work condition shall always be considered energized until confirmed de-energized through testing.

Work on equipment that has not been placed in an 'electrically safe work condition' shall not be performed except by a qualified person under specific conditions (See Electrical Safety-Related Work Program). The priority goal is to eliminate the exposure to uncontrolled electrical energy whenever feasible.

#### **44.5.1 Approval**

All electrical conductors and equipment used shall be approved. Electrical conductors or equipment are 'acceptable' to OSHA and approved within the meaning of 29 CFR 1910 Subpart S if they are accepted, certified, listed, labeled, or otherwise determined to be safe by a nationally recognized testing laboratory (NRTL).

Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling. The definitions for 'listed' or 'labeled' are stated in Section 29 CFR 1910.399.

#### **44.5.2 Examination, Installation, and Use of Equipment**

All electrical conductors and equipment shall be considered live until proven otherwise.

Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees. Safety of equipment must be determined by the following:

- Suitability for installation and use in conformity with the provisions of the standard. Suitability of equipment for an identified purpose may be evidenced by a listing, by labeling, or by certification for that identified purpose
- Mechanical strength and durability. For parts designed to enclose and protect other equipment, this includes the adequacy of the protection thus provided
- Electrical insulation
- Heating effects under conditions of use
- Arcing effects
- Classification by type, size, voltage, current capacity, and specific use
- Other factors that contribute to the practical safeguarding of employees who use or are likely to come in contact with the equipment

Electrical equipment shall not be used unless the manufacturer's name, trademark, or other descriptive marking is placed on the equipment providing voltage, current, wattage, or other ratings, as necessary. All markings shall be of sufficient durability to withstand the environment involved.

#### **44.5.3 Guarding**

Live parts of electric equipment operating at fifty volts (50V) or more must be guarded against accidental contact. Guarding of live parts must be accomplished as follows:

- Location in a cabinet, room, vault, or similar enclosure accessible only to qualified persons.
- Use of permanent, substantial partitions or screens to exclude unqualified persons.
- Location on a suitable balcony, gallery, or platform elevated and arranged to exclude unqualified persons.
- Elevation of eight feet (8') or more above the floor or other working surface and so arranged as to exclude unqualified persons. Installations over 600V require additional distance as noted in Table K-3 of 29 CFR 1926.403.

Entrance to rooms and other guarded locations containing exposed live parts must be marked with conspicuous warning signs forbidding entrance by unqualified persons.

Electric installations that are over 600V and that are open to unqualified persons must be made with metal-enclosed equipment or enclosed in a vault or area controlled by a lock. In addition, equipment must be marked with appropriate caution signs.

#### **44.5.4 Inspections**

- Electrical equipment, tools, and appliances must be inspected prior to each use.
- A hard fixed GFCI or a portable GFCI adapter shall be used with all portable hand tools, electric extension cords, drop lights, and all 110V equipment.
- Faulty equipment, tools, or appliances shall be removed from service immediately and tagged '**Out of Service**', dated, and signed by the employee applying the tag.

#### 44.5.5 Repairs

- Only qualified personnel, who have been authorized by the department supervisor or manager, may make repairs to supply cords on electrical tools and to extension cords.
- Only certified electricians shall be allowed to make repairs to electrical equipment and wiring systems.
- Employees shall not enter spaces containing exposed energized parts unless qualified and proper lighting exists to enable employees to work safely. Where lighting is not sufficient to observe work activities from outside the limited approach boundary, work shall not be performed in any areas where energized equipment is operating in excess of 50V or more until proper lighting has been achieved.
- Employees shall not wear conductive apparel such as rings, watches, jewelry, etc. (unless they are rendered non-conductive by covering, wrapping, or other insulating means) while working on or near open energized equipment including batteries on trucks, forklifts, phone backup systems, or other such equipment.
- If employees are subject to handle long dimensional conductor objects such as ducts or pipes, steps for safe work practices shall be employed to ensure employee safety.

#### 44.5.6 Extension Cords

- Use only three-wire, grounded, extension cords and cables that conform to a hard service rating of fourteen amperes (14A) or higher, and grounding of the tools or equipment being supplied.
- Only commercial or industrial rated-grounded extension cords may be used in shops and outdoors.
- Cords for use other than indoor appliances must have a rating of at least fourteen amps (14A).
- Cords must have suitable strain relief provision at both the plug and the receptacle ends.
- Work lamps (drop light) used to power electrical tools must have a three (3) wire, grounded outlet, unless powering insulated tools.
- Adapters that allow three wires, grounded prongs, connected to two wire non-grounded outlets are strictly prohibited.
- Cords must have a service rating for hard or extra-hard service and have S, AJ, ST, SO, SJO, SJT, STO, or SJTO printed on the cord.
- Cords may not be run through doorways, under mats or carpets, across walkways or aisles, concealed behind walls, ceilings, or floors, or run through holes in walls, or anywhere where they can become a tripping hazard.
- Cords and corded equipment shall be unplugged by pulling on the plug, not the cord. Also, the cords shall not be used to hoist the equipment or other items. This is done to prevent strain to the insulation and conductors.
- Extension cords shall not be fastened with staples, hung from nails, or suspended by wire.
- High current equipment or appliances should be plugged directly into a wall outlet whenever possible.
- All extension cords shall be plugged into one of the following:
  - A GFCI outlet;
  - A GFCI built into the cord;
  - A GFCI adapter used between the wall outlet and cord plug

All extension cords and or electrical cords shall be inspected daily or before each use, for breaks, plug condition and ground lugs, possible internal breaks, and any other damage. If damage is found, the extension cord or electrical cord shall be removing from service and repaired or replaced.

#### 44.5.7 Portable Generators

Working with portable fuel-powered generators can expose workers to electrical energy, mechanical energy (moving parts), hazardous chemicals (fuel), and carbon monoxide poisoning.

- Always inspect the generator for damage, missing guards and protective covers, leaking or loose fuel lines, and damaged electrical outlets.

- Test GFCIs before use. If the generator is not equipped with integral GFCIs then use a pigtail GFCI for each extension or power cord running off the generator.
- If GFCIs are not available then the generator must be operated using an assured grounding program. See the electrical safety program for more information.
- Keep the generator dry and protected from weather exposure. Maintain and operate it according to the manufacturer's instructions.
- Fuel powered generators should not be operated indoors, or in enclosed spaces such as garages, crawl spaces, and basements. If the generator must be used indoors then adequate ventilation must be provided. A carbon monoxide detector should be used to alert workers of buildup of carbon monoxide gas.
- Generators should be used outdoors, but never place a generator near doors, windows, or ventilation shafts where CO can enter and build up inside enclosed buildings, rooms, or spaces.
- Make sure the generator has a minimum four-foot (4') clearance on all sides and above to ensure adequate airflow around the equipment.
- If workers in the area begin showing signs and symptoms of CO poisoning—dizziness, headaches, nausea/vomiting, tiredness, confusion, unconsciousness—get to fresh air immediately and seek medical attention. Do not re-enter the area until it is determined to be safe by trained and properly equipped personnel.

#### 44.5.8 Outlets

Outlets connected to circuits with different voltages must use a design such that the attachment plugs on the circuits are not interchangeable.

#### 44.5.9 Double Insulated Tools

- Double insulated tools must have the factory label intact indicating the tool has been approved to be used without a three-wire grounded supply cord connection
- Double insulated tools must not be altered in any way, which would negate the factory rating

#### 44.5.10 Switches, Circuit Breakers, and Disconnects

- All electrical equipment and tools must have an on and off switch and may not be turned on or off by plugging or unplugging the supply cord at the power outlet
- Circuit breaker panel boxes and disconnects must be labeled with the voltage rating
- Each breaker within a breaker panel must be labeled for the service it provides
- Disconnect switches providing power for individual equipment must be labeled accordingly
- A minimum clear distance of three feet (3') shall be kept around all electrical equipment operating up to 150V for the purpose of easy and safe servicing. Above 150V and up to 600V, this distance will be increased to four feet (4'). For installations over 600V, Table K-2 of 29 CFR 1926.403 will be utilized.

#### 44.5.11 Ladders

- Only approved, non-conductive ladders, shall be used when working near or with electrical equipment, which includes changing light bulbs
- Ladders must be either constructed of wood, fiberglass, or have non-conductive side rails
- Wood ladders should not be painted, which can hide defects, except with clear lacquer
- When using ladders, they shall be free from any moisture, oils, and greases
- All electrical equipment shall be assumed to be energized unless confirmed locked and tagged out of service by the person performing the work

#### 44.5.12 Energized and Overhead High Voltage Power Lines and Equipment

- A minimum clearance of ten feet (10') from high voltage lines must be maintained when operating vehicular and mechanical equipment such as forklifts, cranes, winch trucks, and other similar equipment that has parts or components that can be elevated near overhead power lines

- When possible, power lines shall be de-energized and grounded or other protective measures shall be provided before work is started
- When work is being performed near energized overhead power lines the following must be done:
  - A supervisor shall monitor work to ensure tasks are being performed safely and that work does not encroach on established clearance distances.
  - A standby person shall be on site for emergency response notification.
- Minimum approach distance to energized power lines in excess of fifty volts (50V) is ten feet (10') plus four inches (4") additional clearance for every 10kV over 50kV.

Voltage (nominal, kV, alternating current)	Minimum Clearance Distance (feet)
50kV and below	10
>50kV through 200 kV	15
>200kV through 350kV	20
>350kV through 500kV	25
>500kV through 750kV	35
>750kV through 1,000kV	45
> 1,000kV	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution)

**OSHA 29 CFR 1926.1408 Table A – Minimum Clearance Distances**

#### 44.5.12.1 Emergency Response

A site-specific emergency response plan should be established that addresses all foreseeable emergencies including exposure to electrical energy. In the event of an incident involving energized electrical equipment such as an overhead power line falling or contact with an overhead power line the following measures should be implemented:

- Secure the scene, keep everyone at least ten feet (10') away.
- Contact emergency services and the applicable electrical utility.
- Use flagging and barriers to prevent motorists, spectators, and other individuals from approaching the hazard.
- Do not attempt to move the wire(s) or touch anything in contact with the wire(s).
- Crews shall have emergency contact numbers readily available. These numbers shall include supervisor, local emergency response, and electrical utility provider.

##### 44.5.12.1.1 Contact with Energized Equipment

- DO NOT TOUCH an individual in contact with energized power lines or equipment or anything in contact with the person. Contact emergency services (fire, police, EMS) and the applicable electrical utility immediately. If the individual is no longer in contact with the energized conductors, first aid/CPR should be administered immediately as appropriate, but only by a trained person.
- Wires that contact vehicles or equipment may cause arcing, smoke, and possibly fire. The lack of arcing, smoke, and fire however is no confirmation that the equipment is not energized. This can only be confirmed through testing and by the electrical utility. Unless the contacted object is on arcing, smoking, or on fire, occupants should remain in the cab and wait for the local area electrical department or utility. Maintain your position and do not touch any other objects. Jumping free of the vehicle or object is a last resort but if it becomes necessary to exit the vehicle or escape from the object, leap with both feet as far away from the vehicle as possible, without touching the equipment or falling. Then, keeping your feet close together, 'shuffle walk' or 'bunny hop' away from the object for at least thirty feet (30') before walking normally.
- Do not return to the vehicle or allow anyone else for any reason to approach the vehicle until the local power utility has removed the power line from the vehicle and has confirmed that the vehicle is no longer in contact with the overhead lines.

#### 44.5.13 Confined or Enclosed Workspaces

When an employee works in a confined or enclosed space that contains exposed energized parts, the employee shall isolate and turn off the energy source and lock and tag out the energy source (Only qualified electricians can work on an exposed energy source).

When working in confined or enclosed spaces, protective shields, barriers, or insulating materials as necessary shall be provided where electrical hazards may be present.

#### 44.5.14 Enclosures, Breaker Panels, and Distribution Rooms

- A clear working space of at least three feet (3') [thirty-six inches (36")] must be maintained in the front, back, and on each side of all electrical enclosures and around electrical equipment for a safe operation and to allow access for maintenance and alteration. The clear space shall be identified by yellow marking painted on the floor in front of the electrical equipment.
- Employees shall not enter spaces containing exposed energized parts unless qualified and proper lighting exists to enable employees to work safely. Where lighting is not sufficient to observe work activities from outside the limited approach boundary, work shall not be performed in any areas where energized equipment is operating in excess of 50V or more until proper lighting has been achieved.
- Housekeeping in distribution rooms must receive high priority to provide a safe working and walking area in front of panels and to keep combustible materials to the minimum required to perform maintenance operations
- All enclosures and distribution rooms must have '**DANGER: High Voltage – Authorized Personnel Only**' posted on the front panel and on entrance doors
- Flammable materials are strictly prohibited inside distribution rooms (boxes, rags, cleaning fluids, etc.)

#### 44.5.15 Lock Out/Tag Out

- No work shall be performed on (or near enough to them for employees to be exposed due to the dangers of tools or other equipment coming into contact with the live parts) live parts and the hazards they present
- If any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts shall be locked out or tagged or both
- Conductors and parts of electrical equipment that have been de-energized but not been locked or tagged out shall be treated as live parts
- Any equipment being made ready for maintenance will be locked out using COMPANYNAME's Control of Hazardous Energy – Lock Out/Tag Out Program. Only certified electricians may work on electric circuit parts or equipment.
- Only authorized personnel may perform lock out/tag out work on electrical equipment and will follow the COMPANYNAME Control of Hazardous Energy – Lock out/Tag Out Program
- Authorized personnel will be trained in lock out/tag out procedures
- Affected personnel will be notified when lock out/tag out activities are being performed in their work area

#### 44.5.16 Electric Shock-CPR

If someone is discovered that has received an electric shock and is unconscious, first check to see if their body is in contact with an electrical circuit. Do not touch a person until you are sure there is no contact with an electrical circuit.

When it is safe to contact the victim, begin CPR if the person's heart has stopped or they are not breathing.

Call for help immediately.

#### 44.5.17 Electric Welders



A means of disconnecting shall be provided in the supply circuit for each motor-generator arc welder, and for each AC transformer and DC rectifier arc welder which is not equipped with a disconnect mounted as an integral part of the welder.

A switch or circuit breaker shall be provided by which each resistance welder and its control equipment can be isolated from the supply circuit. The ampere rating of this disconnecting means may not be less than the supply conductor ampacity.

#### **44.5.18 Equipment Grounding**

All gas compressors, air compressors, separators, vessels, etc. shall be grounded by means of using a lug and ground strap, nominal in size to a ½" bolt or larger, attached to a ground rod six feet (6') or longer. The ground rod must be driven into the ground as deeply as possible.

Equipment bonding jumpers shall be of copper or another corrosion-resistance material.

The transfer of hazardous or flammable material from a metal or plastic container with a flash point of 100°F or less shall have a ground strap from the container attached to the skid or a ground rod placed in the ground.

OSHA requires that workers use either ground fault circuit interrupters (GFCI) or an assured equipment grounding conductor program to protect personnel from electrical shock while working. Modification of overcurrent protection devices is prohibited under any circumstances.

It is important to know that equipment circuit breakers are designed to protect the equipment, not the exposed user of the equipment. GFCI equipped power sources are designed to disconnect supplied power long before the electrical exposure can reach harmful or fatal levels.

##### **44.5.18.1 Assured Grounding**

The employer shall establish and implement an assured equipment grounding conductor program on construction sites covering all cord sets, receptacles which are not a part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees. This section of the Electrical Safety Program shall serve as the Assured Equipment Grounding Conductor Program for the purposes of fulfilling this requirement when assured grounding practices are implemented. This program establishes the following minimum requirements:

- This program, including the specific procedures adopted by the employer, shall be available at the jobsite for inspection and copying by authorized OSHA representatives and any affected employee.
- The COMPANYNAME Safety Director is designated as the Competent Person for the purposes of administering the Assured Equipment Grounding Conductor Program.
- Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day's use for external defects, such as deformed or missing pins, insulation damage, and for indications of possible internal damage. Equipment found damaged or defective shall not be used until repaired.
- The following tests shall be performed on all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and cord- and plug-connected equipment required to be grounded:
  - All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.
  - Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.
- All required tests shall be performed:
  - Before first use;

- Before equipment is returned to service following any repairs;
- Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over); and
- At intervals not to exceed three (3) months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding six (6) months.
- The employer shall not make available or allow the use of any equipment which has not met the requirements of this section.

Tests performed as required in this paragraph shall be recorded. This test record shall identify each receptacle, cord set, and cord- and plug-connected equipment that passed the test and shall indicate the last date it was tested or the interval for which it was tested. This record shall be kept by means of logs, color coding, or other effective means and shall be maintained until replaced by a more current record. The record shall be made available on the jobsite for inspection by authorized OSHA representatives and any affected employee.

**COMPANYNAME will use GFCI's in lieu of an assured grounding program.**

#### **44.5.18.2 Ground Fault Circuit Interrupters**

All 120V, single-phase 15- and 20-ampere receptacle outlets on construction or maintenance sites, which are not part of the permanent wiring of the building or structure, and which are in use by employees, shall have approved ground fault circuit interrupters (GFCI) for personnel protection.

- All hand portable electric tools and extension cords shall receive power through a working, tested GFCI equipped outlet or portable GFCI adapter.
- GFCI adapters shall be the first device plugged into the permanent power receptacle.
- GFCIs must be tested and confirmed working before each use.
- GFCIs must be used on all 120V, single-phase fifteen (15)- and twenty (20)-amp receptacles within six feet (6') of a sink, damp areas, or on installed outdoor equipment or when using powered equipment outdoors.
- Approved GFCI's shall be used for 240V circuits in the same service as described above.

GFCIs must be tested and confirmed working before each use and quarterly. Quarterly inspections must be documented with records maintained.

#### **44.5.19 Overcurrent Protection Devices**

Overcurrent protection devices including breakers, fuses, and other devices shall not be modified, even on a temporary basis under any circumstances. Modification of these devices can lead to electric shock as well as overheating which can lead to ignition of nearby flammable materials. All overcurrent protection devices must comply with National Electric Code requirements.

### **44.6 Training**

All employees shall be trained in safety-related work practices that pertain to their respective job assignments. Training shall also include clearances and the corresponding voltages to which the qualified worker will be exposed.

#### **44.6.1 Initial**

##### **44.6.1.1 Qualified Employees**

Refer to Electrical Safety-Related Work Program

##### **44.6.1.2 Unqualified Employees**

Employees not recognized as qualified but who face a risk of electrical shock will be trained on basic electrical safety practices as presented in this program during new hire orientation.

Training will consist of (but not be limited to) the following:

- Basic principles of electricity
- Hazards related to exposure to electrical energy
- Hazards related to working near energized overhead power lines
- Hazard control measures preventing exposure to electrical energy
- Circuit protection devices
- Electrical related safety practices
- Clearance distances
- Personal protective equipment

#### **44.6.2 Refresher**

Refresher training will be conducted at least annually and when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete;
- A new electrical hazard is introduced in the workplace;
- The hazards associated with the tasks change;
- Employee demonstrates inadequacies in their practice, knowledge, understanding, or skill in performing the tasks properly

#### **44.7 Reference**

- OSHA Standard 29 CFR 1926.402 – 1926.408

#### **44.8 Appendix**

- Assured Equipment Grounding Inspection Log

ASSURED EQUIPMENT GROUNDING INSPECTION LOG

**NOTE:** When conducting the external (visual) inspection look for damaged plug ends, missing pins damaged cord sheathing or exposed insulation, exposed conductors, and signs of internal damage

Item ID#	Item Description	External Inspection		Continuity		Proper Grounding	
		PASS	FAIL	PASS	FAIL	PASS	FAIL
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Chapter 45 Lighting Program

### 45.1 Purpose, Scope & Policy

#### 45.1.1 Purpose

The purpose of the Lighting Program is to define lighting requirements for construction activities and incorporate controls to insure they are executed in a safe manner in regard to protecting the safety and health of workers on the project.

#### 45.1.2 Scope

This program applies when employees are exposed to the hazards associated with construction projects.

#### 45.1.3 Policy

The need for proper lighting is important to the safe completion of all tasks related to construction. Proper lighting will be utilized at all times.

### 45.2 Roles & Responsibilities

#### 45.2.1 Employer

##### 45.2.1.1 Management

Ensure employees are properly trained on safe working techniques and employees have the necessary tools and equipment.

##### 45.2.1.2 Supervisor

Monitor work to ensure hazards are controlled and employees are properly performing tasks.

#### 45.2.2 Employee

Use proper tools and equipment and follow company safe work procedures.

### 45.3 Definitions

**Foot-candles** - a unit of illumination equal to that given by a source of one candela at a distance of one (1) foot (equivalent to one lumen per square foot or 10.764 lux).

### 45.4 Hazards

- Light levels
- Temporary lighting

### 45.5 Hazard Control Measures

#### 45.5.1 Light Levels

Lighting will be provided at a minimum of three (3) Foot-Candles for the following tasks:

- General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas.
- Lighting will be provided at a minimum of 5 Foot-Candles for the following tasks:
- General construction area lighting.
- Indoors: warehouses, corridors, hallways, and exit-ways.
- Tunnels, shafts, and general underground work areas:

**Exception:** minimum of ten (10) foot-candles is required at tunnel and shaft heading during drilling, mucking, and scaling

Lighting will be provided at a minimum of ten (10) Foot-Candles for the following tasks:

- General construction
- Plant and shops (e.g., batch plants, screening plants,
- Mechanical and electrical equipment rooms,
- Carpentry shops,
- Rigging lofts
- Storerooms
- Mess halls
- Indoor toilets and workrooms.)

Lighting will be provided at a minimum of thirty (30) Foot-Candles for the following tasks:

- First-aid stations
- Infirmarys
- Offices

#### **45.5.2 Temporary Lighting Wiring**

All lamps for general illumination shall be protected from accidental contact or breakage. Metal-case sockets shall be grounded.

Temporary lights shall not be suspended by their electric cords unless cords and lights are designed for this means of suspension. Only non-conductive materials will be used to suspend temporary lighting cords unless connected to a manufacturer designed attachment point.

Portable electric shall be operated at twelve (12) volts or less. However, 120-volt lights may be used if protected by a ground-fault circuit interrupter.

A junction box shall be used wherever a change is made to a metal clad or metal sheathed raceway or cable system.

Flexible cords and cables shall be protected from damage. Sharp corners and projections shall be avoided. Flexible cords and cables may pass through doorways or other pinch-points if protection is provided to avoid damage.

Flexible cords used with temporary and portable lights shall be designed for hard or extra-hard usage.

### **45.6 Training**

Employees will receive training on the hazards associated with working in poor light and in proper installation of temporary lighting.

#### **45.6.1 Initial**

Employees will receive initial training prior to their working assignment

#### **45.6.2 Refresher**

Refresher training will be administered when the following situations occur:

- Changes in equipment, the workplace, or the type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

## 45.7 Reference

- OSHA Standard 29 CFR 1926.405
- OSHA Standard 29 CFR 1926.56

## **Chapter 46 Control of Hazardous Energy Program – Lockout/Tagout**

### **46.1 Purpose, Scope, and Policy**

#### **46.1.1 Purpose**

The purpose of this lockout/tagout program is to control the unexpected startup of machines or equipment, and the release of stored energy that could harm employees.

