Safety & Health Manual

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

Last Revised: N/A or (Date of Last Revision)
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This manual has been reviewed and/or revised by FCA International on the following dates:

December 1, 2019

- Following programs updated: New Hire Orientation, OSHA Incident Reporting, OSHA Recordkeeping Policy, OSHA Inspection Plan, Fire Prevention Program, Permit-Required Confined Space Program (Updated PRCSE Procedure), Hearing Conservation Program, Hot Work Safety Program, Control of Hazardous Energy (LOTO) Program, Crane Program
- Following programs added: Medical/First-aid Program

October 18, 2017

- Full Revamp to the Manual to include format, structure.
- Respirable Crystalline Silica Exposure Program updated to meet OSHA’s new Silica Standard
- The following Programs were added: Disciplinary Policy, General Safety Rules, Post Offer Screening Policy, OSHA Recordkeeping Policy, Return to Work Policy, Sub-Contractor Policy, OSHA Inspection Plan, Job Hazard Analysis Plan, Hazard Assessment Plan, Fire Prevention Program, Roadway Traffic Control Safety Program, Back Injury Prevention Program, Powered Industrial Trucks, Lead Program, and Nuisance Dust.
- The Substance Abuse Policy was removed.
October 7, 2015

- Confined Space Entry Chapter Updated for new OSHA Standards
- Table of Contents and Formatting Updated

March 17, 2015

February 26, 2014

March 25, 2013
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.

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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

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

**Management** - It is the responsibility of «Q1» to train employees of any new policy or procedure implemented due to changes made to the Safety and Health Manual.

**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.

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

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</table>
Chapter 1  Roles and Responsibilities

1.1  Purpose, Scope & Policy

1.1.1  Purpose

This section lists the responsibilities of «Q1» 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 «Q1» 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

«Q1» 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 «Q1» 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 «Q1» 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.

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  Disciplinary Policy

2.1  Purpose, Scope and Policy

2.1.1  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.

2.1.2  Scope
This program outlines responsibilities for management and all employees.

2.1.3  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.

2.2  Roles & Responsibilities

2.2.1  Management
It is the supervisor’s responsibility to observe and monitor employee’s activities.

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

2.3  Definitions

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

2.4  Corrective Action

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

2.4.1  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.

2.4.2  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.

2.4.3  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.
2.4.4 Dismissal/ Termination of Employment

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

- «Q1» reserves the right to discipline any employee by initiating appropriate levels of reprimand up-to and including termination.

2.5 Training

2.5.1 Initial

Employees will receive initial training through new hire orientation.

2.5.2 Refresher

Any changes to original or current disciplinary policy.

2.6 Appendix

- Corrective Action Notice
Corrective Action Notice

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 3  General Safety Rules

3.1  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. «Q15» 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. Personal protective equipment must be available, inspected, and maintained in good condition.

3. Running, horseplay, throwing objects, and scuffling is not permitted.

4. Intoxicating substances are not permitted. Drinking of alcoholic beverages or the consumption or sale of illegal drugs is a direct violation of this policy and is grounds for immediate removal from the workplace.

5. Obey all warning signs and read all safety bulletins that are posted.

6. Learn the location of firefighting equipment, exits and first aid kits.

7. Store material, trucks, skids, racks, crates, boxes, ladders, and other equipment so as not to block exit doors, firefighting equipment, or power panels.

8. Keep floors clean and clean up spills. Keep your work area clean and orderly and maintain good housekeeping in all work areas at all times.

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 4  Safety Training Policy

4.1  Purpose, Scope and Policy

4.1.1  Purpose

«Q1» 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.

4.1.2  Scope

The safety training policy relates to all employees.

4.1.3  Policy

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

4.2  Roles & Responsibilities

4.2.1  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.

4.2.2  Supervisors

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

4.2.3  Employees

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

4.3  Definitions

Training - Skills, knowledge or experience transmitted to employees.

4.4  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.  

4.4.1 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.  

4.4.2 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.  

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

4.5 Appendix  
- Safety Meeting Sign in Sheet
## Safety Meeting Sign-In Sheet

**Agenda:**

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**Attendees:**

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**Facilitator:**
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, «Q1» 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
New Hire Orientation Training Checklist

Employee Name: __________________________ Date: ________________

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

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<td>4 Incident/Injury reporting policy – MUST Report the Same Day</td>
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<td>5 Workplace Violence &amp; Harassment Policy – Zero Tolerance</td>
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<td>6 Emergency Action Plan</td>
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<td>9 Job Hazard Analysis and Competent Person</td>
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<td>10 General Safety Rules*</td>
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<td>11 PPE Overview</td>
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<td>12 Eye and Face Protection</td>
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© 2019 FCA International
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: ______________________________
New Hire Orientation / Annual Safety Training Sign-in Sheet

«Q1»

Date: ________________________________

Location: ________________________________

Time: _______ AM/PM - _______ AM/PM

Trainer/ Facilitator: ________________________________

(name) ________________________________

(signature)

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<thead>
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Chapter 6  Post Offer Screening Policy

6.1  Purpose, Scope & Policy

6.1.1  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.