#### **46.1.2 Scope**

This program applies to the control of energy during servicing and maintenance of machines and equipment. This program establishes the requirements for isolation of potential energy sources such as: electrical, mechanical, chemical, thermal, hydraulic, pneumatic, and gravitational, prior to equipment repair, adjustment, or removal.

#### **46.1.3 Policy**

Specific Goals:

- Establish a safe and positive means of shutting down machinery, equipment, and systems.
- Prevent unauthorized personnel or remote-control systems from starting machinery or equipment while it is being serviced.
- Provide a secondary control system (tagout) to warn and notify workers when equipment is in lockout status;
- Establish responsibility for implementing and controlling lockout/tagout procedures.
- Ensure that only approved locks, standardized tags and fastening devices provided by the company will be utilized in the lockout/tagout procedures

### **46.2 Roles & Responsibilities**

#### **46.2.1 Employer Responsibilities**

It is management's responsibility to do the following:

- Establish a program consisting of energy control procedures, employee training and periodic inspections to ensure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, startup or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source and rendered inoperative.
- Create written machine specific lockout/tagout procedures, monitor implementation, maintain records, and ensure compliance
- Provide the required equipment needed for lockout/tagout procedures
- Ensure that employees required to service and maintain equipment and machines are properly trained as Authorized Employees prior to performing maintenance to equipment and machines
- Provide training for ALL impacted workers

#### **46.2.2 Employee Responsibilities**

It is employee's responsibility to follow the written procedures for lockout/tagout. Only Authorized Employees will perform maintenance on equipment and machines by following the proper lockout/tagout procedures. All affected and other employees will not tamper with or remove any lockout/tagout devices put in place by an Authorized Employee.

- Authorized employees are responsible for following established lockout/tagout procedures.



- Affected employees are responsible for recognizing and understanding the LOTO program requirements.

### 46.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. xxvii

### 46.4 Hazards

Improper use or failure to use lockout/tagout procedures may result in electrocution, electrical shock, amputation, laceration, chemical exposure, skin burns, fires, explosions, chemical releases, eye injury, or death.

### 46.5 Hazard Control Measures

Only authorized and trained employees may engage in tasks that require use of lockout/tagout procedures.

Procedures shall be developed, documented, and utilized for the identification and control of potentially hazardous energy when employees are engaged in machine and equipment servicing and maintenance.

NOTE: *Exception:* The employer need not document the required procedure for a particular machine or equipment, when ALL of the following elements exist:

- The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut-down which could endanger employees; and
- the machine or equipment has a single energy source which can be readily identified and isolated; and
- the isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment; and
- the machine or equipment is isolated from that energy source and locked out during servicing or maintenance; and
- a single lockout device will achieve a locked-out condition; and
- the lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance; and
- the servicing or maintenance does not create hazards for other employees; and
- the employer, in utilizing this exception, has had no accidents involving the unexpected activation or reenergization of the machine or equipment during servicing or maintenance.

Restoration from lockout/tagout is a controlled operation and may ONLY be performed by Authorized worker trained to perform this task.

#### 46.5.1 Lockout/Tagout Energy Assessment

Management will complete an energy assessment to identify all energy source hazards. These assessments will be utilized in the creation of new Lockout/Tagout procedures and will be reviewed as part of the annual inspection of Lockout/Tagout machine specific procedures.

The Equipment Inventory and Lockout/Tagout Procedure Assessment Log included within this program will be used to identify which machines and equipment need lockout/tagout procedures and to track annual inspections of the procedures.

#### 46.5.2 Lockout/Tagout Procedures

Management will prepare a machine-specific Lockout/Tagout procedure for all machines requiring one. Each procedure shall identify specific steps for Authorized Employees to follow. An example lockout/tagout procedure is included at the end of this program for review.

Prior to working on, repairing, adjusting, maintaining, or replacing machinery and equipment, the following seven-step process will be utilized to develop procedures to place the machinery and equipment in a neutral or zero energy state.

Before Authorized Employees shut down a machine or piece of equipment, the Authorized Employee will have knowledge of the type and magnitude of the energies involved, the hazards of the energies to be controlled, and the means to control the energy

#### **46.5.2.1 Communicate**

- Notify all Affected Employees that the machinery, equipment, or process will be out of service. Affected employees are those impacted by a machine or piece of equipment being placed in lockout condition. These may be operators of the equipment being serviced or employees working up or downstream of the equipment and their work process may be disrupted as a result of the equipment being shut down.

#### **46.5.2.2 Machine or Equipment Shutdown**

- The machine or equipment will be shut down using normal shutdown procedures for that unique machine. An orderly shutdown will be utilized to avoid any additional or increased hazards to employees as a result of equipment de-energization.
- If the machinery, equipment, or process is in operation, follow normal stopping procedures (depress stop button, open toggle switch, etc.)
- Normal shutdown procedures must be spelled out in the lockout/tagout procedure for reference.

#### **46.5.2.3 Isolate Energy Sources**

- All energy control devices used to isolate the energy to the machine or equipment will be physically located and installed in such a manner as to isolate the machine or equipment from the energy source.
- Move switch or panel arms to 'OFF' or 'OPEN' positions and close all valves or other energy isolating devices so that the energy source(s) is disconnected or isolated from the machinery or equipment.

#### **46.5.2.4 Lockout/Tagout Device Application**

- Lockout or tagout devices will be affixed to energy isolating devices by Authorized Employees.
- Lockout devices will be affixed in a manner that will hold the energy isolating devices in the 'SAFE' or 'OFF' position and prevent energization of the equipment.
- Where tagout devices are used they will be affixed in such a manner that clearly states that the operation or the movement of energy isolating devices from the 'SAFE' or 'OFF' positions is prohibited.
- Each Authorized Employee must place their own lock and tag on each energy control point.
- Using or removing the lock or tag of another Authorized Employee is prohibited without supervisor authorization.

#### **46.5.2.5 Release Stored Energy**

- Following the application of the lockout or tagout devices to the energy isolating devices, all potential or residual energy will be relieved, disconnected, restrained, and otherwise neutralized.
- Stored energy (capacitors, springs, elevated members, rotating fly wheels, and hydraulic/air/gas/steam systems) must be relieved or restrained by grounding, repositioning, blocking, and/or bleeding the system.

#### **46.5.2.6 Verify De-energization**

- Prior to beginning work on machines or equipment that have been locked and/or tagged out, the Authorized Employee(s) will verify that isolation or de-energization of the machine or equipment has been accomplished.
- After ensuring that no employee will be placed in danger, test all lock and tag outs by following the normal start up procedures (depress start button, follow normal startup procedures, etc.).

**NOTE:** If after following the procedures the machine shows signs of not having been completely de-energized, **STOP** and notify the Supervisor. A critical step may have been missed, or the procedure may require review and modification.

#### **46.5.2.7 Return all Controls to the Neutral Position**

During the verification process controls may have been manipulated to check for de-energization. Some controls may not automatically return to a neutral or safe position. This includes valves, hydraulic controls, ON/OFF switches, etc. It is critical that these controls are returned to the neutral or 'safe' position to prevent the machine from unexpectedly operating upon reactivation of the energy sources.

#### **46.5.3 Lockout/Tagout for Electrical Plug-Type Equipment**

An exemption is given to normal lockout/tagout procedures provided the equipment can be de-energized completely by unplugging the cord and that the cord remains in the exclusive control of the person performing the maintenance work. If these conditions are met, there is no need for further measures to be taken. In the event that the energy source is not under the exclusive control of the person performing the maintenance, regular lockout/tagout measures must be followed. Devices such as plug buckets, locks and tags may be used to lockout cord plugs.

#### **46.5.4 Extended Lockout/Tagout**

Should the shift change before the machinery or equipment can be restored to service, the lockout/tagout condition must be maintained. If the task is transferred to the next shift a coordinated process of transferring lockout control must be followed.

There are four effective methods to accomplish this requirement:

1. Authorized Employees leave their personal lockout devices in place until the job has been completed; OR
2. Following the lockout procedure, on-coming employees apply their lockout devices before off-going employees remove theirs. This method requires coordination between the two crews.; OR
3. Off-going employees remove their lockout devices from the energy isolation devices and restore the equipment to normal operating condition. Then the on-coming crew follows the lockout procedure from the beginning returning the equipment to lockout condition under their control.; OR
4. Transfer locks are used to maintain continuity of lockout. In this method of lockout, a 'Primary' Authorized Employee following the procedure attaches a transfer lock to each energy control device. The transfer lock should be clearly identifiable as a transfer lock.
  - Each Authorized Employee attaches their personal lock and tag to each energy control device until their task is completed or they go home for the day.
  - Each on-coming Authorized Employee attaches their lock and tag to each energy control device before working on the equipment.

This process continues until the work has been completed and the last lockout locks and tags have been removed.

The transfer locks are the last to be removed after the 'Primary' Authorized Employee confirms the equipment is ready for return to service and that no employees are in the area.

### 46.5.5 Lockout/Tagout – Multiple Employees

In the preceding procedures, if more than one employee is assigned to a task requiring a lock and tagout, each must also place his or her own lock and tag on the energy isolating device(s). This may be achieved through the use of a hasp or other similar device.

#### 46.5.5.1 Group Lockout

There are occasions when multiple personnel will be working on the same piece of machinery or equipment. Workers may come and go independently, or there may be so many involved that it becomes infeasible to attach a large number of locks to a single energy isolation point. In these cases, a group lockout box is an effective means of maintaining lockout of the equipment.

When performing group lockout, a 'Primary' Authorized Employee locks out the equipment using their personal locks and tags. The keys for each of the locks are collected and placed in the group lock box and the 'Primary' Authorized Employee applies their lock to the group lockbox. Each Authorized Employee adds their lock to the group lockbox ensuring that the keys are inaccessible until their lock is removed. At the completion of the work the 'Primary' Authorized Employee checks the equipment and the area to ensure it is safe to return the equipment to normal operation. Once confirmed safe, the 'Primary' Authorized Employee removes their lock from the lockbox, accesses the secured keys, removes the locks from the energy isolating devices and restores the equipment to normal operation.



### 46.5.6 Testing or Positioning of Machines

During the course of maintenance and servicing work, machines and equipment may need to be tested or repositioned which might require the removal of locks and tags and temporary re-energization. When this is required, the following procedures shall be followed:

- Clear the machines or equipment of tools and materials
- Notify employees that will be affected by the re-energization
- Remove employees from the machines or equipment area to a safe location
- Remove the lockout/tagout devices
- Energize and proceed with testing or positioning
- Re-implement lockout/tagout procedures once testing, or repositioning is complete

### 46.5.7 Release from Lockout/Tagout

Prior to removing the locks and tags and restoring the equipment to normal operation, the following seven-step process will be followed to ensure employee safety.

#### 46.5.7.1 Communicate

Before lockout and tagout devices are removed and the equipment is restored to normal operation, notify all Affected Employees of the equipment status change.

#### 46.5.7.2 Verify the Safety of the Area

Check the work and surrounding areas to ensure all non-essential personnel are a safe distance from the equipment.

Check equipment surfaces to ensure no loose tools or parts can fall into the equipment and remove all loose tools, parts, and non-essential equipment from the area. Objects falling into the equipment can become projectiles or can cause significant damage to machinery.

#### **46.5.7.3 Reinstall Machine Guarding and Safety Devices**

Before restarting the equipment, all machine guarding must be replaced and properly secured in position. All safety devices including latches, interlocks, barriers, positioning sensors, etc. must be reset and restored prior to re-energization.

#### **46.5.7.4 Ensure all Controls are in the Neutral Position**

Check all switches and controls to ensure they are in a safe position. This applies especially to ON/OFF switches, hydraulic controls, valves, and other devices that do not automatically return to a safe position when released.

#### **46.5.7.5 Remove Lockout Locks, Tags, and Devices**

Each Authorized Employee will remove their lock and tag from each lockout device applied to the equipment energy isolation points.

When all locks and tags have been removed, remove the lockout device, and prepare to re-energize the equipment.

#### **46.5.7.6 Re-energize the Equipment**

All personnel must be kept clear of equipment during initial startup.

Some machine functions may require re-energization in a specific order. The proper re-energization steps should be established in the machine-specific lockout procedure. Follow the procedure to ensure proper order of re-energization.

Following safe methods, re-energize the equipment. When re-energizing electrical equipment, it is best to stand clear of the front of the equipment and turn away when operating the switches. For example, standard disconnect switches usually have the switch lever or rocker on the right side of the box as you face it. A good practice is to stand off to the right of the switch and use the left hand turning away from the switch when operating the lever or rocker. Following this method can reduce the risk of exposure to electrical energy or arc-flash.

Wear proper personal protective equipment when re-energizing the equipment. Safety glasses are minimum required PPE.

#### **46.5.7.7 Equipment Restart**

Restart the equipment following normal startup procedures. Startup procedures should always follow manufacturer's instructions and should be identified in the lockout procedure for quick reference.

#### **46.5.8 Management's Removal of Locks or Tags**

Only the Authorized Employee that locks and tags out machinery, equipment, or processes may remove their lock and tag. However, should the employee leave the facility before removing their lock and tag and it is necessary to terminate the lockout procedure, the lockout/tagout device(s) may only be remove under the direction of management after the following criteria are met:

- Management will make every effort to contact the employee who installed the lockout devices. Attempts shall be documented including times, dates, contact methods, and phone numbers.

- If attempts to contact the employee are unsuccessful, another Authorized Employee and supervisor shall inspect the equipment to ensure it is safe to remove the lockout devices.
- Only a management representative will be allowed to authorize removal of the lockout devices.
- Upon return to work, the employee who originally implemented the lockout/tagout will be notified of the removal.

#### **46.5.9 Outside Contractors**

Outside contractors shall implement the lockout/tagout procedures enforced by their employer. A copy of their procedures will be obtained and reviewed by management prior to the start of work. Employees will be notified when an outside contractor's procedures are being utilized and they shall be informed of any special precautions necessary.

#### **46.5.10 Lockout/Tagout Devices**

All lockout/tagout devices will comply with the following requirements:

- Durability – Locks and tags must be able to withstand the environment in which they will be used. Tags must remain legible when used in corrosive or wet environments.
- Standardized – Both lockout and tagout devices must be standardized according to color, shape, or size. Tags must be standardized according to print and format.
- Substantial – Lockout and tagout devices must be substantial enough to minimize early or accidental removal. A tag means of attachment must be non-reusable unless attached to a lock.
- Identifiable – Locks and tags must clearly identify the employee who applied them.
- Tags shall warn of the hazardous conditions should the equipment be energized and shall include a legend such as one or more of the following: DO NOT START, DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE, DO NOT OPERATE.

#### **46.5.11 Inspections**

An initial and then periodic inspections, at least annually, will be performed and documented by a qualified person. The purpose is to determine whether or not the authorized employee is utilizing the procedures properly, and that the procedures are valid. This requirement will be performed for each authorized person, and on each machine or piece of equipment for which they are responsible.

Inspections of procedures will be logged using the Equipment Inventory and Lockout/Tagout Procedure Assessment Log found within this program.

**NOTE:** For identical machines or machine types using identical lockout/tagout procedures, the Authorized Employee may be inspected on one of those machines and procedures. For example; if the authorized person is responsible for six identical or substantially similar saws, and the procedure for all of the saws is the same, the employee would only be inspected on one of those machines, not all six.

##### **46.5.11.1 Initial Inspection**

Upon first assignment the Authorized Employee shall be evaluated by the employer to ensure understanding of the program and the procedures. The employee will be inspected on each machine or group of substantially similar machines (see note in section 5.11) for which they are responsible to confirm the employee properly follows the procedure locking out the equipment.

If it is determined that the procedures are not being utilized properly then additional training or corrections must be made to bring the employee and the procedures into compliance.

The Initial Inspection shall be performed utilizing the Authorized Employee Initial Inspection Certification form included within this program. It shall include the following information:

- The name of the authorized employee(s) observed.
- The date of the inspection.
- The name of the inspector.

- The identity of the machine or equipment locked out
- Check-off confirmation that each step was properly followed
- Any deficiencies noted, or alterations to the procedure needed.

#### **46.5.11.2 Periodic Inspection**

The Authorized Employee shall be inspected periodically in periods not to exceed twelve (12) months.

The Authorized Employee shall be evaluated by the employer to ensure understanding of the program and the procedures. The employee will be inspected on each machine or group of substantially similar machines (see note in section 5.11) for which they are responsible to confirm the employee properly follows the procedure locking out the equipment.

The documented inspection shall be performed utilizing the Authorized Employee Periodic Inspection Certification form included within this program. It shall include the following information:

- The name of the authorized employee(s) observed.
- The date of the inspection.
- The name of the inspector.
- The identity of the machine locked or tagged out.
- Any deficiencies noted, or alterations to the procedure needed.

### **46.6 Training**

The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees.

All authorized employees will be trained to use the lockout/tagout procedures. The training will be conducted prior to the employees' first use of the procedures. Employees will be trained on the purpose of the program, the potential energy sources available, the general procedures, and the location and use of the specific procedures. All affected and other employees that are not authorized to perform lockout/tagout procedures will be trained to awareness and understanding of the lockout/tagout program.

Provided training must ensure that the purpose and function of the energy control program is understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees.

#### **46.6.1 Initial**

##### **46.6.1.1 Authorized Employee**

Each Authorized Employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.

Authorized Employees will be trained to use the Lockout/Tagout Procedures. The training will be conducted prior to the employees' first use of the procedures. The training will consist of the following:

- Review of the program
- Discussion of the potential energy sources
- Review of Specific Procedures for machinery, equipment, and processes
- Location and use of Specific Procedures
- An initial inspection utilizing the Periodic Inspection form

##### **46.6.1.2 Affected Employee**

Each affected employee shall be instructed in the purpose and use of the energy control procedure.

This training will include:

- Repair and servicing of machinery and equipment shall be performed only by Authorized Employees.
- Lockout devices and tags shall be applied only by Authorized Employees.
- Affected employees may not remove locks, locking devices, or tags from machinery or equipment.
- Machinery and equipment that has been locked or tagged out of service shall not be tampered with.

#### **46.6.1.3 Other Employees**

All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the program and procedures, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

This training will include:

- Repair and servicing of machinery and equipment shall be performed only by Authorized Employees
- Other employees may not remove locks, locking devices, or tags from machinery or equipment.
- Machinery and equipment that has been locked or tagged out of service shall not be tampered with.

#### **46.6.2 Refresher**

Refresher training will be provided whenever there is a change in the employee's job assignments, a change in machines, equipment, or processes that present a new hazard, or when there is a change in the energy control procedures.

Additional refresher training will also be conducted whenever a periodic inspection reveals, or whenever management has reason to believe that the authorized employee's practice, knowledge, or understanding of the lockout/tagout program is deficient. The refresher training will reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

#### **46.7 Reference**

OSHA Standard 29 CFR 1910.147

#### **46.8 Appendix**

- Equipment Inventory and Lockout/Tagout Procedure Assessment Log
- Authorized Employee - Certification of Initial Inspection
- Authorized Employee - Certification of Periodic Inspection
- Example Lockout/Tagout Procedure



Equipment Inventory and Lockout/Tagout Procedure Assessment Log

Procedure Number	Equipment Name	Department	Date Created	Date Revised	Inspection Date

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**Authorized Employee - Certification of Initial Inspection**

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Employee Name: \_\_\_\_\_ Date: \_\_\_\_\_

Equipment Utilized: \_\_\_\_\_

This employee was observed performing a lockout/tagout procedure for the purpose of determining their understanding of and the validity of the procedures utilized at this facility.

***Seven Step Procedure for Lockout/Tagout***

- ☐ Communicate
  - o Procedure understood
  - o Authorized Employee notified Affected Employees
- ☐ Shutdown the equipment using normal shutdown procedures
- ☐ Isolate all energy sources
- ☐ Apply lockout devices, locks, and tags
  - o All necessary devices affixed properly to ensure no unintentional start
  - o All devices properly locked as applicable
  - o Tags properly completed and attached
- ☐ Stored energy identified and released
- ☐ Verification of isolation and de-energization
- ☐ Controls were returned to the neutral position

***Release from Lockout/Tagout***

- ☐ Authorized Employee notified all Affected Employees that the machine will be re-energized and restored to normal operating condition.
- ☐ Verify the safety of the area.
  - o Personnel clear
  - o No loose tools, parts, or equipment
- ☐ All machine guarding reinstalled and safety devices operational
- ☐ All controls are in the neutral position
- ☐ Lockout locks, tags, and devices removed
- ☐ Energy sources safely re-energized
- ☐ Equipment restarted following normal startup procedures.

Recommended Changes to Procedure: ☐ No Changes

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Inspector: \_\_\_\_\_ Employee: \_\_\_\_\_

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**Authorized Employee - Certification of Periodic Inspection**

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Employee Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Lockout/Tagout & Control of Hazardous Energy**







This form is to be used by Lockout/Tagout Authorized Employee to certify established procedures are followed when controlling hazardous energy sources during servicing and maintenance of machines and equipment covered by this program. This form is to be used in conjunction with the "Machine Group" Specific Energy Control Procedure(s), for the particular machine being inspected.

Machine Group	Reviewed (date)	Deviations or Inadequacies

The periodic inspection has been satisfactorily completed with the employee identified above as specified by OSHA 1910.147.