6.1.2  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.

6.1.3  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 «Q1» indicating pass/fail
- If pass, continue hiring process
- If fail, dismiss

6.2  Roles & Responsibilities

6.2.1  Employer Responsibilities

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

6.3  Appendix

- Informed Consent for Post Job Offer Screening
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 «Q1». A representative from «Q1» will contact me at the screening location to inform me of my employment status.

_____________________________________
Signature of Employee

_____________________________________
Signature of Employer Representative           Date
Chapter 7   Substance Abuse Policy

Insert Your Company’s Substance Abuse Policy Here
(and delete this box)
NOTE:

FCA International CANNOT develop, write, or create a substance abuse policy due to the legal nature of these programs. They 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 8  OSHA Incident Reporting

8.1  Purpose, Scope, and Policy

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

8.1.2  Scope
This policy relates to all employees of «Q1».

8.1.3  Policy
Investigations will be reviewed to ensure proper determinations are made and any necessary changes to «Q1» 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.

8.2  Roles & Responsibilities

8.2.1  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.

8.2.2  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.

8.3  Definitions
See Definitions Chapter at the end of the Safety and Health Manual.

8.4  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.

8.4.1  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.

8.5 OSHA Incident Reporting Requirements

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

8.5.1 Fatalities

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.

8.5.2 Inpatient Hospitalizations

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.

8.5.3 Amputations

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.

8.5.4 Losses of eye

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.

8.5.5 Options for reporting

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

- The OSHA electronic reporting option at www.OSHA.gov (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)

8.5.6 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

8.5.7 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
8.6 Training

8.6.1 Initial
New Hire Orientation and Supervisory Training

8.6.2 Refresher
As needed

8.7 Reference
OSHA Standard 29 CFR 1904.39

8.8 Appendix
  • Illinois Form 45 - Employer’s First Report of Injury
# ILLINOIS FORM 45: EMPLOYER’S FIRST REPORT OF INJURY

Please type or print.

<table>
<thead>
<tr>
<th>Employer’s FEIN</th>
<th>Date of report</th>
<th>Case or File #</th>
<th>Is this a lost workday case?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employer’s name</td>
<td>Doing business as</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Employer’s mailing address</td>
<td></td>
<td>Employer’s email address</td>
<td></td>
</tr>
<tr>
<td>Nature of business or service</td>
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<td>SIC code</td>
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<tr>
<td>Name of workers’ compensation carrier/admin.</td>
<td>Policy/Contract #</td>
<td>Self-insured?</td>
<td>Yes</td>
</tr>
<tr>
<td>Employee’s full name</td>
<td></td>
<td>Birthdate</td>
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<tr>
<td>Employee’s mailing address</td>
<td></td>
<td>Employee’s e-mail address</td>
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</tr>
<tr>
<td>Gender</td>
<td>Marital status</td>
<td># Dependents</td>
<td>Employee’s average weekly wage</td>
</tr>
<tr>
<td>Male</td>
<td>Female</td>
<td>Married</td>
<td>Single</td>
</tr>
<tr>
<td>Job title or occupation</td>
<td></td>
<td>Date hired</td>
<td></td>
</tr>
<tr>
<td>Time employee began work</td>
<td>Date and time of accident</td>
<td>Last day employee worked</td>
<td></td>
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<tr>
<td>If the employee died as a result of the accident, give the date of death.</td>
<td>Did the accident occur on the employer’s premises?</td>
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<td>Yes</td>
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<td>Address of accident</td>
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<tr>
<td>What was the employee doing when the accident occurred?</td>
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<td>How did the accident occur?</td>
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<td>What was the injury or illness? List the part of body affected and explain how it was affected.</td>
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<tr>
<td>What object or substance, if any, directly harmed the employee?</td>
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<td>Name and address of physician/health care professional</td>
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<td>If treatment was given away from the worksite, list the name and address of the place it was given.</td>
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<td>Was the employee treated in an emergency room?</td>
<td>Was the employee hospitalized overnight as an inpatient?</td>
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<td>Yes</td>
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<tr>
<td>Report prepared by</td>
<td>Signature</td>
<td>Title and telephone #</td>
<td>Email address</td>
</tr>
</tbody>
</table>

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. Filling 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 9  OSHA Recordkeeping Policy

9.1  Purpose, Scope, and Policy

9.1.1  Purpose

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

9.1.2  Scope

This policy relates to the recordkeeping requirements defined by OSHA.

9.1.3  Policy

«Q1» 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.

9.2  Roles & Responsibilities

9.2.1  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.