Inspector: \_\_\_\_\_ Authorized Employee: \_\_\_\_\_

## Example Lockout/Tagout Procedure

EXAMPLE		<b>LOCKOUT/TAGOUT PROCEDURE</b>		OSHA 29 CFR 1910.147
Procedure Number	P-FOL1	<b>Simon Mini Flexo Folder/Gluer</b>		
Created: mm/dd/yyyy	By: RM			
Revised:	By:			
<b>3</b>		<b>LOCKS &amp; TAGS NEEDED</b>		
		<b>Production</b>		
		<b>DANGER</b>		
		For use by trained and <b>AUTHORIZED</b> employees only. If you have questions contact your supervisor or the maintenance department.		
<b>PURPOSE</b>				
This procedure establishes the minimum requirements for the lockout of energy isolating devices wherever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury. All employees are required to comply with the restrictions and limitations imposed on them during the use of lockout/tagout. Failure to comply will result in disciplinary action.				
<b>SHUT DOWN PROCEDURE</b>				
1. Depress Emergency Stop (E-Stop) Switch on Control Panel				
<b>LOCKOUT APPLICATION PROCESS</b>				
1. Communicate to all <b>AFFECTED</b> employees 2. Shut down the equipment using normal stopping procedure 3. Isolate energy sources 4. Apply lockout devices, locks, and tags 5. Release all stored energy 6. Verify equipment is de-energized by attempting to start up 7. After test, place controls in a neutral position				
<b>COLOR CODES</b>				
<b>CG = Control Gravity</b> <b>CP = Control Panel</b> <b>E = Electrical</b> <b>G = Gas</b> <b>H = Hydraulic</b> <b>M = Mechanical</b> <b>P = Pneumatic</b> <b>T = Thermal</b> <b>W = Water</b> <b>S = Steam</b> <b>V = Valve</b> <b>CG = Compressed Gas</b>				
<b>EQUIPMENT IDENTIFICATION AND ENERGY ISOLATION PROCEDURE</b>				
  				
 				
Energy Tag and Description		Isolation Procedure & Lockout Devices		Method of Verification
<b>E-1</b>	Main Disconnect (labeled FOL1-E1)	Turn disconnect switch to the 'OFF' position. Secure with LOTO padlock and attach LOTO tag.		Verify disconnect switch is locked and secure. Proceed to step E-2
Electrical 480 VAC		<i>1 Lock &amp; Tag</i>		
<b>E-2</b>	Main Disconnect (labeled FOL1-E2)	Turn disconnect switch to the 'OFF' position. Secure with LOTO padlock and attach LOTO tag.		Verify disconnect switch is locked and secure. Proceed to step P-1
Electrical 480 VAC		<i>1 Lock &amp; Tag</i>		
<b>P-1</b>	Air Valve (labeled FOL1-P1)	Turn valve to the off position and secure with valve handle lockout device. Secure with LOTO padlock and attach LOTO tag.		Verify valve handle lockout device is locked and secure. Attempt to operate machine, no activity should occur.
		<i>1 Lock &amp; Tag</i>		
<b>LOCKOUT REMOVAL PROCESS</b>				
1. Communicate to all <b>AFFECTED</b> employees 2. Verify the safety of the area 3. Ensure safety devices and guards are in place 4. Ensure controls are in the neutral position 5. Remove all lockout devices, locks, and tags 6. Re-energize energy sources 7. Restart the equipment using normal start-up procedures				
<b>START UP PROCEDURE</b>				
1. Open air valve FOL1-P1 2. Turn switch FOL1-E2 to the 'ON' position 3. Turn switch FOL1-E1 to the 'ON' position 4. Release Emergency Stop (E-Stop) Switch on Control Panel				
<b>REVIEWED BY:</b>				
Maintenance		Management		
Signature: _____	Date: _____	Signature: _____	Date: _____	

## **Chapter 47 Driver Safety Program**

### **47.1 Purpose, Scope, and Policy**

#### **47.1.1 Purpose**

This program has been established to save lives and to reduce the risk of life-altering injuries within the company's workforce while operating motor vehicles in the performance of company operations. It is also our desire to protect the health and well-being of the general public operating their vehicles on public roadways used by our workforce and to protect the company's human and financial resources.

#### **47.1.2 Scope**

This program applies to employees relating to the daily operation of the company's motor vehicle fleet.

#### **47.1.3 Policy**

COMPANYNAME realizes the significant risk to its workforce in the daily operation of the company's motor vehicle fleet. In an effort to minimize this risk, the company has adopted the following safety guidelines for the safe use and operation of its vehicles.

### **47.2 Roles & Responsibilities**

#### **47.2.1 Employer**

Management's responsibility to provide employees with the proper training regarding driver safety. Management will supply employees with vehicles that will remain in a safe condition.

Management will maintain a high level of vigilance as it pertains to driver safety. It is the supervisor's responsibility to ensure workers are performing their tasks according to this program. Failure to meet expectations must be addressed decisively through training, retraining, and disciplinary action if required.

#### **47.2.2 Employee**

It is the employee's responsibility to follow safety precautions and policies set forth by management. Employees will perform safe driving action while operating company vehicles at all times. Employees will attend all safety training as to be required by this program. Employees will be responsible for reporting and unsafe conditions or concerns related to driver safety to management.

Employees are also responsible for maintaining a current, valid, applicable driver's license when driving a COMPANYNAME vehicle or driving their personally owned vehicle (POV) for COMPANYNAME. If driving a POV for COMPANYNAME the employee must also maintain current automobile insurance compliant with state minimum standards. Insurance status will be reviewed annually to ensure employee eligibility for insurance coverage. Failure to maintain current insurance will disqualify the employee as a driver. Failure to meet the expectations established by this program and by federal, state, and local guidelines will be addressed decisively through training, retraining, and disciplinary action if required.

### **47.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual.<sup>xxviii</sup>

### **47.4 Hazards**

#### **47.4.1 Traffic Crashes**

Losses from traffic crashes have both social and personal impacts.

#### **47.4.2 Psychological Factors**

On the roadways, drivers have to deal with several factors that can affect their driving including psychological factors. Negative psychological factors include anger, unneeded stress, fatigue, emotional distress, and road rage.

#### **47.4.3 Human Factors**

Vehicle operator's actions that can affect a driver's ability include but are not limited driving under the influence of drugs or alcohol, speeding, right-of way violations, improper turning, following too closely to another vehicle and improper passing.

#### **47.4.4 Roadway Conditions**

The condition of the roadway is always a consideration when assessing hazards encountered while operating a motor vehicle. Weather conditions, the condition of the road itself, lighting, and road construction are all factors that may be encountered.

#### **47.4.5 Vehicle Condition**

Vehicle condition can be a significant causative factor in vehicle incidents. A vehicle that is not in safe condition may not maneuver or stop as expected. Damaged or non-operational lighting may reduce visibility both to the driver and to other affected persons or traffic in the area. Significant damage including corrosion and rust may lead to weakened structural members that can cause a vehicle to collapse or lose parts.

### **47.5 Hazard Control Measures**

#### **47.5.1 Driver Selection Process**

- Care will be taken in the selection of drivers for the company's fleet.
- Drivers driving a commercial motor vehicle (CMV) shall be at least 21 years of age and at least eighteen (18) years of age to drive a company owned vehicle.
- Drivers will be properly licensed to drive the class of vehicle they are operating.
- Each driver's motor vehicle record (MVR) will be checked and evaluated prior to the initial assignment of any employee with driving responsibilities and shall be reviewed annually.
- Significant moving violations or repetitive patterns of minor violations will result in an employee's privileges being suspended. Violations that will result in suspension of driving responsibilities include (but are not limited to):
  - Committing homicide, manslaughter, or aggravated assault with a vehicle
  - Leaving the scene of a motor vehicle incident in which the employee was involved
  - Suspension or revocation of driver's license
  - Operating a motor vehicle under the influence of intoxicating substances
  - Refusal to submit to drug testing, blood-alcohol testing, or urine analysis
  - Felony speeding
  - Reckless driving
- Employees selected to drive company vehicles will be required to read, agree to, and sign the Driver Agreement Statement at the end of this Driver Safety Policy.

##### **47.5.1.1 Commercial Driver Qualifications**

A person shall not drive a COMPANYNAME vehicle or commercial motor vehicle (CMV) unless qualified and approved/authorized to do so.

A person is considered for qualification to drive a CMV if they meet the following (but not limited to) minimum qualifications. Some states may have more stringent requirements, see local and state statutes for more information.

1. Are at least 21 years old
2. Hold a current, valid commercial motor vehicle operator's license issued only by one State or jurisdiction (for GVWs or GCVWs of 26,001+ lbs.)
3. Can read and speak the English language sufficiently to converse with the general public, to understand highway traffic signs and signals in the English language, to respond to official inquiries, and to make entries on reports and record
4. Can, by reason of experience, training, or both, safely operate the type of commercial motor vehicle they drive
5. Physically qualified to drive a commercial motor vehicle in accordance with Federal Motor Carrier Safety Regulations (FMCSR) Physical Qualifications and Examinations
6. Is not disqualified to drive a commercial motor vehicle under FMCSR §391.15; and
7. Has successfully completed a driver's road test and has been issued a certificate of driver's road test, or has presented an operator's license or a certificate of road test which we may accept as equivalent to a road test under FMCSR §391.33.
8. Has prepared and furnished COMPANYNAME with the list of violations or the Certificate of Violations

Approval and authorization shall be the responsibility of COMPANYNAME management with the advice of the Safety Manager.

All COMPANYNAME commercial drivers must always be prepared for driving a COMPANYNAME CMV. CMV/CDL drivers will need to produce on demand the following:

- Driver's license documents and any related certificates
- Proof of insurance
- Evidence of financial responsibility
- Certificate of Registration
- Registration papers (cab cards, permits, etc.)
- Special permits for oversize and overweight loads, if required
- Hours of service records (logbook)
- Hazardous materials shipping papers, if required
- Fuel tax permits (IFTA)
- Bills/Invoices, etc. showing content and origin of agricultural products, if required

Only pre-qualified and authorized drivers may operate COMPANYNAME company owned, rented, leased, or their personal vehicle, used for company business.

#### **47.5.2 Care and Use of Company Vehicles.**

- Company vehicles will be used for company purposes only. At no time is a company vehicle to be driven by anyone other than the employee to which it is assigned. Permission to drive a company vehicle is not to be extended to family members or friends under any circumstance.
- Employees driving company vehicles shall observe and comply with all applicable traffic laws.
- Employees designated to use company vehicles will maintain the vehicle in good condition.
- The vehicle cab will be kept in clean and orderly condition so as not to present a hazard to the employee in the event of a crash.
- The exterior of the vehicle and its storage areas and beds will also be kept in clean and orderly condition so as to present a professional image of the company to the public. Additionally, trucks and vehicles with items neatly and securely stowed are less likely to present a hazard to other vehicles and their occupants.
- When accessing and egressing operator positions care must be taken to prevent falls. For taller vehicles such as trucks and heavy equipment always face the machine and maintain three points of contact by using hand holds/rails, and steps. Never step out facing away from the machine.

### 47.5.3 Alcohol and Drug Impairment

- It is a direct violation of company policy to be under the influence of drugs or alcohol while at work.
- Any employee found to be operating a vehicle for company purposes under the influence of drugs or alcohol will subject to disciplinary action up to and including termination in accordance with the company's Substance Abuse Policy.

### 47.5.4 Seat Belt Use

- All employees, when operating or being transported in a company vehicle, or in a personal vehicle for company purposes, shall be seated in a proper seat and utilize a seat belt.
- When operating or riding in moving equipment the seat belt shall be used at all times.
- This seat belt use guideline also applies to off-road movement of vehicles on the company's jobsites.
- Employees are not to ride in the bed of pickup trucks, on bumpers, on running boards or on the sides of other equipment at any time. All body parts must remain within the vehicle at all times.

### 47.5.5 Rollover Protection Systems (ROPS)

Heavy equipment, and equipment that is identified as having a higher-than-normal center of gravity, especially when used on rough terrain or uneven ground may be equipped with rollover protection systems (ROPS). Where equipped, the ROPS will be properly set up and locked in place. When it becomes necessary to remove or stow the roll-over protection system due to clearance the equipment shall be safely operated through the tight clearance and then immediately restored to position once through the obstruction. ROPS shall not be defeated, altered, or removed.

All equipment operators shall be aware of the rated capacity and clearance requirements of the vehicle they are operating. At no time shall rated vehicle capacities be exceeded.

### 47.5.6 Distracted Driving

Driving is a dangerous task where even a momentary loss of attention or focus can lead to catastrophic results. The following activities may be distracting enough to cause an accident:

- Conversations with passengers (or on the phone)
- Eating and drinking
- Personal grooming
- Reading maps
- Using electronic devices
- Lack of sufficient rest or sleep
- Medications

When operating a motor vehicle follow these basic guidelines:

- Stay alert at all times while operating a vehicle.
- Avoid distractive practices such as eating while driving.
- It is against company policy and in most states also unlawful for drivers to use handheld devices such as cell phones, tablets, etc. to text message when driving.
- Most states prohibit the use of hand-held cell phones when operating any vehicle. Hands-free devices such as headsets, speakerphones, and Bluetooth integrated systems must be used. This helps to keep hands available for the safe operation of the vehicle. It also limits blockages in the driver's peripheral vision.
- Usage of cell phone and other handheld devices is prohibited by any COMPANYNAME CMV/CDL drivers while operating a company vehicle unless that vehicle or the driver's phone is equipped with 'hands-free' capability. Checking, reading, and creating texts is prohibited while the vehicle is



in motion. When it becomes necessary to respond to a call or text, drivers will pull over at a safe location to communicate.

#### 47.5.7 Aggressive Driving

- Aggressive driving practices such as these are prohibited; using excessive speed, tailgating, rapid lane changes, failing to obey traffic signals and lights, passing other vehicles on the right.
- Effort shall be maintained to continually drive defensively and avoid conflict with other motorists.
- Courteous driving, including allowing others to merge into traffic, will diffuse many conflicts on the roadway. Acting courteously toward other motorists also presents a good public image of the company.

#### 47.5.8 Vehicle Selection and Maintenance

- During the selection of new vehicles in the purchase process, consideration will be given to crash test ratings as well as other pertinent safety information.
- The manufacturer's recommendations for preventative maintenance will be consulted and utilized to determine the regular maintenance schedule for company vehicles.

#### 47.5.9 Materials Transport

- Adequate care must be taken to ensure that materials are properly stowed and secured prior to transport.
- Ensure that all boxes are closed and properly latched and that all ladders, tools, gas cans, etc. are properly secured to prevent accidental displacement.
- Consideration should be given to ensure that securing is adequate in the event of an emergency stop situation.

##### 47.5.9.1 Hazardous Materials Transport

The Code of Federal Regulations states that "No person may offer (*ship*) or accept a hazardous material for transportation in commerce unless that person is registered in conformance with subpart G of Part 107 of this chapter, if applicable, and the hazardous material is properly classed, described, packaged, marked, labeled, and in condition for shipment as required or authorized..." [49 CFR 171.2(a)]

An exception is provided for transport of materials that fall under the 'Materials of Trade' classification.

'Materials of Trade' (MOTs) are defined as hazardous materials, other than a hazardous waste, which are carried on a motor vehicle for the purpose of:

- Protecting the health and safety of the motor vehicle operator or passengers;
- Supporting the operation of a motor vehicle (including its auxiliary equipment) or;
- Direct support of a principal business other than transportation by a motor vehicle.

Materials must be transported in the original packaging or packaging of equal strength and quality. Materials contained in cans and bottles do not require an outer package if they are secured in cages, carts, or boxes. All transported MOTs must be stored against movement and protected against damage.

Operators of the motor vehicle must be informed of the presence of the hazardous material on the vehicle and the requirements prescribed in 49 CFR 173.6.

Each compressed gas cylinder must be maintained, marked, and labeled as prescribed.

The total allowable weight of all MOTs carried on the vehicle is 440 lbs. (200L).

State and local restrictions may differ from and be more stringent than those established at the federal level. Review applicable regulations and requirements to ensure compliance.

#### **47.5.9.1.1 Container Requirements**

MOT packages must meet the following requirements:

- Leak-proof (solids must be sift-proof)
- Securely closed
- Secured to prevent movement
- Protected against damage

##### **47.5.9.1.1.1 Flammable Liquid Fuels**

Flammable liquid fuels such as gasoline, diesel, and kerosene, etc. must be stored and transported in portable containers that meet the following criteria:

- Must be in a fire-resistive (metal) container of no greater than five (5) gallon capacity
- Be equipped with a self-closing lid or spout
- Be equipped with a flame arrestor screen
- Must be transported in the upright position, secured from movement, and protected from damage

##### **47.5.9.1.1.2 Compressed Gas Cylinders**

Compressed gas cylinders must conform to packaging, maintenance, and use requirements specified in the Hazardous Materials Regulations. Remove the regulators and install safety covers secured against movement. Cylinders must be transported in the upright position and secured against falling, movement, and impact damage from other items in the vehicle.

- Oxygen
- Acetylene
- Propane
- Gases used in welding
- Other compressed gases

Hazardous materials transported by COMPANYNAME are transported solely for the purpose of supporting COMPANYNAME motor vehicles, equipment, and business operations and are not transported for commercial purposes.

##### **47.5.9.1.2 Markings and Placards**

COMPANYNAME does not transport hazardous materials for commercial purposes or in sufficient quantities where markings and placards are applicable. In the event transport of hazardous materials for purposes other than support of COMPANYNAME operations is required or requested the supervisor shall be notified for guidance.

#### **47.5.9.1.3 Training**

Drivers who transport MOT materials shall be trained to understand:

- This section of the Driver Safety Program.
- What materials they are carrying
- The limitations that apply to transport of MOTs
- The exposure hazards of each transported chemical
- The precautions and measures to employ to limit exposure to those hazards

#### **47.5.10 Vehicle Inspection**

Always inspect the vehicle before driving. An inspection can reveal previously unrecognized damage, unsafe conditions, and repair and maintenance needs.

Check for:

- No visible damage that could affect vehicle safety or operation
- Proper tire inflation (see owner's manual or spec label on the vehicle)
- Tire condition including tread depth, tears in the sidewalls, and deformation
- Fluid levels including coolant, oil, power steering fluid, transmission fluid, windshield washer fluid, and battery if applicable
- Fuel levels above half full
- Windshield wiper blades are in good condition
- Lights including headlights (high and low beam), turn signals, brake lights, backup lights, parking lights, hazard warning lights, and interior lighting including dashboard lighting are working.
- If equipped, ensure backup alarm is working and clearly audible over background noise
- Review vehicle controls to ensure familiarity with location and function
- Check seat belt for operation and condition
- Check emergency equipment including first-aid kit, flares, reflectors, and fire extinguisher
- Secure all loose objects so they do not become distractions, hinder vehicle operation, or become projectiles in case of vehicular mishap

Any deficiencies must be corrected before taking the vehicle out on the road.

#### 47.5.11 Communications

Drivers will maintain communication with dispatch or their supervisor to report and advise of the following:

- Time of trip start
- Intended destination
- Time of arrival to destination
- Any significant stops or diversions from original destination
- Any unusual circumstance affecting the trip such as:
  - Delays due to natural or man-made circumstances
  - Stopped by law enforcement
  - Involved in motor vehicle incident
  - Breakdowns
  - Stops to assist in event of emergency
  - Other significant incidents or circumstances that affect the trip in a negative way

Communication will be accomplished by the safe use of radio or mobile phone. If necessary pull over to the side of the road to communicate. When receiving communication from dispatch or the office, response will be done as soon as it is safe to do so. Use hands-free methods when using mobile phones (see Distracted Driving section above).

The means of communication will be always activated and ready to receive communications. Passenger compartment noise must be kept at safe levels to avoid distraction and to allow for the hearing of attempts to communicate.

#### 47.5.12 Driver Fatigue Management

Most adults need seven to nine hours of sleep each day. After seventeen consecutive hours awake, impairment is equivalent to having a blood alcohol content (BAC) of 0.05. After twenty-four hours without sleep impairment is equivalent to a BAC of 0.10. Most jurisdictions recognize a BAC of 0.08 as legal alcohol intoxication. A survey of the U.S. workforce found that 37% of workers get less than the recommended minimum of seven hours of sleep. As many as one in five fatal crashes in the general population involve driver fatigue.

The most common causes of driver fatigue include:

- Being awake for too many consecutive hours
- Not getting enough sleep over multiple days
- Time of day – Your body has a sleep/wake cycle that tells you when to be alert and when it is time to sleep. The urge to sleep is the most intense in the early morning hours.
- Monotonous tasks or long periods of inactivity
- Health factors such as sleep disorders or medications that cause drowsiness

Signs of driver fatigue include:

- Nodding off
- Reacting more slowly to changing road conditions, other drivers, or pedestrians
- Making poor decisions
- Drifting from your lane
- Experiencing “tunnel vision” (when you lose sense of what is going on in the periphery)
- Experiencing “microsleeps”  
(brief sleep episodes lasting from a fraction of a second up to 30 seconds)
- Forgetting the last few miles of your drive

When you find yourself experiencing any of these signs it is time to pull over and take a break. Drink a cup of coffee and take a fifteen-to-thirty-minute nap before proceeding. Going for a brisk walk to stretch your legs can also help. Be aware however that these suggestions provide only temporary improvement, the only cure for fatigue is sleep.

#### **47.5.12.1 Preventing Driver Fatigue**

No amount of experience, motivation, or professionalism can overcome your body's biological need to sleep. Employers and workers can take steps to prevent the chain of events that could lead to a fatigue-related crash.

##### **47.5.12.1.1 Employers**

- Implement policies that set overtime limits and maximum allowable consecutive shifts
- Ensure sufficient staffing levels across operations
- Provide employee training on sleep health and fatigue management
- Implement a workplace sleep disorder screening and management program
- Allow for rest breaks and napping during extended work shifts
- Give supervisors and workers fatigue-symptom checklists and encourage self-reporting
- Encourage peer monitoring of fatigue symptoms among co-workers
- Review data from in-vehicle monitoring systems to detect signs of possible fatigue episodes, such as lane departures
- Consider using wearables such as an instrumented wristband to monitor driver fatigue
- Train incident investigators to assess the role of fatigue in incidents and near-miss incidents

##### **47.5.12.1.2 Employees**

- Get enough sleep (7-9 hours each day). If fatigue persists after adequate sleep, get screened for health problems that may be affecting your sleep
- Plan your activities outside work to allow enough time for adequate sleep
- Create a sleeping environment that helps you sleep well: a dark, quiet, cool room with no electronics
- If you feel fatigued while driving, pull over, drink a cup of coffee, and take a 15–30-minute nap before continuing. The effects are only temporary – the only “cure” for fatigue is sleep
- Watch yourself and your co-workers for signs of fatigue
- Report instances of fatigue in yourself and others to your direct supervisor, who can help to determine the safest course of action

- Speak honestly if you are questioned about a fatigue-related incident. Fatigue is a normal biological response – it is not a reflection of how well you do your job

#### **47.5.13 Motor Vehicle Incident**

In event of a motor vehicle incident (MVA) (crash, vehicle accident, etc.) STOP at once. If it is safe to do so and the vehicle can be driven, pull over to a safe location, secure, and shut down your vehicle unless it is essential to keep it running.

- Check for personal injury and for injuries to other parties involved.
- Contact police and request fire and ambulance as needed. Obtain and record the name and badge number of the responding police officer as well as the jurisdiction for which they work. Do not leave the scene except by permission of law enforcement.
- If fire or smoke is present evacuate occupants to a safe location upwind.
- If a chemical or fuel spill is present evacuate occupants to a safe location upwind and uphill of the incident. If it is safe to do so and you have been trained, consider using a spill kit to control or contain the spill.
- If stalled on railroad tracks evacuate occupants to a safe location toward the direction in which you expect a train to come from. Stay at least thirty (30) feet to the side of the tracks.
- Protect the scene by deploying emergency devices such as flashers, flares, and reflectors.
- Do not leave the scene. Contact supervisor, dispatch, or other designated COMPANYNAME responsible person to advise them of the incident and to receive instruction after first aid has been provided, authorities have been notified, the scene is protected, and it is safe for you to do so.
- Whenever possible, record the names, addresses, phone numbers, driver's license numbers, and license plate numbers of all involved parties including witnesses and passengers. Take photos of important information including involved vehicles, incident location, witness vehicles, etc.