9.3  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.

9.4  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.

9.4.1  OSHA 300 Log Categories

9.4.1.1  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.

9.4.1.2 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.

9.4.1.2.1 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.
9.4.1.3 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).

9.4.1.4 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.

9.4.2 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 injuries and illnesses
- 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
- Create an annual summary using the OSHA 300A Summary of Work-Related Injuries and Illnesses form
- Post the OSHA 300A where the employees have access from February 1 through April 30.

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

9.5 Training

9.5.1 Initial

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

9.5.2 Refresher

As needed

9.6 Reference

OSHA Standard 29 CFR 1904
9.7 Appendix

- OSHA Recordkeeping Booklet
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 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 (OSHA) 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 (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 1904.55, 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(a)(2) for the exceptions. The workplace 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 1904.3(a)(1).

What 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 weakened 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 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 loss is 25 decibels (dB) 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.
- immediate medical treatment administered at the worksite for a work-related injury or illness.
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,
  BandAid® or gauze pads, etc., or using
  SteriStrip® 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);
- draining 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 a 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 reportable 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 involves 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 30 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, electrocut, 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 fall, 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, pneumoconiosis, 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 paraquat 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 (including flash, ultra-violet rays, lasers); anthrax, bloodborne pathogenic diseases, such as AIDS, HIV, hepatitis B or hepatitis C; brucellosis; malignant or benign tumors; histoplasmosis, esophageal cancer.

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 or
  ▼ call your local OSHA office.
Optional

Calculating Injury and Illness Incidence Rates

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 help identify problems in your workplace and/or progress you may have made in preventing worker-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 300A 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:

\[
\text{Total number of injuries and illnesses} \times \frac{100,000}{\text{Number of hours worked by all employees}} = \text{Total recordable case rate}
\]

(The 100,000 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:

\[
\text{Number of entries in column H + Number of entries in column I} \times \frac{100,000}{\text{Number of hours worked by all employees}} = \text{DART incidence rate}
\]

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/def or by calling a BLS Regional Office.

Worksheet

<table>
<thead>
<tr>
<th>Total number of injuries and illnesses</th>
<th>X</th>
<th>200,000</th>
<th>=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of hours worked by all employees</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 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.

---

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

Note: Because the forms in this recordkeeping package are "fillable" (writeable) 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.

---

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.

---

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

---

Revisit 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 editable form features, simply change your selections. You can also clear the entire case entry from the log using the Reset button.

---

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/writeable" 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.

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 professional.
- Work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.

**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.

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Employee's Name</th>
<th>Job Title (e.g., Worker)</th>
<th>Date of Injury or Illness (e.g., 4/19/09)</th>
<th>Where the event occurred (e.g., Loading dock north end)</th>
<th>Describe injury or illness, parts of body affected, and object/stance that directly injured or made person ill (e.g., Second-degree burn on right forearm from acetone torch)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Step 1. Identify the person**

**Step 2. Describe the case**

**Step 3. Classify the case**

**Step 4. Enter the number of days the injured or ill worker was:**

**Step 5. Select one column:**

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time to review the instructions, search existing data sources, 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 OSHA control number. If you have any comments about this estimate or any other aspect of this data collection, contact: U.S. Department of Labor, OSHA, Office of Statistical Analysis, Room N3045, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to the office.

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Add a Form Page

Page 1 of 1

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### Summary of Work-Related Injuries and Illnesses

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 causes, 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

<table>
<thead>
<tr>
<th></th>
<th>Total number of cases</th>
<th>Total number of cases with days away from work</th>
<th>Total number of cases with job transfer or restriction</th>
<th>Total number of other recordable cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total deaths</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Number of Days

<table>
<thead>
<tr>
<th></th>
<th>Total number of days away from work</th>
<th>Total number of days of job transfer or restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>(8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Injury and Illness Types

<table>
<thead>
<tr>
<th></th>
<th>Total number</th>
<th>Total number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of cases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Injuries</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(2) Skin disorders</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(3) Respiratory conditions</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(4) Poisonings</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(5) Hearing loss</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(6) All other illnesses</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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 15 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 aspect of this data collection, contact: U.S. Department of Labor, OSHA Office of Statistical Analysis, Room S-3404, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed form to this office.

---

**Establishment Information**

- **Your establishment name:**
- **Street:**
- **City:**
- **State:**
- **Zip:**
- **Industry description:**
  - Manufacturing of motor trucks
  - Manufacturing of motor vehicles
  - Manufacturing of industrial trucks and commercial trucks
  - Manufacturing of other transportation equipment
  - Manufacture of metal household goods
  - Manufacture of electrical and electronic equipment
  - Manufacture of machinery
  - Manufacturing of other machinery and equipment
  - Manufacturing of fabricated metal products
- **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**
  - Knowing falsely 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:

---

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Optional Worksheet to Help You Fill Out the Summary

All 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, injured, and hourly.

   The number of employees paid in all pay periods =

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 =

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

   The number rounded =

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

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

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

<table>
<thead>
<tr>
<th>Pay Period</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>15</td>
</tr>
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<td>5</td>
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<td>6</td>
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<td>7</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

Number of employees paid = 120
Number of pay periods = 36
$36 \times 120 = 31.92$

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.

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.

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.
# 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
- Call your State Plan office

## Federal Jurisdiction

| Region 1 - 617 / 565-9860
<table>
<thead>
<tr>
<th>Connecticut; Massachusetts; Maine; New Hampshire; Rhode Island</th>
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</table>
| Region 2 - 212 / 337-2378
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<thead>
<tr>
<th>New York; New Jersey</th>
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| Region 3 - 215 / 861-4980
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| Region 5 - 312 / 353-2220
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<th>Illinois; Ohio; Wisconsin</th>
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| Region 8 - 720 / 264-6550
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| Region 10 - 206 / 553-5930
| Idaho |

## State Plan States

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<td>*New Jersey</td>
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<td>360 / 902-5554</td>
</tr>
<tr>
<td>Wyoming</td>
<td>307 / 777-7786</td>
</tr>
</tbody>
</table>

*Public Sector only

Contact the OSHA complaint center: For further information, a complaint form, or to file a complaint, contact OSHA's State Plan coordinator or Federal office. Please contact us at 1-800-321-OSHA (6742) for the nearest OSHA office.
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

▼ Call your regional or state plan office. You’ll find the phone number listed on the previous page.
Chapter 10 OSHA Inspection Plan

10.1 Purpose, Scope, and Policy

10.1.1 Purpose

This section is designed to communicate a management plan outlining the steps «Q1» will take to manage imminent or pending inspections or inquiries from OSHA compliance officials.

10.1.2 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.

10.1.3 Policy

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

10.2 Roles & Responsibilities

10.2.1 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.

10.3 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.

10.4 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.

10.5 What Does the Inspection Process Involve?

### 10.5.1 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.
10.5.2 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.

10.5.3 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.

10.5.4 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.

10.6 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.

10.6.1 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.

10.6.2 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 $13,260 (As of January 23, 2019, 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 $13,260 (As of January 23, 2019, 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.

**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 $132,598 (As of January 23, 2019, 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.

**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 $132,598 (As of January 23, 2019, annually adjusted for inflation) for each such violation within the previous 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.

**Failure-to-Abate**—Failure to correct a prior violation may bring a civil penalty of up to $13,260 (As of January 23, 2019, 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.

### 10.7 Training

#### 10.7.1 Initial

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

#### 10.7.2 Refresher

As needed

### 10.8 Reference

OSHA 3000-04R 2018

### 10.9 Appendix

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

Any OSHA inspector or other governmental official must check in at the office. If the inspector arrives at another door or building, direct the inspector to the main office. **Always notify the highest-ranking management representative immediately upon their arrival to inspect or investigate.**

In the event of an inspection, the company’s site 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 regarding the agency’s arrival on site.
- Prior to meeting with the inspector, the management representative should contact the company’s attorney and use the following call list, in this order, to reach an Optimum Safety Management representative and continue to phone until a contact is made.

1. NAME, Lead Safety Professional (630) ###-####
2. NAME, Safety Professional (630) ###-#####

The management representative communicates to the inspector that the company’s safety representative is in route and is available by phone, if needed. The inspection will not proceed until the Optimum Safety Representative is on site.

Upon Optimum Safety Management’s arrival, an opening conference will be conducted. The compliance officer will explain the nature and purpose of the inspection & the scope. Copy down all pertinent information regarding the nature of the inspection.

- During the entire inspection, make certain that a company representative is with the officer. If the officer takes a photo, take one also. If they collect a sample of material, do so also.
- Take good notes of any conversation.
- Do not volunteer any information you are not asked, and do not offer any speculation or judgmental comments.
- 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.**
Management and Employee Interviews

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 11 Return to Work Policy

11.1 Purpose, Scope & Policy

11.1.1 Purpose

«Q1» 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.

11.1.2 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.

11.1.3 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.

11.2 Roles & Responsibilities

11.2.1 Employer Responsibilities

11.2.1.1 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.

11.2.1.2 Supervisor

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

11.2.2 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.

11.3 Definitions

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

11.4.1 Initial

New hire orientation

11.5 Appendix

- Transitional Duty Job Description
Transitional Duty Job Description

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 
Supervisor 
The Safety Coordinator 

Insert «Q1» Transitional Duty Job Descriptions Here for Future Reference
Chapter 12 Workplace Violence and Harassment Policy

12.1 Purpose, Scope & Policy

12.1.1 Purpose

«Q1» has established this policy to address any violence or harassment that may occur on the premises and to ensure the safety of our employees.