When communicating with law enforcement, emergency response, or witnesses, do not argue or speculate. Make only factual statements to proper authorities in response to direct questions. Do not make statements regarding the operating condition of your vehicle prior to the incident and do not admit fault.

If you strike an unattended vehicle and are unable to locate the owner, leave a note with your name and COMPANYNAME's address and phone number. Get the vehicle description, VIN number, and license plate number. Take photos of the vehicle and of the damage.

##### **47.5.13.1 Crash Reporting and Investigation**

- All motor vehicle incidents and crashes, no matter how minor or serious, shall be reported to the office immediately.
- The driver involved in the incident, unless seriously injured, will be responsible to file a completed report on the Vehicle Accident Report Form by the morning following the crash.
- The driver will also be responsible for filing or assisting the office in filing any necessary regulatory agency reports.
- Any employee involved in a motor vehicle incident will cooperate fully with company management, law enforcement agencies, or insurance company personnel in the investigation of the incident. Hindering the investigation in any way will result in disciplinary action. This includes attempting to cover up details of the incident, altering the scene or manipulating witness statements, etc.

#### **47.6 Disciplinary Action**

Driver safety is extremely important for the safety of employees, the public, and the company. Violations of this Driver Safety Program and federal, state, and local regulations will result in progressive disciplinary action up to and including termination. See the Disciplinary Action Policy for more information.

#### **47.7 Training**

#### **47.7.1 Initial**

Driver Safety training will be provided to each employee prior to being assigned to drive a company or personally owned vehicle for employment purposes. Business related driving is not authorized until the training has been completed and the employee is approved to drive.

Training will consist of a presentation followed by a test to ensure understanding of the training materials.

Driver training will include (but not be limited to):

- Pre-trip safety inspections
- Use of vehicle controls and equipment including operation of emergency equipment
- Operation of vehicle including turning, handling, braking, backing, parking as well as vehicle characteristics including those that affect vehicle stability
- Dangers associated with weather or road conditions (ice and snow, terrain, high winds, lighting, etc.)
- Procedures for maneuvering tunnels, bridges, and railroad crossings
- Requirements pertaining to attendance of vehicles, parking, smoking, routing, and incident reporting
- Loading and unloading of materials, including:
  - Compatibility and segregation of cargo in a mixed load;
  - Package handling methods
  - Load securement

#### **47.7.2 Evaluation**

Management shall evaluate each trained operator to verify that the employee has retained and uses the knowledge and skills needed to operate safely. If the evaluation shows that the employee is lacking the appropriate skills and knowledge, the employee is retrained.

#### **47.7.3 Refresher**

Retraining shall be administered when the following situations occur:

- Changes in the workplace or type of work being performed renders previous training obsolete.
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly.

Refresher training can be given to any employee observed operating a company vehicle in an unsafe manner, if the driver has been involved in and/or causes an accident involving vehicles, equipment, or pedestrians.

#### **47.8 Reference**

- DOT 49 CFR 173.6
- CDC: NIOSH – Driver Fatigue
- CDC: NIOSH – Motor Vehicle Safety at Work

#### **47.9 Appendix**

- Driver Safety Program Acknowledgment Statement
- 49 CFR 173.6 - Materials of Trade Exceptions
- Vehicle Inspection Form
- Vehicle Damage Report Form
- Witness/Involved Persons Statement Form

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**Driver Safety Program Acknowledgement Statement**

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I have reviewed the "Driver Safety Program" and agree that I will maintain compliance with each of these requirements.

Employee Name: \_\_\_\_\_

(print name)

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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**49 CFR 173.6 - Materials of Trade Exceptions**

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When transported by motor vehicle in conformance with this section, a material of trade is not subject to any other requirements of this subchapter besides those set forth or referenced in this section.

**Materials and amounts** – A material of trade is limited to the following:

- (1) A Class 3, 8, 9, Division 4.1, 5.1, 5.2, 6.1, or ORM-D (Other Regulated Materials) material contained in a packaging having a gross mass or capacity not over -
  - (i) 0.5 kg (1 pound) or 0.5 L (1 pint) for a Packing Group I material;
  - (ii) 30 kg (66 pounds) or 30 L (8 gallons) for a Packing Group II, Packing Group III, or ORM-D material;
  - (iii) 1500 L (400 gallons) for a diluted mixture, not to exceed two percent concentration of a Class 9 material.
- (2) A Division 2.1 or 2.2 material in a cylinder with a gross weight not over 100 kg (220 pounds), in a Dewar flask meeting the requirements of § 173.320, or a permanently mounted tank manufactured to the ASME Code of not more than 70-gallon water capacity for a non-liquefied Division 2.2 material with no subsidiary hazard.
- (3) A Division 4.3 material in Packing Group II or III contained in a packaging having a gross capacity not exceeding 30 mL (1 ounce).
- (4) A Division 6.2 material, other than a Category A infectious substance, contained in human or animal samples (including, but not limited to, secreta, excreta, blood and its components, tissue and tissue fluids, and body parts) being transported for research, diagnosis, investigational activities, or disease treatment or prevention, or is a biological product or regulated medical waste. The material must be contained in a combination packaging. For liquids, the inner packaging must be leakproof, and the outer packaging must contain sufficient absorbent material to absorb the entire contents of the inner packaging. For sharps, the inner packaging (sharps container) must be constructed of a rigid material resistant to punctures and securely closed to prevent leaks or punctures, and the outer packaging must be securely closed to prevent leaks or punctures. For solids, liquids, and sharps, the outer packaging must be a strong, tight packaging securely closed and secured against shifting, including relative motion between packages, within the vehicle on which it is being transported.
  - (i) For other than a regulated medical waste, the amount of Division 6.2 material in a combination packaging must conform to the following limitations:
    - (A) One or more inner packagings, each of which may not contain more than 0.5 kg (1.1 lbs.) or 0.5 L (17 ounces), and an outer packaging containing not more than 4 kg (8.8 lbs.) or 4 L (1 gallon); or
    - (B) A single inner packaging containing not more than 16 kg (35.2 lbs.) or 16 L (4.2 gallons) in a single outer packaging.
  - (ii) For a regulated medical waste, a combination packaging must consist of one or more inner packagings, each of which may not contain more than 4 kg (8.8 lbs.) or 4 L (1 gallon), and an outer packaging containing not more than 16 kg (35.2 lbs.) or 16 L (4.2 gallons).



- (5) This section does not apply to a hazardous material that is self-reactive (see § 173.124), poisonous by inhalation (see § 173.133), or a hazardous waste.
- (6) A limited quantity package prepared in accordance with § 173.63(b), § 173.150, § 173.151(b) and (c), § 173.152, § 173.153, § 173.154, § 173.155, § 173.161, § 173.165, § 173.167, § 173.306(i), or § 173.309(d) of this subchapter. Division 4.3 substances must be prepared in accordance with paragraph (a)(3) of this section. Class 7 (radioactive) substances, instruments and articles are not authorized under the provisions of this section.
- (7) For a material or article for which Column (5) of the Hazardous Materials Table in § 172.101 of this subchapter does not indicate a packing group. Authorized amounts are:
  - (i) For Classes or Divisions indicated in paragraph (a)(1) of this section, the amounts shown in paragraph (a)(1)(ii).
  - (ii) For Division 4.3, the amounts shown in paragraph (a)(3) of this section.

### Packaging

- (1) Packagings must be leak tight for liquids and gases, sift proof for solids, and be securely closed, secured against shifting, and protected against damage.
- (2) Each material must be packaged in the manufacturer's original packaging, or a packaging of equal or greater strength and integrity.
- (3) Outer packagings are not required for receptacles (e.g., cans and bottles) or articles that are secured against shifting in cages, carts, bins, boxes, or compartments or by other means.
- (4) For gasoline, a packaging must be made of metal or plastic and conform to the requirements of this subchapter or to the requirements of the Occupational Safety and Health Administration of the Department of Labor contained in 29 CFR 1910.106(d)(2) or 1926.152(a)(1).
- (5) A cylinder or other pressure vessel containing a Division 2.1 or 2.2 material must conform to packaging, qualification, maintenance, and use requirements of this subchapter, except that outer packagings are not required. Manifolding of cylinders is authorized provided all valves are tightly closed.

### Hazard communication

- (1) A non-bulk packaging other than a cylinder (including a receptacle transported without an outer packaging) must be marked with a common name or proper shipping name to identify the material it contains, including the letters "RQ" if it contains a reportable quantity of a hazardous substance.
- (2) A bulk packaging containing a diluted mixture of a Class 9 material must be marked on two opposing sides with the four-digit identification number of the material. The identification number must be displayed on placards, orange panels or, alternatively, a white square-on-point configuration having the same outside dimensions as a placard (at least 273 mm (10.8 inches) on a side), in the manner specified in § 172.332 (b) and (c) of this subchapter.
- (3) A DOT specification cylinder (except DOT specification 39) must be marked and labeled as prescribed in this subchapter. Each DOT-39 cylinder must display the markings specified in 178.65(i).
- (4) The operator of a motor vehicle that contains a material of trade must be informed of the presence of the hazardous material (including whether the package contains a reportable quantity) and must be informed of the requirements of this section.

**Aggregate gross weight**

Except for a material of trade authorized by paragraph (a)(1)(iii) of this section, the aggregate gross weight of all materials of trade on a motor vehicle may not exceed 200 kg (440 pounds).

**Other exceptions**

A material of trade may be transported on a motor vehicle under the provisions of this section with other hazardous materials without affecting its eligibility for exceptions provided by this section.

## VEHICLE INSPECTION FORM

**LOGO**

Date: \_\_\_\_\_

Department: \_\_\_\_\_

Vehicle #: \_\_\_\_\_

Drive Hour Meter: \_\_\_\_\_

Note any deficiencies with an 'X'Report any operational deficiencies to your supervisor for corrective action.**Inspection Items**

Body damage	<input type="checkbox"/>	Heater	<input type="checkbox"/>	Radiator	<input type="checkbox"/>
Leaks	<input type="checkbox"/>	Horn	<input type="checkbox"/>	Springs	<input type="checkbox"/>
Air compressor and air lines	<input type="checkbox"/>	Headlights (high & low beam)	<input type="checkbox"/>	Starter	<input type="checkbox"/>
Battery & ammeter/voltmeter	<input type="checkbox"/>	Parking lights	<input type="checkbox"/>	Steering	<input type="checkbox"/>
Brakes and brake lights	<input type="checkbox"/>	Turn signals	<input type="checkbox"/>	Tachograph	<input type="checkbox"/>
Clutch (if applicable)	<input type="checkbox"/>	Emergency flashers	<input type="checkbox"/>	Wheels and tires	<input type="checkbox"/>
Defroster	<input type="checkbox"/>	Backup lights	<input type="checkbox"/>	Transmission	<input type="checkbox"/>
Engine	<input type="checkbox"/>	Backup alarm (if equipped)	<input type="checkbox"/>	Windows	<input type="checkbox"/>
Drive line	<input type="checkbox"/>	Dash and interior lights	<input type="checkbox"/>	Windshield Wipers	<input type="checkbox"/>
Front axles	<input type="checkbox"/>	Mirrors	<input type="checkbox"/>	On-board recorder (if equipped)	<input type="checkbox"/>
Rear end	<input type="checkbox"/>	Exhaust system	<input type="checkbox"/>	_____	<input type="checkbox"/>
Fifth wheel	<input type="checkbox"/>	Gauges	<input type="checkbox"/>	_____	<input type="checkbox"/>
Fuel tanks	<input type="checkbox"/>	Oil pressure	<input type="checkbox"/>	_____	<input type="checkbox"/>
<b>Trailer #: _____</b>					
Hitch	<input type="checkbox"/>	Parking and running lights	<input type="checkbox"/>	Tarpaulin/covers secured	<input type="checkbox"/>
Coupling (King) pin	<input type="checkbox"/>	Brake connections	<input type="checkbox"/>	Roof (if applicable)	<input type="checkbox"/>
Coupling chains	<input type="checkbox"/>	Brakes and brake lights	<input type="checkbox"/>	Inspection tag current	<input type="checkbox"/>
Wheels and tires	<input type="checkbox"/>	Roof (if applicable)	<input type="checkbox"/>	_____	<input type="checkbox"/>
Landing gear	<input type="checkbox"/>	Gates and ramps secured	<input type="checkbox"/>	_____	<input type="checkbox"/>
Springs	<input type="checkbox"/>	Doors (if applicable)	<input type="checkbox"/>	_____	<input type="checkbox"/>

Comments: \_\_\_\_\_

☐ Condition of vehicle is satisfactory

Driver's Signature: \_\_\_\_\_

**Service**☐ Identified deficiencies have been corrected☐ Identified deficiencies do not need correction for safe operation of vehicle

Mechanic's Signature: \_\_\_\_

Driver's Signature: \_\_\_\_

### Vehicle Damage Report

Direct supervisor must submit a copy of this report  
within 24 hours of incident to:

**LOGO**

**COMPANYNAME**

COMPANYADDRESS  
CITYSTATEZIP  
(XXX) XXX-XXXX (phone)  
(YYY) YYY-YYYY (fax)

Incident #: \_\_\_\_\_

Date of Incident: \_\_\_\_\_

Time of Incident: \_\_\_\_ : \_\_\_\_ AM / PM

Date of Report: \_\_\_\_\_

### General Information

Address of Incident: \_\_\_\_\_

Location of Incident: \_\_\_\_\_

(example: Plant 1, Hardware Store, etc.)

Description of Location: \_\_\_\_\_

(example: NW corner, department, truck dock, parking lot, etc.)

### Environmental Conditions

**Weather:**

- |  |                                |
|--|--------------------------------|
| <input type="checkbox"/> Clear           | <input type="checkbox"/> Snow  |
| <input type="checkbox"/> Overcast        | <input type="checkbox"/> Fog   |
| <input type="checkbox"/> Temp: _____ ° F | <input type="checkbox"/> Sleet |
| <input type="checkbox"/> Wind: _____ mph | <input type="checkbox"/> Rain  |

**Surface:**

- |                                       |                                  |
|---------------------------------------|----------------------------------|
| <input type="checkbox"/> Dry          | <input type="checkbox"/> Uneven  |
| <input type="checkbox"/> Wet          | <input type="checkbox"/> Cracked |
| <input type="checkbox"/> Snow         | <input type="checkbox"/> Pothole |
| <input type="checkbox"/> Ice          | <input type="checkbox"/> Mud     |
| <input type="checkbox"/> Other: _____ |                                  |

### Incident Information - Vehicle 1 (company vehicle)

Name of Driver: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone #: \_\_\_\_\_

Driver's License #: \_\_\_\_\_ State: \_\_\_\_\_

Number of occupants in the vehicle: \_\_\_\_\_

(each occupant is to complete witness Statement Form)

Owner of Vehicle: \_\_\_\_\_

License Plate #: \_\_\_\_\_ State: \_\_\_\_\_

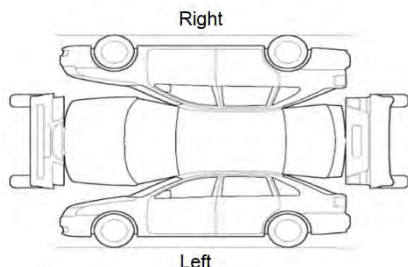
Vehicle ID Number (VIN) \_\_\_\_\_

Make and Model of Vehicle: \_\_\_\_\_

Insurance: ☐ YES ☐ NO

Policy Carrier and Number: \_\_\_\_\_

Make note of any damage to this vehicle. Describe the damage if  
it was prior to the incident.



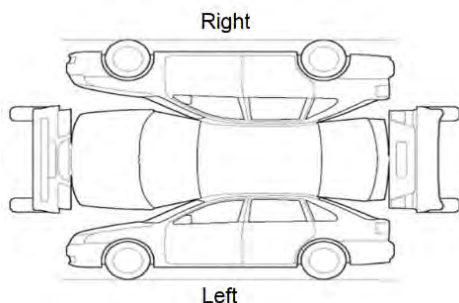
**Incident Information – Vehicle 2**

Name of Driver: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone #: \_\_\_\_\_

Driver's License #: \_\_\_\_\_ State: \_\_\_\_\_

Number of occupants in the vehicle: \_\_\_\_\_  
(each occupant is to complete witness Statement Form)

Owner of Vehicle: \_\_\_\_\_

License Plate #: \_\_\_\_\_ State: \_\_\_\_\_

Vehicle ID Number (VIN) \_\_\_\_\_

Make and Model of Vehicle: \_\_\_\_\_

Insurance: ☐ YES ☐ NOPolicy Carrier and Number: \_\_\_\_\_  
\_\_\_\_\_

Make note of any damage to this vehicle. Describe the damage if it was prior to the incident.

**Emergency Response**

POLICE / FIRE / EMS

☐ Notified Immediately☐ Not Notified Immediately

Notification Time: \_\_\_\_\_ : \_\_\_\_\_ AM / PM

Arrived on Scene: \_\_\_\_\_ : \_\_\_\_\_ AM / PM

Agencies on Scene:

☐ Fire☐ Police☐ EMS

Police Officer Name: \_\_\_\_\_

Badge #: \_\_\_\_\_

Police Report #: \_\_\_\_\_

Police Contact #: (\_\_\_\_) \_\_\_\_ - \_\_\_\_ X\_\_\_\_

Citations issued? ☐ YES ☐ NO

To whom? \_\_\_\_\_

List charges: \_\_\_\_\_

Ticket/Case #: \_\_\_\_\_

**Individual Completing Report**

Name: \_\_\_\_\_

Position/Title: \_\_\_\_\_

Telephone #: \_\_\_\_\_

email Address: \_\_\_\_\_

Signature: \_\_\_\_\_

Supervisor Accepting Report: \_\_\_\_\_  
(print name)Were you an eyewitness to the incident? ☐ YES ☐ NO  
If YES complete Witness Statement FormWere pictures taken prior to, during, or after the incident? – If YES, attach photos ☐ YES ☐ NO

(signature)

---

**Witness Statement**

---

Direct supervisor must submit a copy of this report  
within 24 hours of incident to:

**COMPANYNAME**

COMPANYADDRESS  
CITYSTATEZIP  
(XXX) XXX-XXXX (phone)  
(YYY) YYY-YYYY (fax)

Incident #: \_\_\_\_\_

Date of Incident: \_\_\_\_\_

Time of Incident: \_\_\_\_ : \_\_\_\_ AM / PM

Date of Report: \_\_\_\_\_

---

**Witness Information**

---

Name: \_\_\_\_\_

Position/Title: \_\_\_\_\_

Address: \_\_\_\_\_  
(street)\_\_\_\_\_  
(city, state, and zip code)

Telephone #: \_\_\_\_\_

Company: \_\_\_\_\_

Position/Title: \_\_\_\_\_

email Address: \_\_\_\_\_

---

**Incident Information**

---

Explain in detail how the incident occurred:  
(include tools/machines/ equipment used, locations, conditions, etc.)

Where were you when the incident occurred?  
(include distance from incident, position, directions, etc.)

Were there any alterations of the tools, equipment, processes, or personnel which may have contributed to the incident?  
(example) unusual tools used, new personnel, etc.)

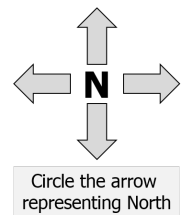
What do you believe caused the incident and what could be changed to prevent it from recurring?

## Illustrate the Incident Scene

Circle the arrow representing North.

Indicate locations of all involved vehicles as well as landmarks, signs, pedestrians, etc.

The image shows a 2x2 grid of squares. Each of the four squares contains a smaller square in the opposite corner. Specifically, the top-left square contains a smaller square in its top-right corner, the top-right square contains a smaller square in its top-left corner, the bottom-left square contains a smaller square in its bottom-right corner, and the bottom-right square contains a smaller square in its bottom-left corner. This creates a recursive pattern of squares within squares.



Signature of Witness: \_\_\_\_\_

Date:

## **Chapter 48 Roadway Traffic Control Safety Program**

### **48.1 Purpose, Scope & Policy**

#### **48.1.1 Purpose**

The purpose of this program is designed to prevent injury to Flaggers, Workers, and Pedestrians as well as to prevent property damage.

#### **48.1.2 Scope**

Due to the serious risk of injury or death, this policy will be followed by all employees involved in roadway projects. Any failure to comply with this policy will be handled with disciplinary action up to and including termination.

#### **48.1.3 Policy**

COMPANYNAME values the safety of our employees as well as the safety of affected drivers, pedestrians and others affected by construction and related activity on or near public roadways. This policy is to be utilized in conjunction with the most current version of the US Department of Transportation's Manual on Uniform Traffic Control Devices. All Flaggers must be trained and certified.

### **48.2 Roles & Responsibilities**

#### **48.2.1 Management**

It is management's role to provide employees with the proper training regarding safe roadway traffic control. Management will supply employees with the proper safety equipment needed to work in a safe manner when working on or near roadways.

#### **48.2.2 Employee**

It is the employee's responsibility to follow safety precautions and policies set forth by management. Employees will perform work including but not limited to equipment operations, flagging operations, and walking or working near or on roadways in a safe manner. Employees will attend all safety training required by this program. Employees will be responsible for reporting and unsafe conditions or concerns related to roadway safety to management.

### **48.3 Definitions**

See Definitions Chapter at the end of the Safety and Health Manual. <sup>xxix</sup>

### **48.4 Hazards**

The majority of fatalities that occur in road construction work zones in the United States involve a worker being struck by a piece of construction equipment or another vehicle. A worker in this industry is just as likely to be struck by a piece of construction equipment inside the work zone as by-passing traffic.

### **48.5 Hazard Control Measures**

#### **48.5.1 Traffic Control Plan**

For complex work zones, a Traffic Control Plan should be developed including a diagram of the work, traffic patterns, equipment, and workers. This plan will help identify and prevent risk of worker injury from motorists and equipment being operated within the work zone. Additional considerations should include pedestrian traffic if applicable.



### **48.5.2 Signs**

When construction or other activity must temporarily disrupt the normal flow of traffic on public roads, appropriate signs, in accordance to the MUTCD, must be used to indicate the work areas. Signs must be inspected periodically to assure proper condition.

### **48.5.3 Barriers and Other Traffic Control Devices**

Cones and barricades must be used, in accordance to the MUTCD, to designate any changes in lane configuration and places for drivers to stop if necessary. When possible, flaggers should work behind barriers to protect them from possible vehicle collisions. If no barriers are available, flaggers must have room to escape a possible vehicle collision. Additional devices for reducing vehicle speed may include rumble strips, speed bumps, and signs with flashing lights, messages, and/or radar speed detection.

If jobsite safety is inadequate, the flagger must report immediately to his supervisor who must make appropriate arrangements for worker safety.