12.1.2 Scope

«Q1» will provide a safe environment for all personnel, including visitors, customers, and Sub-Contractors.

12.1.3 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 of violence by visitors against employees will not be tolerated and will be grounds for appropriate remedial action, including but not limited to criminal prosecution.

12.2 Roles & Responsibilities

12.2.1 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.

12.2.2 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.

12.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.

12.4 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.

12.5 Training

12.5.1 Initial

New hire orientation

12.5.2 Refresher

As needed
Chapter 13 Sub-Contractor Policy

13.1 Purpose, Scope & Policy

13.1.1 Purpose

«Q1» 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

«Q1» engages the services of sub-contractors and values its relationships with these essential service providers.

13.1.3 Policy

«Q1» 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 «Q1» 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 «Q1» 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 Vendor 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

«Q1» 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, «Q1» will not place itself in the role of evaluating the Sub-Contractors Safety Program for compliance with government or agency regulations. Neither will «Q1» monitor Sub-Contractor performance on the work site for compliance with its own manual.

13.5 Sub-Contractor Requirements

In order for a Sub-Contractor to be allowed to perform work for «Q1» the following requirements must be fulfilled.

- 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 «Q1» 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.

13.5.1 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 Training

13.7.1 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.

13.7.2 Refresher

As needed

13.8 Appendix

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

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.
   f. Long pants and shirts with a minimum 4" sleeve must be worn.
   g. No muscle shirts, tank tops, gym shoes or shorts will be allowed.

Specify the Minimum Required PPE (and delete this box)

2. Personal protective equipment must be available for use when needed, inspected, and maintained in good condition.
3. Running, horseplay, throwing objects, and scuffling is not permitted.
4. Intoxicating substances are not permitted. Drinking of alcoholic beverages or the consumption or sale of illegal drugs is a direct violation of this policy. It is grounds for immediate removal from the site.
5. Obey all warning signs and read all safety bulletins that are posted.
6. Learn the location of firefighting equipment, exits and first aid kits.
7. Store material, trucks, skids, racks, crates, boxes, ladders, and other equipment so as not to block exit doors, firefighting equipment, or power panels.
8. Keep floors clean and clean up spills. Keep your work area clean and orderly. Maintain good housekeeping in all work areas at all times.
9. Walking and working surfaces should be kept clear of objects such as materials, tools, cords, etc. in an effort 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 all 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

<table>
<thead>
<tr>
<th>Company Name:</th>
<th>Today's Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Address:</td>
<td>Telephone Number:</td>
</tr>
<tr>
<td>Mailing Address:</td>
<td>Fax Number:</td>
</tr>
<tr>
<td>Contact Person:</td>
<td>Website:</td>
</tr>
<tr>
<td>Telephone:</td>
<td>E-Mail:</td>
</tr>
<tr>
<td>President:</td>
<td>Years with company?</td>
</tr>
<tr>
<td>Vice President:</td>
<td>Years with company?</td>
</tr>
<tr>
<td>Secretary:</td>
<td>Years with company?</td>
</tr>
</tbody>
</table>

How many years has your organization been in business under your present firm name?

<table>
<thead>
<tr>
<th>Form of Business:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sole Owner</td>
<td>Partnership</td>
<td>Corporation (State Incorporated):</td>
</tr>
<tr>
<td>State License #:</td>
<td>Tax ID#:</td>
<td>Dun's#:</td>
</tr>
</tbody>
</table>

Under Current Manager Since (Date):  
SIC/NAICS Code(s):  
Specialty Trade(s) Performed:  
Parent Company Name:  
City:  
State:  
Zip:  
Subsidiaries:

## SAFETY

<table>
<thead>
<tr>
<th>Does your Company have a written Safety &amp; Health Program:</th>
<th>□ Yes □ No</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(If yes, please attach a copy of the Table of Contents.)</em></td>
<td></td>
</tr>
</tbody>
</table>

Who is responsible for coordinating your Company's Safety Program:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Title:</th>
<th>Telephone:</th>
</tr>
</thead>
</table>

Describe your safety training for your employees:

- Employee Orientation Training  
  □ Yes □ No  
  Frequency:  
  By Whom:  

- Supervisors, Managers  
  □ Yes □ No  
  Frequency:  
  By Whom:  

- Jobsite “ToolBox Meetings”  
  □ Yes □ No  
  Frequency:  
  By Whom:  

<table>
<thead>
<tr>
<th>Does your Company have a Site Specific Safety Program:</th>
<th>□ Yes □ No</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(If yes, please attach an example copy.)</em></td>
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</tbody>
</table>

Does your Company perform Jobsite Inspections?  
*(If yes, please attach an example.)*

<table>
<thead>
<tr>
<th>□ Yes □ No</th>
<th>Frequency:</th>
<th>By Whom:</th>
</tr>
</thead>
</table>

If your Company does not perform Jobsite Inspections, why?

Does you use an outside agency for Site Inspections?  
*(If yes, please attach an example.)*

<table>
<thead>
<tr>
<th>□ Yes □ No</th>
<th>Frequency:</th>
<th>By Whom:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance Carrier(s): (Please attach a copy of current insurance certificate)</td>
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<td>----------------------------------</td>
</tr>
<tr>
<td>Name</td>
<td>Type of Coverage</td>
<td>Insurance Broker’s Contact &amp; Telephone</td>
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</tbody>
</table>

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.)

<table>
<thead>
<tr>
<th>INDUSTRY MEMBERSHIP AFFILIATIONS</th>
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</thead>
</table>

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 1E 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 ensure 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 provided.

Sub-Contractor: ________________________________ Date: __________

Project Manager

Name: ________________________________ Signature: __________________

Foreman/Crew Leader

Name: ________________________________ Signature: __________________
Sub-Contractor Safety Violation Notice Form

<table>
<thead>
<tr>
<th>Rule #</th>
<th>Description of Violation</th>
<th>Corrective Action:</th>
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<tbody>
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</table>

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 above. Please correct these violations immediately and return this notice to our office for our records.
Chapter 14 Job Hazard Analysis Plan

14.1 Purpose, Scope & Policy

14.1.1 Purpose

«Q1» understands that its efforts to provide for a safe and healthful workplace must begin in the early stages of planning its work.

14.1.2 Scope

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

14.1.3 Policy

In an effort to achieve its objectives, «Q1» 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, «Q1» will utilize a formal Job Hazard Analysis.

14.2 Roles & Responsibilities

14.2.1 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.

14.2.2 Employee Responsibilities

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

14.3 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.

14.4 Hierarchy of Controls

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

14.4.1 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.

14.4.2 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

14.4.3 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

14.4.4 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.

14.5 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.

14.5.1 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.

14.5.2 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.

14.6 Appendix

• Job Hazard Analysis
### Job Hazard Analysis

<table>
<thead>
<tr>
<th>#</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**Specify the Inspection Interval Here**

(and delete this box)

---

*Preparer: Remember to thoroughly evaluate the task for the workers' exposure to hazards.*
Chapter 15 Hazard Assessment Plan

15.1 Purpose, Scope & Policy

15.1.1 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.

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

15.1.3 Policy
«Q1» 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.

15.2 Roles & Responsibilities

15.2.1 Employer Responsibilities

15.2.1.1 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.

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

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

15.3 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.

15.4 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.

15.5 Training

15.5.1 Initial

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

15.5.2 Refresher

As needed

15.6 Appendix

- Appendix A Safety Inspection Checklist
<table>
<thead>
<tr>
<th>Job Site Address</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Date Corrected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superintendent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date / Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspector(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Check Items Inspected

<table>
<thead>
<tr>
<th>Job Site - General</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Date Corrected</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

### Safety Inspection Checklist

- **First aid, posters, emergency numbers, etc.**
  - [ ]
  - [ ]
  - [ ]

- **Housekeeping and Sanitation**
  - Yes | No | N/A | Date Corrected |
  - Clean, disposal, lighting, toilets clean, water, etc.
  - [ ]
  - [ ]
  - [ ]

- **Construction Area - Secured Access/After Hours**
  - Yes | No | N/A | Date Corrected |
  - Signs, perimeter, ditches & equip. secured, etc.
  - [ ]
  - [ ]
  - [ ]

- **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.
  - [ ]
  - [ ]
  - [ ]

- **Hazard Communication**
  - Yes | No | N/A | Date Corrected |
  - SDS available, properly stored/labeled, etc.
  - [ ]
  - [ ]
  - [ ]

- **Electrical**
  - Yes | No | N/A | Date Corrected |
  - GFCI’s, properly covered, warning signs, etc.
  - [ ]
  - [ ]
  - [ ]

- **Personal Protective Equipment (PPE)**
  - Yes | No | N/A | Date Corrected |
  - Appropriate eye, face, hand, hearing, head, foot, respiratory protective equipment in use, etc.
  - [ ]
  - [ ]
  - [ ]

- **Hand & Power Tools**
  - Yes | No | N/A | Date Corrected |
  - Proper tool, good condition, guards in place, etc.
  - [ ]
  - [ ]
  - [ ]

- **Scaffolds**
  - Yes | No | N/A | Date Corrected |
  - Condition good, guard rails, on stable footing, base plates in place, trip hazards, falling object protection, etc.
  - [ ]
  - [ ]
  - [ ]

- **Ladders**
  - Yes | No | N/A | Date Corrected |
  - Good condition, secured, 36” above landing, etc.
  - [ ]
  - [ ]
  - [ ]