### **48.5.4 Proper attire and PPE**

Flaggers must wear appropriate reflective clothing to assure that their entire bodies are visible to traffic. Night work or severe weather may require full pant and long sleeve reflective clothing. (See ANSI/ISEA 109-2004 or most current version). Bright or reflective hard hat is also required. All required PPE is available from the company at no cost to the employee.

See also Personal Protective Equipment Policy.

### **48.5.5 Severe Weather**

Flaggers must remain at their positions and remain alert to traffic despite possible severe cold, heat, rain, or other conditions. Based on conditions, flaggers should consider bringing water, insulated hot beverage container, gloves (w/disposable hand warmers), waterproof footwear, or other appropriate gear.

### **48.5.6 Flagging Equipment**

The worksite supervisor will provide the appropriate size Stop/Slow sign based on traffic volume, visibility, other conditions, and appropriate regulations. Red Flags should not be used for flagging except in emergency situations.

Other equipment should include an air horn or whistle to warn co-workers if motorists fail to obey traffic control instructions and pen and paper to record the license plate or other information of anyone disobeying or disrupting the flagger.

### **48.5.7 Communication Between Flaggers**

In the absence of dedicated walkie-talkies, tipping your hat to the other flagger is usually the best and safest way to communicate with your fellow flagger. In order to avoid confusion for motorists, flaggers should not wave the sign or make other hand signals.

Flaggers should work alone. Other people standing around or talking with the flagger distract motorists and the flagger.

### **48.5.8 Communication with Drivers**

Flaggers must limit signals to those from their official training. Flaggers must always face traffic and must be prepared to stay on duty until relieved by another worker or until no longer needed.

For "Stop" the flagger holds the Stop sign in the hand facing traffic and raises an outstretched palm facing traffic with the other hand. For "Proceed" flaggers must display the "Slow" side of their sign and point towards the open traffic lane. "Slow down" is indicated by motioning down with an outstretched open hand motioning downward.

Flaggers should answer motorists' questions in a brief and authoritative but helpful manner. Flaggers should try to reassure any potentially irritated drivers that the delay will not be long. When longer delays may be required, alternate routes may also be suggested.

#### **48.5.9 Nighttime Work**

For nighttime work, additional lighting is required in order to properly see workers, especially flaggers. Also, additional attention should be paid to workers and motorists for fatigue and drowsiness.

Additional Hazards on Roadway Construction Sites include (but are not limited to) the following: slips, trips, and falls, sharp objects, falling objects, projectiles from vehicles or construction, hot asphalt, bodies of water, electrical and other utilities, hazardous dust from cut concrete, flammables such as gasoline, trench or excavation collapse, overhead cranes and other mechanical equipment.

Due to the constantly changing conditions on a construction site, workers must constantly monitor conditions for safety. All safety hazards should be corrected immediately by the employee or if necessary, reported to the supervisor, crew leader, or other person designated to correct the hazard.

#### **48.5.10 Training**

##### **48.5.10.1 Initial**

Flagger training will be given to each employee assigned to conducting flagging operations. Only trained personnel will perform flagging operations regardless of the duration. Flagger training requires classroom instruction, testing, and hands on operation.

##### **48.5.10.2 Refresher**

Refresher training will take place as needed or every three years. Refresher training can be given to any employee observed performing flagging operations in an unsafe manner, if the flagger has been involved in and or causes an accident involving vehicles, equipment, or pedestrians.

##### **48.5.10.3 Recertification**

Employees involved in flagging operations will be recertified every three years.

#### **48.6 Reference**

OSHA Standard 29 CFR 1926.200(g)

FHWA Standard 23 CFR 655 Subpart F

## Chapter 49 General Housekeeping Program

### 49.1 Purpose, Scope & Policy

#### 49.1.1 Purpose

The purpose of the General Housekeeping Program is to define housekeeping requirements and incorporate controls to execute them in a safe manner in order to protecting the safety and health of workers on the project.

Poor housekeeping contributes to increased exposure to workplace hazards including slip, trip, and fall hazards, struck-by hazards, general health, and others. Effective housekeeping reduces exposure to these hazards.

#### 49.1.2 Scope

This program applies to all COMPANYNAME employees exposed to the hazards associated with the workplace. All employees have a responsibility to ensure a safe, healthful, and productive work environment.

#### 49.1.3 Policy

Poor housekeeping exposes workers to a number of environmental hazards in the work surroundings that can expose them to injury as well as acute and chronic health effects. COMPANYNAME expects all supervisors and employees to maintain the workplace in a neat, clean, and orderly condition.

### 49.2 Roles & Responsibilities

#### 49.2.1 Employer

##### 49.2.1.1 Management

Management shall ensure employees are properly trained on the importance of maintaining a neat, clean, and orderly workplace and shall provide them with the tools, equipment, and opportunities to properly maintain the workplace.

##### 49.2.1.2 Supervisor

Supervisors shall monitor work and workplace conditions to ensure hazards are controlled and employees are properly maintaining the workplace.

#### 49.2.2 Employee

Employees shall exercise efficient and continual efforts to maintain the workplace free of general housekeeping related hazards.

### 49.3 Definitions

**Housekeeping** - The practice and process of keeping the workplace neat, clean, orderly, and free of slip, trip, and fall hazards, fire hazards, and other hazards related to accumulated and disorganized waste, debris, materials, and storage as well as other general conditions that can contribute to these hazards.

### 49.4 Hazards

- Slips, trips, and falls
- Struck-by or caught-by objects
- Physical injury including Musculo-skeletal disorders, lacerations, contusions, scrapes, and others

- Fire
- Fatigue
- Health
- Hazardous material exposure

#### **49.4.1 Slips, Trips, and Falls**

During the course of work, the work area including walking and working surfaces, passageways, stairs, landings, ladderways, and workstations shall be kept clear of accumulated waste, debris, trash, excess materials, and product that inhibit free and unimpeded movement in the area.

Emphasis should be placed on (but not limited to):

- Walkways
- Paths of emergency egress
- Doorways
- Ramps
- Areas with blind spots such as blind corners and approaches to intersections
- Stairways and ladderways
- Workstations or work areas

Poor floor conditions lead to slip, trip, and fall injuries. Deteriorated floors should be repaired or resurfaced to eliminate rough spots or areas where liquids can collect.

- Clean up spills immediately, properly, and completely and proper dispose of recovered material and cleaning supplies.
- Floors in high-traffic areas and areas where the floor may be slippery due to water accumulation such as at entrances from the outside or work areas that have wet processes should have a slip-resistant coating.

#### **49.4.2 Struck-by or Caught-by**

Poor housekeeping can lead to excess, unstable, or improper storage. Workers can be struck by falling objects or caught by projecting objects or cut by sharp objects such as projecting nails, wire or steel strapping, or other packaging materials.

#### **49.4.3 Physical Injury**

Physical injuries include:

- Strain or sprain
- Fracture
- Lacerations, punctures, abrasions, or contusions
- Head injury
- Eye injury
- General health

#### **49.4.4 Fire**

Combustible scrap and debris including paper, packaging materials, wood scrap, and flammable liquids shall be removed at regular intervals during the course of the shift. Safe means shall be provided to facilitate such removal and all waste, debris, and trash must be removed to a safe, designated area away from ignition sources. Flammable waste must not be stored near compressed gas or oxygen cylinders.

Containers shall be provided for the collection and separation of waste, trash, oily and used rags, and other refuse. Containers used for garbage and other oily, flammable, or hazardous wastes, such as caustics, acids, harmful dusts, etc. shall be equipped with self-closing covers. Garbage and other waste shall be disposed of at frequent and regular intervals.

#### **49.4.5 Fatigue**

Continually navigating an obstructed work area can lead to early fatigue as well as loss of balance. A fatigued worker is more likely to trip and fall or attempt unsafe short-cuts to get to their destination. Fatigue can also lead to making poor decisions.

#### **49.4.6 Health**

Keeping an environment clean reduces buildup of nuisance dust, accumulated oily spills or related cleanup media, dirt, debris, trash, and other materials that may lead to health issues such as allergies, respiratory ailments, continued exposure to carcinogens, and other hazards.

#### **49.4.7 Hazardous Materials**

Smoking, eating, or drinking in the work area should be prohibited where hazardous products are handled. Eating areas such as break, or lunchrooms should be separated from the work area to reduce work-related contamination and should be cleaned properly each shift.

### **49.5 Hazard Control Measures**

Effective housekeeping requires continual maintenance and should be done consistently throughout the workday. Waiting until there is time to perform housekeeping can lead to conditions becoming an overwhelming task that becomes 'normal conditions'. Time should be dedicated throughout the workday and at the end of the shift to clean up and reset for the next work period.

#### **49.5.1 Benefits of Good Housekeeping**

Good housekeeping is a continuing process, not a project that once done can be set aside until it needs to be done again. Maintaining a site in good condition is much easier and less time consuming than waiting until it has become a big problem. Often general housekeeping is put off until someone gets hurt or a visit from an insurer or OSHA makes it a priority. Maintaining good housekeeping has benefits of its own.

- Reduced handling promotes good process flow
- Improved morale and productivity
- Fewer slip and trip hazards
- Fewer fire hazards
- Lower exposure to health hazards such as dusts and vapors
- Better inventory control
- Reduced maintenance and repair costs
- More efficient use of space

A good housekeeping program assigns responsibility for clean-up during the shift, day-to-day cleanup, proper disposal of waste materials, removal and storage of unused materials, tools, and equipment, and an inspection to ensure cleanup has been completed.

#### **49.5.2 General Requirements**

The employer shall establish and maintain good housekeeping practices to eliminate hazards to employees to the extent practicable.

The employer shall eliminate slippery conditions, such as snow and ice, on walkways and working surfaces, as necessary.

The employer shall store materials in a manner that does not create a hazard for employees.

The employer shall maintain easy and open access to fire-alarm box, fire-call station, fire-fighting equipment, and each exit, including ladders, staircases, scaffolds, and gangways.

The employer shall dispose of flammable and combustible substances, such as paint thinners, solvents, rags, scrap, and waste, or store them in covered fire-resistant containers at the end of each work shift or when the job is completed, whichever occurs first.

#### **49.5.3 Maintenance**

Maintenance is the most important element of a good housekeeping program. Staying on top of items and general cleanliness and organization can help to prevent a much larger cleanup project or an accumulation of safety hazards that increase exposure to worker injury.

Maintenance includes keeping the facility, work site, equipment, and tools in good working order. Cleanliness is an important part of maintenance as well. Sanitation, painting, sweeping, and cleaning floors, windows, surfaces, control panels, tools and equipment are also items that need to be addressed. Broken or damaged must be fixed or replaced as soon as possible. Regular inspections and development of a tracking system to ensure identified problems are corrected can assist in accomplishing this goal.

#### **49.5.4 Dirt and Dust Removal**

Dry sweeping is not allowed when the presence of respirable crystalline silica is likely. Refer to the Respirable Crystalline Silica Program and written exposure control plan for the proper methods of mitigating this hazard.

Waste containing hazardous materials such as respirable crystalline silica, lead or asbestos must be handled in accordance with the Respirable Crystalline Silica Program or the Hazardous Materials Program, respectively.

- Ensure ventilation and air filtration systems are working properly and filters are changed regularly.
- Sweep or vacuum accumulated dust and dirt. Avoid dry sweeping as much as possible to reduce kicked up dust and dirt, especially dust and debris from materials containing respirable crystalline silica. When sweeping, dampen the floor or use a dust suppressant to keep dust suppressed.
- When using vacuum cleaners make sure they are equipped with high-efficiency particulate air (HEPA) filters to prevent disturbing and recirculating dust and dirt into the air.
- Do not use compressed air or high-velocity air movers such as leaf blowers to remove or clean dusty areas. Doing so will lift the dust in the air only to settle later on surfaces that have been cleared.
- Focus on horizontal surfaces that collect dust including shelves and shelving components, door and window top edges, floors, work surfaces including underneath workstations, shelving, and storage.

#### **49.5.5 Employee Facilities**

- Keep employee facilities including restrooms, lunchrooms, locker rooms, and lockers clean. Have employees clean out their lockers frequently. Storage above lockers should be prohibited. Installing an angled panel above lockers to prevent storage of items above lockers can prevent accumulation of debris and other items on top of lockers.
- A weekly program of cleaning refrigerators and food prep areas and equipment should be established. Food items should not be kept in storage for more than a few days.

#### **49.5.6 Surfaces**

##### **49.5.6.1 Floors**

Poor floor conditions are a leading cause of slip, trip, and fall incidents. Immediate cleanup of oil and other liquid spills is critical. Posting signage and/or cones or other visual indicators should be done immediately as cleanup begins.

Allowing waste, debris, chips, shavings, and dust to accumulate can also cause injury incidents. Trapping chips, shavings, and dust before they reach the floor or cleaning them up regularly can prevent

accumulation. Where possible use vacuum systems or collection bins or trays at areas where particulate matter is generated to facilitate removal.

Process areas where floors are continually wet, and areas that cannot be cleaned continuously, such as entrance ways, should be provided with slip-resistant flooring.

Floors must be kept in good repair. Damage, missing sections, areas where floor surfaces become uneven, worn, torn, or loose areas must be repaired or replaced and maintained to prevent tripping hazards.

The employer shall ensure that each walkway:

- Provides adequate passage
- Is clear of debris, including solid and liquid wastes, which may create a hazard for employees
- Is clear of tools, materials, equipment, and other objects that may create a hazard for employees
- Is clear of hoses and electrical service cords. The employer shall:
  - Place each hose and cord above walkways in a location that will prevent injury to employees and damage to the hoses and cords
  - Place each hose and cord underneath walkways
  - Place each hose and cord on walkways, provided the hoses and cords are covered by crossovers or other means that will prevent injury to employees and damage to the hoses and cords; OR
  - Protect each hose and cord by other suitable means.

When a wet process is used, the employer should maintain drainage and provide false floors, platforms, mats, or other dry standing places. Where doing so is not practicable, the employer shall provide each employee working in the wet process with protective footwear.

#### **49.5.6.2 Walls**

Often overlooked, wall condition can also contribute to the overall health condition of the workplace. Accumulated dust, dirt, cobwebs, and grease can contribute to a contaminated atmosphere. Light colored walls will reflect light and assist in improving visibility in the workplace. They may also reduce the need for lighting fixtures. Dark colored walls absorb light and make the workplace darker. Clean, lighter colored walls also can contribute to a positive attitude and boost morale among the workers.

#### **49.5.6.3 Work Surfaces**

Work surfaces should be kept clean and clutter-free. Excess accumulation of tools, materials, equipment, work, etc. reduces the available workspace, encourages the accumulation of waste, dirt, dust, and grease, and can increase the potential for items to fall off the work surface striking the worker or becoming a trip and fall hazard.

The employer shall ensure that each working surface:

- Is cleared of tools, materials, and equipment that are not necessary to perform the job in progress;
- Is cleared of debris, including solid and liquid wastes, at the end of each work shift or job, whichever occurs first;
- Is maintained, as far as practicable, in a dry condition.

#### **49.5.7 Lighting**

Proper effective lighting and paint can increase visibility in the workplace, boost morale, and make potential hazards more visible. Consider painting the walls in light colors and using contrasting color paint to identify hazard areas such as pillars, guards, railings, electrical equipment, equipment and pedestrian travel paths, storage areas, exclusion zones, and the location of emergency equipment.

Replace damaged fixtures and burnt-out light bulbs immediately. Lighting should have protective guards to prevent impact against bulbs.

#### **49.5.8 Aisles, Stairways, and Doorways**

Aisles and stairways are high-traffic areas and paths of egress in an emergency. Therefore it is important that these areas are kept clean, accessible, unobstructed, and well lighted. Never use aisles for temporary or overflow storage.

Aisles should be wide enough to accommodate the comfortable and safe movement of people, materials, and where applicable, vehicles. Fire and Life Safety codes address requirements and should be consulted during any building, remodeling, or equipment installation projects.

Warning signs and mirrors can improve sightlines at blind corners. Workflow planning should be done to arrange aisles in a manner that promotes easy traffic through the area, so workers are not enticed to take shortcuts through hazardous areas.

- Storage of flammable materials under stairs or stairways is prohibited,
- Doors and doorways designated as emergency exits shall be maintained unobstructed by storage even for temporary placement or positioning.
- Storage shall not be placed in front of any doors that inhibit the free movement through the doorway or prevent the use of doors.

#### **49.5.9 Tools and Equipment**

Organization and maintenance of tools and equipment will improve the life of the tool, reduce contamination and slip hazards, and reduce the likelihood of tool failure. Tool storage should be organized to prevent loss or misplacement. Loose tools can sometimes become trip hazards or may fall into working equipment.

When the work is completed clean and inspect the tools and return it to its designated location. When damaged or worn tools are identified tag them out of service and have them replaced.

#### **49.5.10 Spill Control**

Regularly cleaning and maintaining machines and equipment is the best way to control spills. Using drip pans, drainage systems, and splash/spray guarding can also direct overflow, splash, spray, and spills to a controlled collection point to prevent slip or exposure hazards.

Clean up spills immediately when they occur. Use absorbent materials to wipe up greasy, oily, or other liquid spills. Used absorbents must be disposed of properly and safely.

#### **49.5.11 Waste Disposal**

A staging area should be established in which all waste and debris can be sorted. Sorting is done for the purpose of reducing impact on landfills, identifying materials that can be re-used in another project or application, recycled, salvaged, or returned, and to reduce overall cost of the job. The goal is to limit impact on landfills as much as possible.

Waste accumulation shall be continually maintained by removing to the designated staging area for separation. This process shall continue throughout the workday as waste accumulates to the level where it begins to pose the identified hazards.

Responsibility for the removal and legal disposal of waste materials shall be coordinated with the General Contractor if applicable. Where no established responsible party is identified, COMPANYNAME shall arrange for the proper legal disposal of all recyclable or disposable items. Facilities used for recycling, reuse, and disposal shall be permitted for the intended use to the extent required by local, state, federal regulations.

#### **49.5.12 Storage**

Storage areas must be maintained as well as the working and walking areas. When storage exceeds storage capacity it is time to re-evaluate storage needs or ordering practices. Excess storage can lead to overloaded storage equipment which can lead to equipment failure, dropped loads, and workers struck by falling objects. In addition, reach and strain and sprain injuries can occur when reaching over or climbing on excess storage.



- Stack cartons and drums off the floor and on a firm foundation. Where storage will be stacked, or moved as a unit, the items should be banded, strapped, or cross-tied for stability.
- Designated storage areas should be established and clearly marked for their purpose. Avoid storing items where they can obstruct aisles, stairways, paths of emergency egress, emergency exits, emergency equipment, eyewash stations, emergency showers, and fire extinguishers.
- Flammable chemicals and liquids must be stored in an approved fire-resistive flammables cabinet. Cabinet should be clearly marked as to its purpose. Flammable liquids in excess of twenty-five (25) gallons must be stored in such cabinets.
- When storing flammables and hazardous chemicals review SDS sheets to identify specific storage requirements (section 7 of the SDS).
- All storage must be done in compliance with applicable codes such as fire and life safety codes, building codes, OSHA regulations, and state and local requirements.

#### **49.5.13 Construction Considerations**

- When engaged in construction activities such as building, alteration, and repairs, form and scrap lumber having protruding nails or other sharp objects and all other debris shall be kept clear of work areas, passageways, stairs, ladderways and landing areas in and around buildings and other temporary structures.
- All combustible scrap and debris shall be removed to a designated area away from any ignition sources. This shall be done at regular intervals throughout the course of construction.
- Containers shall be provided for the collection of trash, waste, and debris including oily and used rags.
- Containers used for the collection of hazardous waste such as oil or flammable liquid contaminated materials, caustics and corrosives, harmful dusts shall be equipped with covers. Flammable waste must be stored in a covered, fire-resistive container.
- All refuse shall be disposed of at frequent and regular intervals.

#### **49.5.14 Inspections**

Inspections should be done routinely to evaluate and identify areas that need attention. Areas that require maintenance and repair should be addressed immediately as identified. Often poor housekeeping leads to growth of the problem as the situation becomes 'normal'. Additionally, poor housekeeping can hide or camouflage other safety issues with significant exposure potential.

### **49.6 Training**

Employees will receive initial training prior to their working assignment. Emphasis should be placed on maintenance of the worksite for the purpose of reducing exposure to safety and health hazards.

#### **49.6.1 Initial**

Employees will receive initial training prior to their working assignment

#### **49.6.2 Refresher**

Refresher training will be administered when the following situations occur:

- Changes in equipment, the workplace, or the type of work being performed renders previous training obsolete
- When company policies and procedures are added or revised
- Employee demonstrates inadequacies in their compliance, knowledge, understanding, or skill in performing the tasks properly

### **49.7 Reference**

- OSHA Standard 29 CFR 1926.25

## Chapter 50 Nuisance Dust

### 50.1 Purpose, Scope & Policy

#### 50.1.1 Purpose

This program is designed protect employees from dangerous levels of nuisance dust which can lead to cumulative lung damage and lung disease.

#### 50.1.2 Scope

This program covers requirements that must be followed for the safety of employees working around nuisance dust.

#### 50.1.3 Policy

All employees are required to follow the minimum procedures outlined in this program.

### 50.2 Roles & Responsibilities

#### 50.2.1 Employer Responsibilities

##### 50.2.1.1 Management

Ensure that the Permissible Exposure Limit (PEL) is not exceeded, and that employees working in environments with nuisance dusts above the PEL have engineering controls, administrative controls, and respiratory protection to reduce their exposure below the PEL.

Ensure that a proper Respiratory Protection Program has been implemented and that all employees wearing respirators have fulfilled the following requirements:

- Ensure that all employees have been trained on respirator use and care.
- Ensure all employees have been medically cleared to wear a respirator.
- Ensure that all employees have been fit tested annually.

##### 50.2.1.2 Supervisors

Supervisors will not allow any employee to wear a respirator who has not received the required training, medical clearance, and fit testing.

#### 50.2.2 Employee Responsibilities

All employees will perform work within accordance to the Nuisance Dust Program, and the Respiratory Protection Program outlined in this manual.

### 50.3 Definitions

**Nuisance Dust** - Inert or Nuisance Dusts includes all mineral, inorganic, and organic dusts.

### 50.4 Hazards

Hazards associated with are health hazards related to cumulative lung damage and lung disease.

### 50.5 Hazard Control Measures

Engineering controls, work practices and respiratory protection measures will be fully and properly implemented to minimize or eliminate exposure to nuisance dust above the PEL. Each employee that will be engaged in tasks that create, or have the potential to create, an exposure over the PEL must utilize identified engineering controls, work practices and respiratory protection accordingly.

### 50.5.1 Engineering

When possible, nuisance dust should be eliminated through engineering. Some examples include:

- Use wet operations when possible to reduce airborne dust concentrations.
- Provide appropriate ventilation to reduce dust concentration levels in the air.
- Utilize equipment with vacuum attachments to eliminate or reduce dust concentrations in the air.

### 50.5.2 Administrative

- Reduce the amount of time spent in areas with high dust concentrations.

### 50.5.3 Respiratory Protection

- When the PEL for nuisance dust is above the PEL and neither engineering controls nor administrative controls will be enough to reduce the concentration below the PEL, then respiratory protection PPE will be required. Please refer to the Respiratory Protection Program for further details.

### 50.5.4 Housekeeping

When performing housekeeping duties in locations where high concentrations of nuisance dust is present, dry sweeping, dry brushing or use of compressed air will not be allowed.

## 50.6 Training

### 50.6.1 Initial

Employees will receive initial training prior to their working assignment. High concentrations of nuisance dust may require the use of respiratory protection, therefore employees must be trained and fit tested in order to wear the respiratory protection. Employees must also be medically evaluated prior to the use of respiratory protection.

### 50.6.2 Refresher

Refresher training will be done as needed or annually. Annual fit test will be required for those required to work with respiratory protection.

### 50.6.3 Reference

OSHA Standard 29 CFR 1926.55 Appendix A

## **Chapter 51** Reserved for Future Use

## Chapter 52 Definitions

### <sup>i</sup> Roles and Responsibilities

**Deficiency** – A deficiency is a lack of quality or proper condition.

**Inspection** – Inspections are observations performed and documented to assure rules are followed and conditions are proper.

**Work Environment** – The work environment includes items, equipment, conditions and behaviors employees are exposed to at the workplace.

### <sup>ii</sup> Workplace Violence and Harassment Policy

**Harassment** - Harassment is the act of systematic and/or continued unwanted and annoying actions of one party or a group, including threats and demands for purposes such as racial prejudice, personal malice, an attempt to force someone to quit a job or grant sexual favors or merely gain sadistic pleasure from making someone fearful or anxious.

**Intimidation** - Intimidation is the causing of fear to another employee.

**Threat** - A threat is an expression of an intention to inflict pain, injury, evil, or punishment to another employee.

**Violence** - Violence is the use of physical force to harm someone or damage to property.

### <sup>iii</sup> Incident Reporting and Investigation Policy

**Causative Factors (Root Cause)** - The most basic cause (or causes) that can reasonably be identified that management has control to fix and, when fixed, will prevent (or significantly reduce the likelihood of) the problem's recurrence.

**Corrective Action** - A corrective action is the identification and elimination of the causes of an incident

**Incident** - Any incident is any event that results in property damage or could have caused property damage or personal injury.

**Injury** - Any incident that results in bodily injury to an employee or other person.

**Unsafe Condition** - A deficient state such as appearance, quality or working order in the work place that is likely to cause property damage or injury.

**Witness** - A witness is an employee with firsthand account of something seen, heard, or experienced.

### <sup>iv</sup> Personal Protective Equipment Program

**Engineering Controls** - Engineering controls involve physically changing a machine or work environment

**Administrative Controls** - Administrative controls involve changing how or when workers perform their jobs, such as scheduling work and rotating workers to reduce exposures.

**Personal Protective Equipment** - Specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

### <sup>v</sup> Emergency Action Program

**Contractor** - A non-company employee being paid to perform work within the facility.

**Emergency** - An unplanned event that could jeopardize the safety of the people or the property in our facility. An emergency can happen on or off site and either can impact the people or the property within the facility.

**Evacuation Location** - The location that employees, visitors and contractors report following an evacuation.

### <sup>vi</sup> Fire Prevention Program

**Class A** – “Ash” Common combustible materials (wood, paper, cloth, rubber, and plastics)

**Class B** – “Boil” Flammable liquids, gases and greases

**Class C** – “Current” Electrical fires

**Class D** – Combustible metals, such as magnesium, titanium, zirconium and sodium

### <sup>vii</sup> Bloodborne Pathogens

**Blood** - Human blood, human blood components and products made from human blood.

**Bloodborne Pathogen** - Pathogenic microorganisms that are present in human blood that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

**Contaminated** - The presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

**Occupational Exposure** - Reasonably anticipated skin, eye, mucous membrane or piercing contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

**Other Potentially Infectious Materials** - Human body fluids, any unfixed tissue or organ from a human (living and dead) and HIV containing cell or tissue cultures.

**Personal Protective Equipment** - Specialized clothing or equipment worn by an employee for protection against a hazard

### <sup>viii</sup> Infectious Disease Control Program

**Disinfection** - the process of cleaning something, especially with a chemical, in order to destroy infectious organisms.

**Epidemic** - an outbreak of disease that spreads quickly and affects many individuals at the same time.

**Infectious Disease** - infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites, or fungi; the diseases can be spread, directly or indirectly, from one person to another.

**Isolation** - a process used to keep an infected person separate from other to prevent the spread of disease.

**Pandemic** - a type of *epidemic* (one with greater range and coverage), an outbreak of a disease that occurs over a wide geographic area and affects an exceptionally high proportion of the population.

**Quarantine** - a process used to keep a person exposed to an infectious disease away from others to prevent the possible spread of disease.

**Social Distancing** - also called "physical distancing," means keeping space between yourself and other people outside of your home.

#### <sup>ix</sup> Hearing Conservation

**Action Level** - An 8-hour time-weighted average of 85dB measured on the A-scale, slow response, or equivalently, a dose of fifty percent.

**Audiogram** - A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

**Baseline Audiogram** - The audiogram against which future audiograms are compared.

**Decibel (dB)** - Unit of measurement of sound level.

**Standard Threshold Shift** - A change in hearing threshold relative to the baseline audiogram of an average of 10dB or more at 2000, 3000, and 4000 Hz in either ear.

**Time Weighted Average (TWA)** - That sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

#### <sup>x</sup> Respiratory Protection Program - Voluntary Use Only

**Fit Testing** - The use of a protocol to evaluate the fit of a respirator qualitatively or quantitatively on an individual.

**Permissible Exposure Limits (PEL)** - The exposure, inhalation or dermal permissible exposure limit specified in 29 CFR Part 1910, Subparts G and Z.

#### <sup>xi</sup> Respiratory Protection Program

**Air-Purifying Respirator** - A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

**Employee Exposure** - Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respirator protection.

**Fit Test** - Means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual

**Immediately Dangerous to Life or Health (IDLH)** - An atmosphere that poses an immediate threat to life

**Negative Pressure Respirator** - A respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator

**Permissible Exposure Limits (PEL)** - The exposure, inhalation or dermal permissible exposure limit specified in 29 CFR Part 1910, Subparts G and Z.

**Powered Air-Purifying Respirator (PAPR)** - An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering

**Qualitative Fit Test (QLFT)** - A pass/fail fit test to assess the adequacy of respirator fit that relies on the individuals response to test agent

**Quantitative Fit Test (QNFT)** - An assessment of the adequacy of respirator fit by numerically measuring the right amount of leakage into the respirator

**User Seal Check** - An action conducted by a respirator user to determine if the respirator is properly seated to the face

#### <sup>xii</sup> Respirable Crystalline Silica Exposure Program

**Action Level** - a concentration of airborne respirable crystalline silica of 25 micrograms per cubic meter (25 µg/m<sup>3</sup>), calculated as an 8-hour time-weighted average (TWA).

**Competent Person** - an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and has the authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in the Written Exposure Control Plans.

**Employee Exposure** - the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

**High-Efficiency Particulate Air (HEPA) Filter** - a filter that is at least 99.97% efficient in removing monodispersed particles of 0.3 micrometers in diameter.

**Objective Data** - information, such as air-monitoring data from industry-wide survey or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

**Permissible Exposure Limit (PEL)** - a concentration of respirable crystalline silica less than 50 micrograms per cubic meter (50 µg/m<sup>3</sup>), calculated as an 8-hour time-weighted average (TWA).

**Physician or other Licensed Health Care Professional (PLHCP)** - means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows them to independently provide or be delegated the responsibility to provide some or all of the particular

health care services required by this program.

**Respirable Crystalline Silica** – Quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size-selective samplers specified in the International Organization of Standardization (ISO) 7708-1995: Air Quality-Particle Size Fraction Definitions for Health-Related Sampling.

**Silicosis** - Silicosis is a disease of the lungs due to the breathing of dust containing crystalline silica particles. This dust can cause fibrosis or scar tissue formations in the lungs that reduce the lung's ability to work to extract oxygen from the air. There is no cure for this disease, thus, prevention is the only solution.

**Specialist** – an American Board Certified Specialist in Pulmonary Disease or an American Board Certified Specialist in Occupational Medicine.

<sup>xiii</sup> **Permit-Required Confined Space Acceptable Entry Conditions** - The conditions that must exist in a permit-required confined space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

**Attendant** - An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendants' duties assigned in the employer's permit space program.

**Authorized Entrant** - An employee who is authorized by the employer to enter a permit-required confined space.

**Barrier** - A physical obstruction that blocks or limits access.

**Blanking or blinding** - The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

**Competent person** - One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary,

hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

**Confined Space** - A space that is (1) large enough that an employee can bodily enter and perform assigned work (2) has limited or restricted means for entry or exit and (3) is not meant for continuous occupancy.

**Double block and bleed** - The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

**Engulfment** - Surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, crushing, or suffocation.

**Entry** - The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space

**Entry Permit** - The written or printed document that is provided by the employer to allow and control entry into a permit-required confined space and that contains the information specified in 1910.146(f).

Entry rescue Occurs when a rescue service enters a permit space to rescue one or more employees.

**Entry Supervisor** - The person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry.

**Hazard** - A physical hazard or hazardous atmosphere.

**Hazardous atmosphere** - An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

(1) Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

(2) Airborne combustible dust at a concentration that meets or exceeds its LFL;

(3) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

(4) Any other atmospheric condition that is immediately dangerous to life or health.

**Hot work** - Operations capable of providing a source of ignition (for example, riveting, welding, cutting, burning, and heating).

**Immediately dangerous to life or health (IDLH)** - Any condition that would interfere with an individual's ability to escape unaided from a permit space and that poses a threat to life or that would cause irreversible adverse health effects.

**Inerting** - Displacing the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible

**Isolate or isolation** - The process by which employees in a confined space are completely protected against the release of energy and material into the space, and contact with a physical hazard, by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; blocking or disconnecting all mechanical linkages; or placement of barriers to eliminate the potential for employee contact with a physical hazard.

Note. This procedure produces an IDLH oxygen-deficient atmosphere.

**Limited or restricted means for entry or exit** - A condition that has a potential to impede an employee's movement into or out of a confined space. Such conditions include, but are not limited to, trip hazards, poor illumination, slippery floors, inclining surfaces and ladders.

**Line Breaking** - The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

**Lockout** - The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

**Lower flammable limit or lower explosive limit**- The minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion.

**Monitor or monitoring**- The process used to identify and evaluate the hazards after an authorized entrant enters the space. This is a process of checking for changes that is performed in a periodic or continuous manner after the completion of the initial testing or evaluation of that space.

**Non-Permit Required Confined Space** - A confined space that does not contain, nor has the potential to contain, any hazard capable of causing death or serious physical harm.

**Oxygen deficient atmosphere** -An atmosphere containing less than 19.5 percent oxygen by volume.

**Oxygen enriched atmosphere** - An atmosphere containing more than 23.5 percent oxygen by volume.

**Permit Required Confined Space** - Meets the definition of a confined space and contains one or more of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere
- Contains material with the potential for engulfment and/or entrapment
- Has an internal configuration such that an entrant could become trapped or asphyxiated or inwardly converging walls and sloping and tapering floors
- Contains any other recognized safety or health hazards

**Physical hazard** - An existing or potential hazard that can cause death or serious physical damage. Examples include, but are not limited to: explosives; mechanical, electrical, hydraulic and pneumatic energy; radiation; temperature extremes; engulfment; noise; and inwardly converging surfaces. Physical hazard also includes chemicals that can

cause death or serious physical damage through skin or eye contact.

**Prohibited condition** - Any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

**Qualified person** - One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems relating to the subject matter, the work, or the project.

**Rescue** - Retrieving, and providing medical assistance to, one or more employees who are in a permit space.

**Rescue service** - The personnel designated to rescue employees from permit spaces.

**Retrieval system**- The equipment (including a retrieval line, chest or full body harness, wristlets or anklets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

**Serious physical damage** - An impairment or illness in which a body part is made functionally useless or is substantially reduced in efficiency. Such impairment or illness may be permanent or temporary and includes, but is not limited to, loss of consciousness, disorientation, or other immediate and substantial reduction in mental efficiency. Injuries involving such impairment would usually require treatment by a physician or other licensed health-care professional.

**Tagout** – (1) Placement of a tagout device on a circuit or equipment that has been deenergized, in accordance with an established procedure, to indicate that the circuit or equipment being controlled may not be operated until the tagout device is removed; and

(2) The employer ensures that tagout provides equivalent protection to lockout, or that lockout is infeasible and the employer has relieved, disconnected, restrained and otherwise rendered safe stored (residual) energy.

**Test or testing** - the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the

tests that are to be performed in the permit space.

**Ventilate or ventilation** - controlling a hazardous atmosphere using continuous forced-air mechanical systems that meet the requirements of §1926.57—Ventilation.

#### <sup>xiv</sup> **Hazard Communication Program**

**Chemical** - Any substance, or mixture of substances.

**Chemical Manufacturer** - An employer with a workplace where chemical(s) are produced for use or distribution.

**Chemical Name** - The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard classification.

**Classification** - To identify the relevant data regarding the hazards of a chemical; review those data to ascertain the hazards associated with the chemical; and decide whether the chemical will be classified as hazardous according to the definition of hazardous chemical in this section. In addition, classification for health and physical hazards includes the determination of the degree of hazard, where appropriate, by comparing the data with the criteria for health and physical hazards.

**Common Name** - Any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

**Container** - Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

**Distributor** - A business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

**Employee** - A worker who may be exposed to hazardous chemicals under



normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

**Employer** - A person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

**Exposure or Exposed** - When an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

**Foreseeable Emergency** - Any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

**Hazard Category** - The division of criteria within each hazard class, e.g., oral acute toxicity and flammable liquids include four hazard categories. These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

**Hazard Class** - The nature of the physical or health hazards, e.g., flammable solid, carcinogen, oral acute toxicity.

**Hazard Not Otherwise Classified (HNOC)** - An adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section. This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).

**Hazard Statement** - A statement assigned to a hazard class and category that describes the nature of the hazard(s)

of a chemical, including, where appropriate, the degree of hazard.

**Hazardous Chemical** - Any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiate, combustible dust, pyrophoric gas, or hazard not otherwise classified.

**Health Hazard** - A chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A to §1910.1200—Health Hazard Criteria.

**Immediate Use** - The hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

**Importer** - The first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.

**Label** - An appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

**Label Elements** - The specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

**Mixture** - A combination or a solution composed of two or more substances in which they do not react.

**Physical Hazard** - A chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. See Appendix B to §1910.1200—Physical Hazard Criteria.

**Pictogram** - A composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

**Precautionary statement** - A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.

**Produce** - To manufacture, process, formulate, blend, extract, generate, emit, or repackage.

**Product Identifier** - The name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used will permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

**Responsible Party** - Someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

**Safety Data Sheet (SDS)** - Written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of this section.

**Signal Word** - A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

**Simple Asphyxiate** - A substance or mixture that displaces oxygen in the ambient atmosphere, and can thus cause oxygen deprivation in those who are exposed, leading to unconsciousness and death.

**Specific Chemical Identity** - The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

**Substance-** Chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

**Trade Secret** - Any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. Appendix E to §1910.1200—Definition of Trade Secret, sets out the criteria to be used in evaluating trade secrets.

**Use** - To package, handle, react, emit, extract, generate as a byproduct, or transfer.

**Work Area** - A room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

**Workplace** - An establishment, job site, or project, at one geographical location containing one or more work areas.

xv **Hazardous Material Program**

**Asbestos** - A naturally occurring fibrous mineral with a high resistance to fire or heat. Prolonged inhalation of asbestos can cause serious illness such as lung cancer.

**Dose** - The quantity of ionizing radiation absorbed by any part of the body

**Gases, Vapors, Fumes, Dusts and Mists** - Materials having potential to expose employees to levels over the Threshold Limit Value of Airborne Contaminants through means of inhalation, ingestion, skin absorption or contact.

**Hazard Communication** - See Hazard Communication Chapter

**Hazardous Waste Operations** - Clean-up involving the metals monitored by Resource Conservation and Recovery Act (RCRA) called the RCRA 8s: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.

**Highly Hazardous Chemical** - A substance possessing toxic, reactive, flammable or explosive properties.

**Hot Work** - Work involving electric or gas welding, cutting, brazing or similar flame or spark producing operations

**Ionizing Radiation** - Alpha rays, beta rays, gamma rays, x-rays, neutrons, high speed electrons, high speed protons and other atomic particles.

**Lead** - A chemical element of the carbon group used in building construction, lead acid batteries, fusible alloys and other applications. If ingested, lead is poisonous to humans. It damages the nervous system and causes brain disorders. Excessive lead also causes blood disorders in mammals. Lead is a neurotoxin that accumulates both in soft tissues and the bones.

**Non-Ionizing Radiation** - Near ultraviolet light, visible light, infrared, microwave, radio waves that produce low levels of energy, mostly characterized as thermal energy.

**Objective Data** - information demonstrating that a particular product or material containing lead or a specific process, operation, or activity involving lead cannot release dust or fumes in concentrations at or above the action level under any expected conditions of use. Objective data can be obtained from industry-wide study or from laboratory product test results from manufacturers of lead containing products or materials. The data the employer uses from an industry-wide survey must be obtained under workplace conditions closely resembling the processes, types of Material, control methods, work practices and environmental conditions in the employer's current operation.

**Process** - Any activity involving a highly hazardous chemical including any use, storage, manufacturing, handling, or on-site movement of such chemicals or combination of these activities. Any group of vessels which are interconnected and separate vessels which are located such that a highly hazardous chemical could be involved in a potential release is considered a single process.

**Process Safety Management** - Requirements for preventing or minimizing the consequences of catastrophic releases

of toxic, reactive, flammable or explosive chemicals resulting in toxic, fire or explosive hazards.

**Rad** - A measure of a dose of ionizing radiation.

**Radioactive Material** - Emanations resulting from spontaneous nuclear disintegration.

**Restricted Area** - Area to which access is controlled for purposes of employee protection from radiation or radioactive materials.

**Unrestricted Area** - The area outside of the boundary and access points of a restricted area.

xvi **Stairways and Ladders Program**

**Cleat** - A ladder crosspiece of rectangular cross section placed on edge upon which a person may step while ascending or descending a ladder.

**Double-Cleat Ladder** - A ladder with a center rail to allow simultaneous two-way traffic for employees ascending or descending.

**Failure** - Load refusal, breakage or separation of components.

**Fixed Ladder** - A ladder that cannot be readily moved or carried because it is an integral part of a building or structure.

**Handrail** - A rail used to provide employees with a handhold for support.

**Job-Made Ladder** - A ladder that is fabricated by employees, typically at the construction site; non-commercially manufactured.

**Load Refusal** - The point where the structural members lose their ability to carry the load.

**Point of Access** - All areas used by employees for work-related passage from one area or level to another.

**Portable Ladder** - A ladder that can be readily moved or carried.

**Riser Height** - The vertical distance from the top of a tread or platform/landing to the top of the next higher tread or platform/landing.

**Side-Step Fixed Ladder** - A fixed ladder that requires a person to get off at the top

to step to the side of the ladder side rails to reach the landing.

**Single-Cleat Ladder** - A ladder consisting of a pair of side rails connected together by cleats, rungs or steps.

**Stair Rail System** - A vertical barrier erected along the unprotected sides and edges of a stairway to prevent employees from falling to lower levels.

**Temporary Service Stairway** - A stairway where permanent treads and/or landings are to be filled in at a later date.

**Through Fixed Ladder** - A fixed ladder that requires a person getting off at the top to step between the side rails of the ladder to reach the landing.

**Tread Depth** - The horizontal distance from front to back of a tread, excluding nosing, if any.

<sup>xvii</sup> **Fall Protection Program**

**Anchorage** - A secure point of attachment for lifelines, lanyards or deceleration devices.

**Body Harness** - Straps which are secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

**Buckle** - Any device for holding the body belt or body harness closed around the employee's body

**Connector** - A device used to connect parts of the personal fall arrest system and positioning device systems together. It may be an integral component of the system such as a buckle or dee-ring sewn into a body harness.

**Controlled access zone (CAZ)** - An area in which certain work (e.g., overhead bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

**Deceleration Device** - Any mechanism, such as a rope grab, specially-woven lanyard, automatic self-retracting lifelines/lanyard, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

**Free fall** - The act of falling before a personal fall arrest system begins to apply force to arrest the fall.

**Free fall distance** - The vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

**Guardrail System** - Means a barrier erected to prevent employees from falling to lower levels.

**Hole** - A gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, roof, or other walking/working surface.

**Lanyard** - A flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body harness to a deceleration device, lifeline, or anchorage.

**Personal Fall Arrest System** - A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combination of these.

Note: A body belt may not be used in a fall arrest system.

**Self-Retracting Lifeline/Lanyard** - A deceleration device containing a drum-wood line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

<sup>xviii</sup> **Scaffolding Program**

**Adjustable suspension scaffold** - A suspension scaffold equipped with a hoist(s) that can be operated by an employee(s) on the scaffold.

**Bearer** - A horizontal transverse scaffold member (which may be supported by ledgers or runners) upon which the scaffold platform rests, and which joins scaffold uprights, posts, poles, and similar members.

**Boatswains' chair** - A single-point adjustable suspension scaffold consisting of a seat or sling designed to support one employee in a sitting position.

**Body belt (safety belt)** - A strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.

**Body harness** - A design of straps which may be secured about the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders, with means for attaching it to other components of a personal fall arrest system.

**Brace** - A rigid connection that holds one scaffold member in a fixed position with respect to another member, or to a building or structure.

**Bricklayers' square scaffold** - A supported scaffold composed of framed squares which support a platform.

**Carpenters' bracket scaffold** - A supported scaffold consisting of a platform supported by brackets attached to building or structural walls.

**Catenary scaffold** - A suspension scaffold consisting of a platform supported by two essentially horizontal and parallel ropes attached to structural members of a building or other structure. Additional support may be provided by vertical pickups.

**Chimney hoist** - A multi-point adjustable suspension scaffold used to provide access to work inside chimneys. (See Multi-point adjustable "suspension scaffold.")

**Cleat** - A structural block used at the end of a platform to prevent the platform from slipping off its supports. Cleats are also used to provide footing on sloped surfaces such as crawling boards.

**Competent Person** - One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to personnel and sub-contractors, and who has authorization to take prompt corrective measures to eliminate them.

**Continuous run scaffold (Run scaffold)** - A two-point or multi-point adjustable suspension scaffold constructed using a series of interconnected braced scaffold members or supporting structures erected to form a continuous scaffold.

**Coupler** - A device for locking together the tubes of a tube and coupler scaffold.

**Crawling board - (chicken ladder)** A supported scaffold consisting of a plank with cleats spaced and secured to provide footing, for use on sloped surfaces such as roofs.