- **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.
  - [ ]
  - [ ]
  - [ ]

**Comments:**
<table>
<thead>
<tr>
<th>Safety Inspection Checklist Continued</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Date Corrected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoists, Cranes, and Derricks</td>
<td></td>
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<tr>
<td>Inspected daily &amp; annually, outriggers extended, swing radius barricaded, 10’ min. clearance to power lines, etc.</td>
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<tr>
<td>Comments:</td>
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</tr>
<tr>
<td>Heavy Equipment</td>
<td></td>
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<tr>
<td>Regular inspection, seatbelts used if ROPS, backup alarms, no riders, lights &amp; warning signals working, etc.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
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</tr>
<tr>
<td>Fall Protection</td>
<td></td>
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<tr>
<td>Floor openings covered/guarded, guard rails adequate height and strength, toe boards as needed, wall openings, etc.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Comments:</td>
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</tr>
<tr>
<td>Handling and Storage of Materials</td>
<td></td>
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<tr>
<td>Proper storage for stability/loading, lifting techniques, rigging, clear passageways, sufficient employees, etc.</td>
<td>☐</td>
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<tr>
<td>Comments:</td>
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<tr>
<td>Demolition</td>
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<tr>
<td>Pre-planned, utilities off, HazMat, chutes &gt; 20’, etc.</td>
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<tr>
<td>Comments:</td>
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<tr>
<td>Steel Erection</td>
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<tr>
<td>PPE worn, taglines, fire hazards protected, floor openings, rigging/crane checked and used correctly, fall protection, etc.</td>
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<td>Comments:</td>
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<tr>
<td>Welding and Cutting</td>
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<td>Flash shielded, Oxy/Fuel separated, caps, PPE, fire extinguishers, valves closed, flash back arrestors, hoses/cables, etc.</td>
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<td>Forms braced, PPE, rebar caps, nails removed, etc.</td>
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<td>Work in Roadways and Traffic Zones</td>
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<tr>
<td>Proper TTC setup, hard hats and vests worn, adequate work area for crew, workers alert and aware.</td>
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<td>Masonry</td>
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<td>Proper scaffold, saws guarded, dust control, safe hoisting, limited access zone &amp; wall bracing, etc.</td>
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Chapter 16 Emergency Action Program

16.1 Purpose, Scope & Policy

16.1.1 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.

16.1.2 Scope

The program will prepare employees for dealing with emergency situation. This program applies to all emergencies that «Q1» may reasonably expect to occur.

16.1.3 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.

16.2 Roles & Responsibilities

16.2.1 Employer Responsibilities

«Q1» 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.

16.2.2 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.

16.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.

16.4 Hazards

Employees need to know how to respond in different situations.

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

16.5 Hazard Control Measures

16.5.1 Emergency Escape Procedures

16.5.1.1 Emergency Muster Location

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

Recognize the specific alarm for the emergency. 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 return into 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.

16.5.3 Evacuation

As there are no processes which would require continued operation during an emergency, all employees are expected to leave the job site immediately when an evacuation order is announced. No provisions are made for employees who remain within the job site to perform rescue, medical or firefighting duties.

16.5.4 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.

16.5.5 Rescue and Medical Duties for Employees

Employees are not expected to perform any rescue or medical duties. Therefore, there are no provisions for training employees in these tasks. Municipal emergency medical and fire personnel are used for emergency medical treatment. Emergency phone numbers are posted in the Emergency Action Plan for the job site. At no time should an employee be directed to perform emergency duties which may endanger his/her life.

16.5.6 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.

16.5.7 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.

16.5.8 Specific Emergency Procedures

16.5.8.1 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
16.5.8.2 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.

16.5.8.3 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.

16.5.8.4 Weather

16.5.8.4.1 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.

16.5.8.5 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.

16.5.8.6 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.

16.5.9 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:
- 1x Absorbent Compress, 32 sq. in. (206 sq. cm), with no side smaller than 4 in.
- 16x Adhesive Bandages, 1 x 3 in. (2.5 x 7.5 cm)
- 1x Adhesive Tape, 3/8 in. x 5 yd. (457.2 cm) total
- 10x Antiseptic, 0.14 fl. oz. (0.5 g) application
- 6x Burn Treatment, 1/32 oz. (0.9 g) application
- 2 pair - Medical Exam Gloves 5.1.1.6 2 pair
- 4x Sterile pad, 3 x 3 in. (7.5 x 7.5 cm)
- 1x Triangular Bandage, 40 x 40 x 56 in. (101 x 101 x 142 cm)

- 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.

16.5.10 Emergency Contact Poster

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.

16.6 Training

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

16.6.1 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.

16.6.2 Refresher

A review of the emergency plans must be completed when the plan is first developed, whenever the employee's responsibilities or designated actions under the plan change, and whenever the plan is revised.