**Deceleration device** - Any mechanism, such as a rope grab, rip-stitch lanyard, specially woven lanyard, tearing or

deforming lanyard, or automatic self-retracting lifeline lanyard, which dissipates a substantial amount of energy during a fall arrest or limits the energy imposed on an employee during fall arrest.

**Double pole (independent pole) scaffold** - A supported scaffold consisting of a platform(s) resting on cross beams (bearers) supported by ledgers and a double row of uprights independent of support (except ties, guys, braces) from any structure.

**Equivalent** - Alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

**Exposed power lines** - Electrical power lines which are accessible to employees, and which are not shielded from contact. Such lines do not include extension cords or power tool cords.

**Eye or Eye splice** - A loop with or without a thimble at the end of a wire rope.

**Fabricated Decking and Planking** - Manufactured platforms made of wood (including laminated wood, and solid sawn wood planks), metal or other materials.

**Fabricated Frame Scaffold - (Tubular Welded Frame Scaffold)** - A scaffold consisting of a platform(s) supported on fabricated end frames with integral posts, horizontal bearers, and intermediate members.

**Failure** - Load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

**Float (ship) scaffold** - A suspension scaffold consisting of a braced platform resting on two parallel bearers and hung from overhead supports by ropes of fixed length.

**Form scaffold** - A supported scaffold consisting of a platform supported by brackets attached to formwork.

**Guardrail System** - A vertical barrier, consisting of, but not limited to, top-rails, mid-rails, and posts, erected to prevent personnel and sub-contractors from falling off a scaffold platform or walkway to lower levels.

**Horse scaffold** - A supported scaffold consisting of a platform supported by construction horses (saw horses). Horse scaffolds constructed of metal are sometimes known as trestle scaffolds.

**Independent pole scaffold** - (see "Double pole scaffold").

**Interior hung scaffold** - A suspension scaffold consisting of a platform suspended from the ceiling or roof structure by fixed length supports.

**Ladder jack scaffold** - A supported scaffold consisting of a platform resting on brackets attached to ladders.

**Ladder stand** - A mobile, fixed-size, self-supporting ladder consisting of a wide flat tread ladder in the form of stairs.

**Landing** - A platform at the end of a flight of stairs.

**Large area scaffold** - A pole scaffold, tube and coupler scaffold, systems scaffold, or fabricated frame scaffold erected over substantially the entire work area. For example: a scaffold erected over the entire floor area of a room.

**Lean-to scaffold** - A supported scaffold which is kept erect by tilting it toward and resting it against a building or structure.

**Lifeline** - A component consisting of a flexible line that connects to an anchorage at one end to hang vertically (vertical lifeline), or that connects to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

**Lower levels** - Areas below the level where the employee is located and to which an employee can fall. Such areas include, but are not limited to, ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, materials, water, and equipment.

**Masons' adjustable supported scaffold** - (see "Self-contained adjustable scaffold").

**Masons' multi-point adjustable suspension scaffold** - A continuous run suspension scaffold designed and used for masonry operations.

**Maximum Intended Load** - The total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.

**Mobile Scaffold** - A powered or unpowered, portable, caster or wheel-mounted supported scaffold.

**Multi-level suspended scaffold** - A two-point or multi-point adjustable suspension scaffold with a series of platforms at various levels resting on common stirrups.

**Multi-point adjustable suspension scaffold** - A suspension scaffold consisting of a platform(s) which is suspended by more than two ropes from

overhead supports and equipped with means to raise and lower the platform to desired work levels. Such scaffolds include chimney hoists.

**Needle beam scaffold** - A platform suspended from needle beams.

**Open Sides and Ends** - The edges of a platform that are more than fourteen inches (14") away horizontally from a sturdy, continuous, vertical surface (such as a building wall) or a sturdy, continuous horizontal surface (such as a floor), or a point of access. Exception: For plastering and lathing operations, the horizontal threshold distance is eighteen inches (18").

**Outrigger** - The structural member of a supported scaffold used to increase the base width of a scaffold in order to provide support for and increased stability of the scaffold.

**Outrigger beam (Thrustout)** - The structural member of a suspension scaffold or outrigger scaffold which provides support for the scaffold by extending the scaffold point of attachment to a point out and away from the structure or building.

**Outrigger scaffold** - A supported scaffold consisting of a platform resting on outrigger beams (thrustouts) projecting beyond the wall or face of the building or structure, the inboard ends of which are secured inside the building or structure.

**Overhand bricklaying** - The process of laying bricks and masonry units such that the surface of the wall to be jointed is on the opposite side of the wall from the mason, requiring the mason to lean over the wall to complete the work. It includes mason tending and electrical installation incorporated into the brick wall during the overhand bricklaying process.

**Personal Fall Arrest System** - A system used to arrest an individual's fall. It consists of an anchorage; connectors, a body belt, or body harness and may include a lanyard, deceleration device, lifeline, or combinations of these.

**Platform** - A work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.

**Pole scaffold** (see definitions for "Single-pole scaffold" and "Double (independent) pole scaffold").

**Power operated hoist** - A hoist which is powered by other than human energy.

**Pump jack scaffold** - A supported scaffold consisting of a platform supported

by vertical poles and movable support brackets.

**Qualified** - One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the work, or the project.

**Rated load** - The manufacturer's specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold component.

**Repair bracket scaffold** - A supported scaffold consisting of a platform supported by brackets which are secured in place around the circumference or perimeter of a chimney, stack, tank, or other supporting structure by one or more wire ropes placed around the supporting structure.

**Roof bracket scaffold** - A rooftop supported scaffold consisting of a platform resting on angular-shaped supports.

**Rope descent system** - A suspension system that allows an employee to descend in a controlled manner and, as needed, stop at any point during the descent. A rope descent system usually consists of a roof anchorage, support rope, a descent device, carabiner(s) or shackle(s), and a chair (seatboard). A rope descent system also is called controlled descent equipment or apparatus. Rope descent systems do not include industrial rope access systems.

**Runner (ledger or ribbon)** - The lengthwise horizontal spacing or bracing member which may support the bearers.

**Scaffold** - Any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting personnel and sub-contractors or materials or both.

**Seatboard** - (see Boatwains' chair)

**Self-contained adjustable scaffold** - A combination supported and suspension scaffold consisting of an adjustable platform(s) mounted on an independent supporting frame(s) not a part of the object being worked on, and which is equipped with a means to permit the raising and lowering of the platform(s). Such systems include rolling roof rigs, rolling outrigger systems, and some masons' adjustable supported scaffolds.

**Shore scaffold** - A supported scaffold which is placed against a building or structure and held in place with props.

**Single-point adjustable suspension scaffold** - A suspension scaffold consisting of a platform suspended by one rope from an overhead support and

equipped with means to permit the movement of the platform to desired work levels.

**Single-pole scaffold** - A supported scaffold consisting of a platform(s) resting on bearers, the outside ends of which are supported on runners secured to a single row of posts or uprights, and the inner ends of which are supported on or in a structure or building wall.

**Stair tower (Scaffold stairway/tower)** - A tower comprised of scaffold components, and which contains internal stairway units and rest platforms. These towers are used to provide access to scaffold platforms and other elevated points such as floors and roofs.

**Stall load** - The load at which the prime-mover of a power-operated hoist stalls or the power to the prime-mover is automatically disconnected.

**Step, platform, and trestle ladder scaffold** - A platform resting directly on the rungs of step ladders or trestle ladders.

**Stilts** - A pair of poles or similar supports with raised footrests, used to permit walking above the ground or working surface.

**Stone setters' multi-point adjustable suspension scaffold** - A continuous run suspension scaffold designed and used for stone setters' operations.

**Supported scaffold** - One or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support.

**Suspension scaffold** - One or more platforms suspended by ropes or other non-rigid means from an overhead structure(s).

**System scaffold** - A scaffold consisting of posts with fixed connection points that accept runners, bearers, and diagonals that can be interconnected at predetermined levels.

**Tank builders' scaffold** - A supported scaffold consisting of a platform resting on brackets that are either directly attached to a cylindrical tank or attached to devices that are attached to such a tank.

**Top plate bracket scaffold** - A scaffold supported by brackets that hook over or are attached to the top of a wall. This type of scaffold is similar to carpenters' bracket scaffolds and form scaffolds and is used in residential construction for setting trusses.

**Tube and coupler scaffold** - A supported or suspended scaffold consisting of a platform(s) supported by tubing, erected with coupling devices

connecting uprights, braces, bearers, and runners.

**Tubular welded frame scaffold** - (see "Fabricated frame scaffold").

**Two-point suspension scaffold (swing stage)** - A suspension scaffold consisting of a platform supported by hangers (stirrups) suspended by two ropes from overhead supports and equipped with means to permit the raising and lowering of the platform to desired work levels.

**Unstable objects** - Items whose strength, configuration, or lack of stability may allow them to become dislocated and shift and therefore may not properly support the loads imposed on them. Unstable objects do not constitute a safe base support for scaffolds, platforms, or employees. Examples include, but are not limited to, barrels, boxes, loose brick, and concrete blocks.

**Vertical pickup** - A rope used to support the horizontal rope in catenary scaffolds.

**Walkway** - A portion of a scaffold platform used only for access and not as a work level.

**Window jack scaffold** - A platform resting on a bracket or jack which projects through a window opening.

<sup>xix</sup> **Electrical Safety-Related Work Program**

**Arc Blast** - The massive energy released during an arc flash that rapidly vaporizes the metal conductors involved, blasting molten metal and expanding plasma outward with extreme force.

**Arc Flash** - The light and heat produced from an electric arc supplied with sufficient electrical energy to cause substantial damage or harm, fire or injury. Temperatures can reach or exceed 35,000 °F (19,400 °C) at the arc terminals.

**Arc Flash Hazard** - A dangerous condition associated with the possible release of energy caused by an electric arc.

**Arc Flash Boundary** - When an arc flash hazard exists, an approach limit at a distance from a prospective arc source within which a person could receive a second degree burn if an electrical arc flash were to occur.

**Arc Flash Suit** - A complete arc-rated clothing and equipment system that covers the entire body, except for the hands and feet.

**Electric Shock** - The physiological reaction, characterized by pain and muscular spasm, to the passage of an electric current through the body. It can affect the respiratory system and heart rhythm.

**Electrical Hazard** - A dangerous condition such that contact or equipment failure can result in electric shock, arc flash burn, thermal burn, or blast.

**Electrical Safety** - Recognizing hazards associated with the use of electrical energy and taking precautions so that hazards do not cause injury or death.

**Electrically Safe Work Condition** - A state in which an electrical conductor or circuit part has been disconnected from energized parts, locked/tagged in accordance with established standards, tested to ensure the absence of voltage, and grounded if determined necessary.

**Incident Energy** - The amount of thermal energy impressed on a surface, a certain distance from the source, generated during an electrical arc event. Incident energy is typically expressed in calories per centimeter squared (cal/cm<sup>2</sup>).

**Incident Energy Analysis** - A component of an arc flash risk assessment used to predict the incident energy of an arc flash for a specified set of conditions.

**Risk** - A combination of the likelihood of occurrence of injury or damage to health and the severity of injury or damage to health that results from a hazard.

**Risk Assessment** - An overall process that identifies hazards, estimates the potential severity of injury or damage to health, estimates the likelihood of occurrence of injury or damage to health, and determines if protective measures are required.

**Shock Hazard** - A dangerous condition associated with the possible release of energy caused by contact or approach to energized electrical conductors or circuit parts.

xx **Mobile Elevating Work Platforms (MEWP)**

**Aerial device** - Any vehicle-mounted device, telescoping or articulating, or both, which is used to position personnel.

**Articulating boom platform** - An aerial device with two or more hinged boom sections.

**Extensible boom platform** - An aerial device (except ladders) with a telescopic or extensible boom. Telescopic derricks with personnel platform attachments shall be considered to be extensible boom platforms when used with a personnel platform.

**Occupant** - An entity on the work platform.

**Manlift** - A device consisting of a power-driven endless belt moving in one direction only and provided with steps or platforms and handholds attached to it for the transportation of personnel from floor to floor.

**Operating control** - A mechanism regulating or guiding the operation of equipment that ensures a specific operating mode.

**Operator** - An entity qualified to control the movement of the MEWP.

**Outrigger** - A device, used singly or in pairs, for suspending a working platform from work, storage, and rigging locations on the building being serviced. Unlike davits, an outrigger reacts its operating moment load as at least two opposing vertical components acting into two or more distinct roof points and/or attachments.

**Platform rated load** - The combined weight of workers, tools, equipment, and other material which is permitted to be carried by the working platform at the installation, as stated on the load rating plate.

**Rated load** - The manufacturer's recommended maximum load.

**Safe surface** - A horizontal surface intended to be occupied by personnel, which is so protected by a fall protection system that it can be reasonably assured that said occupants will be protected against falls.

**Stabilizers** - Devices that increase the stability of the MEWP but are not capable of lifting or leveling the MEWP.

**Stowed Position** - Configuration of the MEWP as defined by the manufacturer in which the extending structure is lowered

and retracted, and stabilizers and/or outriggers are retracted.

**Qualified Person** - Person who, by possession of a recognized degree, certificate, or professional standing, or by extensive knowledge, training and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work or the project.

**Work Platform** - Component of the MEWP intended for carrying personnel

xxi **Construction Crane Program A/D Director (Assembly/Disassembly Director)** - An individual who meets the requirements for an A/D director, irrespective of the person's formal job title or whether the person is non-management or management personnel.

**Competent Person** - One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

**Controlling Entity** - The prime contractor, general contractor, construction manager, or other legal entity with overall responsibility for the projects planning, quality, and completion.

**Dedicated Channel** - A line of communication assigned by the employer who controls the communication system to only one signal person and crane/derrick or to a coordinated group of cranes/derricks/signal person(s).

**Dedicated Spotter (power lines)** - To be considered a dedicated spotter, the requirements of Signal person qualifications must be met and their sole responsibility is to watch the separation between the power line and the equipment, load line and load (including rigging and lifting accessories), and ensure through communication with the operator that the applicable minimum approach distance is not breached.

**Encroachment** - Where any part of the crane, load line or load (including rigging and lifting accessories) breaches a minimum clearance distance that this

subpart requires to be maintained from a power line.

**Fall Zone** - The area (including but not limited to the area directly beneath the load) in which it is reasonably foreseeable that partially or completely suspended materials could fall in the event of an accident.

**Nationally Recognized Accrediting Agency** - An organization that, due to its independence and expertise, is widely recognized as competent to accredit testing organizations. Examples of such accrediting agencies include, but are not limited to, the National Commission for Certifying Agencies and the American National Standards Institute.

**Operator** - A person who is operating the equipment.

**Qualified Evaluator (not a third party)** - A person employed by the signal person's employer who has demonstrated that they are competent in accurately assessing whether individuals meet the Qualification Requirements for a signal person.

**Qualified Evaluator (third party)** - An entity that, due to its independence and expertise, has demonstrated that it is competent in accurately assessing whether individuals meet the Qualification Requirements for a signal person.

**Qualified Persons** - A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.

**Qualified Rigger** - A rigger who meets the criteria for a qualified person.

**Rated Capacity** - The maximum working load permitted by the manufacturer under specified working conditions. Such working conditions typically include a specific combination of factors such as equipment configuration, radii, boom length, and other parameters of use.

**Ground Conditions** - The ability of the ground to support the equipment (including slope, compaction, and firmness).

**Balanced** - The load is equally distributed on each side of the point of support.

**Basket hitch** - A sling configuration whereby the sling is passed under the load and has both ends, end attachments, eyes or handles on the hook or a single master link.

**Below-the-hook lifting device** - A device used for attaching loads to a hoist. The device may contain components such as slings, hooks, rigging hardware, and lifting attachments.

**Breaking strength** - The approximate point, when under maximum load, the load handling device fails.

**Bridle sling** - A sling composed of multiple legs gathered in a fitting that goes over the lifting hook.

**Choker hitch** - A sling configuration with one end of the sling passing under the load and through an end attachment, handle or eye on the other end of the sling.

**Electrical contact** - When a person, object, or equipment makes contact or comes close in proximity with an energized conductor or equipment that allows the passage of current.

**Hitch** - A sling configuration whereby the sling is fastened to an object or load, either directly to it or around it.

**Lay-length** - The distance measured along a rope in which a strand makes one complete revolution.

**Link** - A single ring of a chain.

**Load** - The weight of the object being lifted or lowered, including the weight of the load-attaching equipment such as the load block, ropes, slings, shackles, and any other auxiliary attachment.

**Master coupling link** - An alloy steel welded coupling link used as an intermediate link to join alloy steel chain to master links.

**Qualified Rigger** - A rigger who meets the criteria for a qualified person.

**Rated capacity** - The maximum working load permitted by the manufacturer under specified working conditions.

**Rigging** - The connecting of a load to a source of power so that it can be lifted and moved safely and predictably.

**Rope lay** - *The direction and rotation of the wires and strands within wire rope rigging.*

**Safe working load** - The maximum allowable working load established by the manufacturer.

**Sling** - An assembly which connects the load to the material handling equipment.

**Vertical hitch** - A method of supporting a load by a single, vertical part or leg of the sling.

**Wire rope** - Individual wires laid into a number of strands which are in turn, laid around a center core.

#### <sup>xxiii</sup> **Hand and Power Tools**

**Circular Saw** - A tool for cutting wood or other materials that can be hand-held or table-mounted. Most circular saws are designed to cut wood but may be equipped with blades designed to cut masonry, plastics, or metal.

**Drill** - A tool with a rotating drill bit used for drilling holes in various materials. Drills are commonly used in woodworking and metalworking. The drill bit is gripped by a chuck at one end of the drill and is pressed against the target material and rotated.

**Drill Press** - A fixed style of drill that may be mounted on a stand or bolted to the floor or workbench.

**Grinding Machine** - A tool used for producing very fine finishes or making very light cuts, using an abrasive wheel as the cutting device. This wheel can be made up of various sizes and types of stones, diamonds or of inorganic materials.

**Hammer Drill** - A tool similar to a standard electric drill, with the exception that it is provided with an impact action for drilling masonry. The hammer action may

<sup>xxii</sup> **Rigging Safety Program**

be engaged or disengaged as required.

**Hand Tool** - A tool that is powered by an operator. Examples of hand tools include, but are limited to hammers, screwdrivers, and wrenches.

**Hydraulic Tool** - A tool powered by pressurized hydraulic fluid

**Impact Wrench** - A socket wrench power tool designed to deliver high torque output using air (pneumatic), oil (hydraulic) or electricity as the power source.

**Nail Gun** - A type of tool used to drive nails into wood or some other kind of material. It is usually driven by electromagnetism, compressed air (pneumatic), highly flammable gases such as butane or propane, or, for powder-actuated tools, a small explosive charge.

**Pneumatic Tool** - A tool driven by compressed air. The air can be supplied by an air compressor or by compressed carbon dioxide (CO<sub>2</sub>) stored in small cylinders allowing for portability

**Powder-Actuated Tool** - These tools are often called a "Hilti gun" or a "Ramset gun" after their manufacturing companies. It is a nail gun used in both construction and manufacturing to join materials such as steel and concrete.

**Power Tool** - A tool powered either by an electric or battery powered motor, a compressed air, hydraulics, powder actuated, or a gasoline engine. Power tools are classified as either stationary or portable.

**Reciprocating Saw** - A type of saw in which the cutting action is achieved through a push and pull reciprocating motion of the blade.

**Rotary Tool** - A handheld power tool with a variety of rotating accessory bits and attachments

that can be used for cutting, carving, sanding, polishing and many other applications.

**Table Saw** - A type of saw that consists of a circular saw blade, mounted on an arbor, that is driven by an electric motor (directly, by belt, or by gears). The blade protrudes through the surface of a table.

#### <sup>xxiv</sup> **Machine Guarding - Construction**

**Gate** - A movable barrier arranged to enclose the point of operation before the press stroke can be started.

**Guarded** - Guarded" means shielded, fenced, or enclosed by covers, casings, shields, troughs, spillways or railings, or guarded by position or location. Examples of guarding methods are guarding by location (positioning hazards so they are inaccessible to employees) and point of operation guarding (using barrier guards, two-hand tripping devices, electronic safety devices, or other such devices).

**Interlocked Guard** - A guard that prevents the machine from starting without the guard being in place.

**Pinch Points** - Any point other than the point of operation that allows for part of the body to be caught between moving parts.

**Point of Operation** - The area on a machine where work is actually being performed upon the material being processed

**Presence Sensing Device** - A device designed, constructed and arranged to create a sensing field or area that signals the clutch/brake control to deactivate the clutch and activate the brake of the press when any part of the operator's body or a hand tool is within such field or area.

**Two Hand Control Device** - A two hand trip that further requires concurrent pressure from both hands of the operator during a substantial part of the die-closing portion of the stroke of the press.

#### <sup>xxv</sup> **Hot Work Safety Program**

**Brazing** - A process that involves joining two pieces of metal with molten metal. Also can be used to apply a protective coating to parts, reducing or preventing wear and corrosion.

**Combustible Material** - Solid materials that can burn or ignite.

**Cutting** - Any process that transmits heat from a hot gas to the material being worked, producing sparks that can ignite combustible or flammable materials.

**Fire watch and Fire watchers** - Individual(s) responsible for identifying and controlling stray fires.

**Welder and Welding Operator** - Any operator of electric or gas welding and cutting equipment.

**Welding** - A process that uses heat to melt metal pieces and fuse them together to form a permanent bond.

#### <sup>xxvi</sup> **Electrical Safety - Construction**

**Acceptable** - An installation or equipment is acceptable to the Assistant Secretary of Labor, and approved within the meaning of OSHA Standard 29 CFR 1926 Subpart K:

- (1) If it is accepted, or certified, or listed, or labeled, or otherwise determined to be safe by a qualified testing laboratory capable of determining the suitability of materials and equipment for installation and use in accordance with this standard; or
- (2) With respect to an installation or equipment of a kind which no qualified testing laboratory accepts, certifies, lists, labels, or determines to be safe, if it is inspected or tested by another Federal agency, or by a State, municipal, or other local authority responsible for enforcing occupational safety provisions of the National Electrical Code, and found in compliance with those provisions; or
- (3) With respect to custom-made equipment or related installations which are designed, fabricated for, and intended for use by a particular customer, if it is determined to be safe for its intended use by its manufacturer on the basis of test data which the employer keeps and makes available for inspection to the Assistant Secretary and their authorized representatives.

**Accepted** - An installation is 'accepted' if it has been inspected and found to be safe by a qualified testing laboratory.

**Accessible** - (As applied to wiring methods.) Capable of being removed or exposed without damaging the building structure or finish, or not permanently closed in by the structure or finish of the



building. (See '**Concealed**' and '**Exposed**')

**Accessible** - (As applied to equipment.) Admitting close approach; not guarded by locked doors, elevation, or other effective means. (See '**Readily accessible**')

**Ampacity** - The current in amperes a conductor can carry continuously under the conditions of use without exceeding its temperature rating.

**Appliances** - Utilization equipment, generally other than industrial, normally built in standardized sizes or types, which is installed or connected as a unit to perform one or more functions.

**Approved** - Acceptable to the authority enforcing this Subpart. The authority enforcing this Subpart is the Assistant Secretary of Labor for Occupational Safety and Health. The definition of 'acceptable' indicates what is acceptable to the Assistant Secretary of Labor, and therefore approved within the meaning of this Subpart.

**Attachment Plug (Plug cap)(Cap)** - A device which, by insertion in a receptacle, establishes connection between the conductors of the attached flexible cord and the conductors connected permanently to the receptacle.

**Automatic** - Self-acting, operating by its own mechanism when actuated by some impersonal influence, as for example, a change in current strength, pressure, temperature, or mechanical configuration.

**Bonding** - The permanent joining of metallic parts to form an electrically conductive path which will ensure electrical continuity and the capacity to conduct safely any current likely to be imposed.

**Bonding Jumper** - A reliable conductor to ensure the required electrical conductivity between metal parts required to be electrically connected.

**Branch Circuit** - The circuit conductors between the final overcurrent device protecting the circuit and the outlet(s).

**Building** - A structure which stands alone, or which is cut off from adjoining structures by fire walls with all openings therein protected by approved fire doors.

**Cabinet** - An enclosure designed either for surface or flush mounting, and provided with a frame, mat, or trim in which a swinging door or doors are or may be hung.

**Certified - Equipment is 'certified' if it:** Has been tested and found by a qualified testing laboratory to meet applicable test standards or to be safe for use in a specified manner, and

Is of a kind whose production is periodically inspected by a qualified testing laboratory. Certified equipment must bear a label, tag, or other record of certification.

#### **Circuit Breaker -**

- (1) (600V nominal, or less.) A device designed to open and close a circuit by non-automatic means and to open the circuit automatically on a predetermined overcurrent without injury to itself when properly applied within its rating.
- (2) (Over 600V, nominal.) A switching device capable of making, carrying, and breaking currents under normal circuit conditions, and also making, carrying for a specified time, and breaking currents under specified abnormal circuit conditions, such as those of short circuit.

**Class I Locations** - Class I locations are those in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures. Class I locations include the following:

- (1) **Class I, Division 1** - Is a location
  - (1) in which ignitable concentrations of flammable gases or vapors may exist under normal operating conditions; or
  - (2) in which ignitable concentrations of such gases or vapors may exist frequently because of repair or maintenance operations or because of leakage; or
  - (3) in which breakdown or faulty operation of equipment or processes might release ignitable concentrations of flammable gases or vapors, and might also cause simultaneous failure of electric equipment.
- (2) **Class I, Division 2** - Is a location
  - in which volatile flammable liquids or flammable gases are handled, processed, or used, but in which the hazardous liquids, vapors, or gases will normally be confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown of such containers or systems, or in case

of abnormal operation of equipment; or

- in which ignitable concentrations of gases or vapors are normally prevented by positive mechanical ventilation, and which might become hazardous through failure or abnormal operations of the ventilating equipment; or
- that is adjacent to a Class I, Division 1 location, and to which ignitable concentrations of gases or vapors might occasionally be communicated unless such communication is prevented by adequate positive-pressure ventilation from a source of clean air, and effective safeguards against ventilation failure are provided.

**Class II Locations** - Class II locations are those that are hazardous because of the presence of combustible dust. Class II locations include the following:

- (1) **Class II, Division 1** - Is a location
  - (1) in which combustible dust is or may be in suspension in the air under normal operating conditions, in quantities sufficient to produce explosive or ignitable mixtures; or
  - (2) where mechanical failure or abnormal operation of machinery or equipment might cause such explosive or ignitable mixtures to be produced, and might also provide a source of ignition through simultaneous failure of electric equipment, operation of protection devices, or from other causes, or
  - (3) in which combustible dusts of an electrically conductive nature may be present.

**Class II, Division 2** - Is a location

- (1) combustible dust will not normally be in suspension in the air in quantities sufficient to produce explosive or ignitable mixtures, and dust accumulations are normally insufficient to interfere with the normal operation of electrical equipment or other apparatus; or
- (2) dust may be in suspension in the air as a result of infrequent malfunctioning of handling or processing equipment, and dust accumulations resulting therefrom may be ignitable by abnormal operation or failure of electrical equipment or other apparatus.

**Class III Locations** - Class III locations are those that are hazardous because of

the presence of easily ignitable fibers or flyings but in which such fibers or flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitable mixtures. Class 111 locations include the following:

- (1) **Class III, Division 1** - Is a location in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.
- (2) **Class III, Division 2** - Is a location in which easily ignitable fibers are stored or handled, except in process of manufacture.

**Collector Ring** - A collector ring is an assembly of slip rings for transferring electrical energy from a stationary to a rotating member.

**Concealed** - Rendered inaccessible by the structure or finish of the building. Wires in concealed raceways are considered concealed, even though they may become accessible by withdrawing them. [See **'Accessible** (As applied to wiring methods.)']

#### Conductor

- **Bare.** A conductor having no covering or electrical insulation whatsoever.
- **Covered.** A conductor encased within material of composition or thickness that is not recognized as electrical insulation.
- **Insulated.** A conductor encased within material of composition and thickness that is recognized as electrical insulation.

**Controller** - A device or group of devices that serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected.

**Cutout** - (Over 600V, nominal.) An assembly of a fuse support with either a fuse holder, fuse carrier, or disconnecting blade. The fuse holder or fuse carrier may include a conducting element (fuse link) or may act as the disconnecting blade by the inclusion of a nonfusible member.

**Cutout Box** - An enclosure designed for surface mounting and having swinging doors or covers secured directly to and telescoping with the walls of the box proper. (See **'Cabinet'**)

**Dead Front** - Without live parts exposed to a person on the operating side of the equipment.

**Device** - A unit of an electrical system which is intended to carry but not utilize electric energy.

**Disconnecting Means** - A device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

**Disconnecting (or Isolating) Switch** - (Over 600V, nominal.) A mechanical switching device used for isolating a circuit or equipment from a source of power.

**Enclosed** - Surrounded by a case, housing, fence, or walls which will prevent persons from accidentally contacting energized parts.

**Enclosure** - The case or housing of apparatus, or the fence or walls surrounding an installation to prevent personnel from accidentally contacting energized parts, or to protect the equipment from physical damage.

**Equipment** - A general term including material, fittings, devices, appliances, fixtures, apparatus, and the like, used as a part of, or in connection with, an electrical installation.

**Equipment Grounding Conductor** - See **'Grounding conductor, equipment'**

**Explosion-Proof Apparatus** - Apparatus enclosed in a case that is capable of withstanding an explosion of a specified gas or vapor which may occur within it and of preventing the ignition of a specified gas or vapor surrounding the enclosure by sparks, flashes, or explosion of the gas or vapor within, and which operates at such an external temperature that it will not ignite a surrounding flammable atmosphere.

**Exposed** - (As applied to live parts.) Capable of being inadvertently touched or approached nearer than a safe distance by a person. It is applied to parts not suitably guarded, isolated, or insulated. (See **'Accessible'** and **'Concealed'**)

**Exposed** - (As applied to wiring methods.) On or attached to the surface or behind panels designed to allow access. [See **'Accessible'** (As applied to wiring methods.)]

**Exposed** - (For the purposes of § 1926.408(d), Communications systems.) Where the circuit is in such a position that in case of failure of supports or insulation, contact with another circuit may result.

**Externally Operable** - Capable of being operated without exposing the operator to contact with live parts.

**Feeder** - All circuit conductors between the service equipment, or the generator switchboard of an isolated plant, and the final branch-circuit overcurrent device.

**Festoon Lighting** - A string of outdoor lights suspended between two points more than 15 feet (4.57 m) apart.

**Fitting** - An accessory such as a locknut, bushing, or other part of a wiring system that is intended primarily to perform a mechanical rather than an electrical function.

**Fuse** - (Over 600V, nominal.) An overcurrent protective device with a circuit opening fusible part that is heated and severed by the passage of overcurrent through it. A fuse comprises all the parts that form a unit capable of performing the prescribed functions. It may or may not be the complete device necessary to connect it into an electrical circuit.

**Ground** - A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or to some conducting body that serves in place of the earth.

**Grounded** - Connected to earth or to some conducting body that serves in place of the earth.

**Grounded, Effectively** - (Over 600V, nominal.) Permanently connected to earth through a ground connection of sufficiently low impedance and having sufficient ampacity that ground fault current which may occur cannot build up to voltages dangerous to personnel.

**Grounded Conductor** - A system or circuit conductor that is intentionally grounded.

**Grounding Conductor** - A conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode or electrodes.

**Grounding Conductor, Equipment** - The conductor used to connect the noncurrent-carrying metal parts of equipment, raceways, and other enclosures to the system grounded conductor and/or the grounding electrode conductor at the service equipment or at the source of a separately derived system.

**Grounding Electrode Conductor** - The conductor used to connect the grounding electrode to the equipment grounding

conductor and/or to the grounded conductor of the circuit at the service equipment or at the source of a separately derived system.

**Ground-Fault Circuit Interrupter** - A device for the protection of personnel that functions to deenergize a circuit or portion thereof within an established period of time when a current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.

**Guarded** - Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, or platforms to remove the likelihood of approach to a point of danger or contact by persons or objects.

**Hoistway** - Any shaftway, hatchway, well hole, or other vertical opening or space in which an elevator or dumbwaiter is designed to operate.

**Identified (Conductors or Terminals)** - Identified, as used in reference to a conductor or its terminal, means that such conductor or terminal can be recognized as grounded.

**Identified (for the use)** - Recognized as suitable for the specific purpose, function, use, environment, application, etc. where described as a requirement in this standard. Suitability of equipment for a specific purpose, environment, or application is determined by a qualified testing laboratory where such identification includes labeling or listing.

**Interrupter Switch** - (Over 600V, nominal.) A switch capable of making, carrying, and interrupting specified currents.

**Intrinsically Safe Equipment and Associated Wiring** - Equipment and associated wiring in which any spark or thermal effect, produced either normally or in specified fault conditions, is incapable, under certain prescribed test conditions, of causing ignition of a mixture of flammable or combustible material in air in its most easily ignitable concentration.

**Isolated** - Not readily accessible to persons unless special means for access are used.

**Isolated Power System** - A system comprising an isolating transformer or its equivalent, a line isolation monitor, and its ungrounded circuit conductors.

**Labeled** - Equipment or materials to which has been attached a label, symbol or other identifying mark of a qualified testing laboratory which indicates compliance with appropriate standards or performance in a specified manner.

**Lighting Outlet** - An outlet intended for the direct connection of a lamp holder, a lighting fixture, or a pendant cord terminating in a lamp holder.

**Listed** - Equipment or materials included in a list published by a qualified testing laboratory whose listing states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

#### Location

- **Damp Location.** - Partially protected locations under canopies, marquees, roofed open porches, and like locations, and interior locations subject to moderate degrees of moisture, such as some basements.
- **Dry Location.** - A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction.
- **Wet Location.** - Installations underground or in concrete slabs or masonry in direct contact with the earth, and locations subject to saturation with water or other liquids, such as locations exposed to weather and unprotected.

**Motor Control Center** - An assembly of one or more enclosed sections having a common power bus and principally containing motor control units.

**Normal Operating Condition** - Equipment that is properly guarded, isolated, or insulated, is properly installed and maintained, and used in accordance with manufacturer instructions and requirements.

**Outlet** - A point on the wiring system at which current is taken to supply utilization equipment.

**Overcurrent** - Any current in excess of the rated current of equipment or the ampacity of a conductor. It may result from overload (see definition), short circuit, or ground fault. A current in excess of rating may be accommodated by certain equipment and conductors for a given set of conditions. Hence the rules for overcurrent protection are specific for particular situations.

**Overload** - Operation of equipment in excess of normal, full load rating, or of a conductor in excess of rated ampacity which, when it persists for a sufficient length of time, would cause damage or dangerous overheating. A fault, such as a short circuit or ground fault, is not an overload. (See 'Overcurrent')

**Panelboard** - A single panel or group of panel units designed for assembly in the form of a single panel; including buses, automatic overcurrent devices, and with or without switches for the control of light, heat, or power circuits; designed to be placed in a cabinet or cutout box placed in or against a wall or partition and accessible only from the front. (See 'Switchboard')

**Power Fuse** - (Over 600V, nominal.) See 'Fuse'

**Power Outlet** - An enclosed assembly which may include receptacles, circuit breakers, fuse holders, fused switches, buses, and watt-hour meter mounting means; intended to serve as a means for distributing power required to operate mobile or temporarily installed equipment.

**Premises Wiring System** - That interior and exterior wiring, including power, lighting, control, and signal circuit wiring together with all of its associated hardware, fittings, and wiring devices, both permanently and temporarily installed, which extends from the load end of the service drop, or load end of the service lateral conductors to the outlet(s). Such wiring does not include wiring internal to appliances, fixtures, motors, controllers, motor control centers, and similar equipment.

**Qualified Person** - One familiar with the construction and operation of the equipment and the hazards involved.

**Qualified Testing Laboratory** - A properly equipped and staffed testing laboratory which has capabilities for and which provides the following services:

- Experimental testing for safety of specified items of equipment and materials referred to in this standard to determine compliance with appropriate test standards or performance in a specified manner;
- Inspecting the run of such items of equipment and materials at factories for product evaluation to ensure compliance with the test standards;
- Service-value determinations through field inspections to monitor the proper use of labels on products and with authority for recall of the label

in the event a hazardous product is installed;

- (d) Employing a controlled procedure for identifying the listed and/or labeled equipment or materials tested; and
- (e) Rendering creditable reports or findings that are objective and without bias of the tests and test methods employed.

**Raceway** - A channel designed expressly for holding wires, cables, or busbars, with additional functions as permitted in this subpart. Raceways may be of metal or insulating material, and the term includes rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, liquid tight flexible metal conduit, flexible metallic tubing, flexible metal conduit, electrical metallic tubing, underfloor raceways, cellular concrete floor raceways, cellular metal floor raceways, surface raceways, wireways, and busways.

**Readily Accessible** - Capable of being reached quickly for operation, renewal, or inspections, without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chairs, etc. (See 'Accessible')

**Receptacle** - A receptacle is a contact device installed at the outlet for the connection of a single attachment plug. A single receptacle is a single contact device with no other contact device on the same yoke. A multiple receptacle is a single device containing two or more receptacles.

**Receptacle Outlet** - An outlet where one or more receptacles are installed.

**Remote-Control Circuit** - Any electric circuit that controls any other circuit through a relay or an equivalent device.

**Sealable Equipment** - Equipment enclosed in a case or cabinet that is provided with a means of sealing or locking so that live parts cannot be made accessible without opening the enclosure. The equipment may or may not be operable without opening the enclosure.

**Separately Derived System** - A premises wiring system whose power is derived from generator, transformer, or converter windings and has no direct electrical connection, including a solidly connected grounded circuit conductor, to supply conductors originating in another system.

**Service** - The conductors and equipment for delivering energy from the electricity

supply system to the wiring system of the premises served.

**Service Conductors** - The supply conductors that extend from the street main or from transformers to the service equipment of the premises supplied.

**Service Drop** - The overhead service conductors from the last pole or other aerial support to and including the splices, if any, connecting to the service-entrance conductors at the building or other structure.

**Service-Entrance Conductors, Overhead System** - The service conductors between the terminals of the service equipment and a point usually outside the building, clear of building walls, where joined by tap or splice to the service drop.

**Service-Entrance Conductors, Underground System** - The service conductors between the terminals of the service equipment and the point of connection to the service lateral. Where service equipment is located outside the building walls, there may be no service-entrance conductors, or they may be entirely outside the building.

**Service Equipment** - The necessary equipment, usually consisting of a circuit breaker or switch and fuses, and their accessories, located near the point of entrance of supply conductors to a building or other structure, or an otherwise defined area, and intended to constitute the main control and means of cutoff of the supply.

**Service Raceway** - The raceway that encloses the service-entrance conductors.

**Signaling Circuit** - Any electric circuit that energizes signaling equipment.

**Switchboard** - A large single panel, frame, or assembly of panels which have switches, buses, instruments, overcurrent, and other protective devices mounted on the face or back or both. Switchboards are generally accessible from the rear as well as from the front and are not intended to be installed in cabinets. (See 'Panel board')

#### Switches

- **General-Use Switch**. A switch intended for use in general distribution and branch circuits. It is rated in amperes, and it is capable of interrupting its rated current at its rated voltage.

- **General-Use Snap Switch**. A form of general-use switch so constructed that it can be installed in flush device boxes or on outlet box covers, or otherwise used in conjunction with wiring systems recognized by this subpart.

- **Isolating Switch**. A switch intended for isolating an electric circuit from the source of power. It has no interrupting rating, and it is intended to be operated only after the circuit has been opened by some other means.

- **Motor-Circuit Switch**. A switch, rated in horsepower, capable of interrupting the maximum operating overload current of a motor of the same horsepower rating as the switch at the rated voltage.

**Switching Devices** - (Over 600V, nominal.) Devices designed to close and/or open one or more electric circuits. Included in this category are circuit breakers, cutouts, disconnecting (or isolating) switches, disconnecting means, and interrupter switches.

**Utilization Equipment** - Utilization equipment means equipment which utilizes electric energy for mechanical, chemical, heating, lighting, or similar useful purpose.

**Utilization System** - A utilization system is a system which provides electric power and light for employee workplaces and includes the premises wiring system and utilization equipment.

**Ventilated** - Provided with a means to permit circulation of air sufficient to remove an excess of heat, fumes, or vapors.

**Voltage** - (Of a circuit.) The greatest root-mean-square (effective) difference of potential between any two conductors of the circuit concerned.

**Voltage, Nominal** - A nominal value assigned to a circuit or system for the purpose of conveniently designating its voltage class (as 120/240, 480Y/277, 600, etc.). The actual voltage at which a circuit operates can vary from the nominal within a range that permits satisfactory operation of equipment.

**Voltage to Ground** - For grounded circuits, the voltage between the given conductor and that point or conductor of the circuit that is grounded; for ungrounded circuits, the greatest voltage between the given conductor and any other conductor of the circuit.

**Watertight** - So constructed that moisture will not enter the enclosure.

**Weatherproof** - So constructed or protected that exposure to the weather will not interfere with successful operation. Rainproof, raintight, or watertight equipment can fulfill the requirements for weatherproof where varying weather conditions other than wetness, such as snow, ice, dust, or temperature extremes, are not a factor.

#### xxvii **Lockout/Tagout – Control of Hazardous Energy Program**

**Affected employee** - An employee whose job requires them to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires them to work in an area in which such servicing or maintenance is being performed.

**Authorized Employee** - A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

**Capable of being locked out** - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

**Energized** - Connected to an energy source or containing residual or stored energy.

**Energy isolating device** - A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are

not energy isolating devices.

**Energy source** - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

**Hot tap** - A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

**Lockout** - The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

**Lockout device** - A device that utilizes a positive means such as a lock to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

**Normal production operations** - The utilization of a machine or equipment to perform its intended production function.

**Other Employees** - Identified as those who do not fall into the authorized or affected employee's categories. These employees will be provided instruction in the purpose of the program and their responsibilities related to lockout/tagout.

**Qualified Person** - OSHA defines a qualified person as one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems relating to the subject matter, the work, or the project.

**Servicing and/or maintenance** - Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be

exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

**Setting up** - Any work performed to prepare a machine or equipment to perform its normal production operation.

**Tagout** - The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

**Tagout device** - A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

#### xxviii **Driver Safety Program**

**Commercial Driver's License** - A license issued by a state which authorizes an individual to operate a motor vehicle for commercial purposes.

**Commercial Vehicle** - A motor vehicle or combination of motor vehicles used in commerce to transport passengers or property if the motor vehicle:

- Has a gross combination weight rating or gross combination weight of 26,001 lbs. (11,794 kg) or more including towed units with a gross vehicle weight rating or gross vehicle weight of more than 10,001 lbs. (4,536 kg), whichever is greater; or
- Has a gross vehicle rating, gross combination weight rating, gross vehicle weight, or gross combination weight of 10,000 lbs. (4,536 kg) or more; or
- Is designed or used to transport more than eight (8) passengers for compensation, or more than fifteen (15) passengers without compensation; or
- Is of any size and is used in the transportation of hazardous materials.

**Fleet Vehicle** - Any motor vehicle owned or leased by a company for the purpose of normal company operations.

**Motor Vehicle** - A vehicle, machine, tractor, trailer, or semi-trailer propelled by mechanical power and is used on highways.

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**Personally Owned Vehicle** - Any motor vehicle used for business purposes not owned or leased by the business.

<sup>xxix</sup> **Roadway Traffic Control Safety Program**

**Activity Area** - The activity area is an area of roadway where the work takes place. It is composed of the work space and the traffic space, and may contain one or more buffer spaces.

**Advanced Warning Area** - In the advance warning area, drivers are informed of what to expect. The advance warning may vary from a single sign or flashing lights on a vehicle to a series of signs in advance of the temporary traffic control zone transition area.

**Buffer Space** - The buffer space is an optional feature in the activity area that separates traffic flow from the work activity or a potentially hazardous area and provides recovery space for an errant vehicle. Neither work activity nor storage of equipment, vehicles, or material should occur in this space. Buffer spaces may be positioned longitudinally and laterally, with respect to the direction of traffic flow.

**Manual on Uniform Traffic Control Devices (MUTCD)** - The Manual on Uniform Traffic Control Devices, or MUTCD defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public traffic. The MUTCD is published by the Federal Highway Administration (FHWA) under 23 Code of Federal Regulations (CFR), Part 655, Subpart F.

On December 16, 2009 a final rule adopting the 2009 Edition of the MUTCD was published in the Federal Register with an effective date of January 15, 2010. States must adopt the 2009 National MUTCD as their legal State standard for traffic control devices within two years from the effective date.

**Temporary Traffic Control Zone** -The temporary traffic control zone includes the entire section of roadway between the first advance warning sign through the last traffic control device, where traffic returns to its normal path and conditions. Most temporary traffic control zones can be divided into four areas: the advance warning area, the transition area, the activity area, and the termination area.

**Termination Area** - The termination area shall be used to return road users to their normal path.

The termination area shall extend from the downstream end of the work area to the last temporary traffic control device.

**Traffic Space** -The traffic space is the portion of the roadway in which traffic is routed through the activity area.

**Transition Area** - When redirection of the driver's normal path is required, traffic must be channelized from the normal path to a new path. This redirection is intended to occur at the beginning of the transition area. In mobile operations, this transition area moves with the work space. Transition areas usually involve strategic use of tapers.

**Work Space** - The work space is that portion of the roadway closed to traffic and set aside for workers, equipment, and material. Work space may be fixed or may move as work progresses. Long-term work spaces are usually delineated by channelizing devices or shielded by barriers to exclude traffic and pedestrians.