16.7 Reference

OSHA Standard 29 CFR 1910.38

16.8 Appendix

- Emergency Contact Poster
COMPANYNAME

Emergency Contact Poster

Job #: ______________________    Job Name: ______________________________

Job Address: ________________________________________________________________

(Be Accurate and complete - for emergency use)

Emergency Phone Numbers

Fire Department: ______________________________________________________________

Paramedics: _________________________________________________________________

Police: ________________________________________________________________________

Security (If applicable): ______________________________________________________

Building Manager (If applicable): _____________________________________________

Superintendent Name: _______________________________________________________

Mobile Phone: ______________________________________________________________

Attach map of job location and emergency route to nearest hospital.
Chapter 17 Fire Prevention Program

17.1 Purpose, Scope, and Policy

17.1.1 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.

17.1.2 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.

17.1.3 Policy

«Q1» 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.

17.2 Roles & Responsibilities

17.2.1 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)

17.2.1.1 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.

17.2.2 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.

17.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.
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

17.5 Hazard Control Measures

17.5.1 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.

17.5.2 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.

17.5.2.1 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.

### 17.5.2.2 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 gases and oxygen must be separated by a distance of 20’ or a ½ hour rated fire wall at least 5’ high.
- No more than 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 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.)

### 17.5.2.3 Flammable Liquid Fuels
17.5.3 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.

17.5.4 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.

17.5.5 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.

17.5.6 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.

17.5.7 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.

17.5.8 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.

### 17.5.8.1 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.

### 17.5.8.2 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 CO₂ extinguishers are examples of Class 'B' fire extinguishers.

### 17.5.8.3 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 CO₂ 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 CO₂ 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.

### 17.5.8.4 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.

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<tr>
<th>WATER TYPE FOAM</th>
<th>CO₂</th>
<th>DRY CHEMICAL</th>
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</thead>
<tbody>
<tr>
<td>Stored Pressure</td>
<td>Water Pump Tank</td>
<td>Stored Pressure</td>
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</table>

17.5.8.5 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.

17.5.8.6 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).

17.5.8.6.1 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.

17.5.8.6.2 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.

17.5.9 Fire Protection in Construction

17.5.9.1 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.

17.5.9.2 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.

17.5.9.3 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.

17.5.9.3.1 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.
17.5.9.4 Fixed Fire Protection Systems

17.5.9.4.1 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.

17.5.9.4.2 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.

17.5.9.4.3 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.

17.5.9.4.4 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.

17.5.9.5 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.

17.5.9.6 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.

17.5.9.7 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.

17.5.9.8 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.

17.6 Training

Each employee will be trained on the procedures and policies of the fire prevention plan.

17.6.1 Initial

Initial training will be done through new hire orientation.

17.6.2 Refresher

Employees will receive training annually or when work processes change.

17.7 Reference

OSHA Standard 29 CFR 1910.39
OSHA Standard 29 CFR 1926.150-152
Chapter 18 Medical/ First-Aid Program

18.1 Purpose, Scope, and Policy

18.1.1 Purpose

The purpose of this program is to ensure readily available first-aid kits to all employees.

18.1.2 Scope

This program outlines responsibilities for management and all employees.

18.1.3 Policy

«Q1» 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.

18.2 Roles & Responsibilities

18.2.1 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.

18.2.2 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.

18.3 Definitions

First-Aid - The provision of initial care for an illness or injury.

18.4 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.

18.4.1 Blood Borne Pathogens

Please refer to the Blood Borne Pathogen Chapter

18.5 Hazard Control Measures

First-aid kits are provided, stocked and readily available to all employees. First-aid kits are located in/at «Q20».

18.5.1 First-aid kits

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 at a minimum:

ANSI Class A First-aid kit (small workplace, common workplace injuries such as minor cuts, abrasions, and sprains)
• 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

ANSI Class B First-aid kit (larger workplace, more serious injuries related to a more complex or high-risk environment)

- 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

To ensure first-aid kits are ready for use in the event of an emergency they should be inspected at least monthly

18.5.2 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 4 minutes of the work site. All staff trained as First Aid / CPR responder are trained by an accredited organization.

18.5.3 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.

18.5.4 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.
18.5.5 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.

18.6 Training

18.6.1 Initial

If personnel are assigned as a First Aid / CPR responder they will be trained by an accredited organization (National Safety Council, American Red Cross, American Heart Association) prior to this assignment.

18.6.2 Refresher

Refresher training will be conducted per the training organizations (National Safety Council, American Red Cross, American Heart Association) required recertification schedule.

18.7 Reference

OSHA Standard 29 CFR 1910.151

18.8 Appendix

- Emergency Contact Poster
- Emergency Evacuation Route Map
- First-aid Kit Inventory Checklist - Class A
- First-aid Kit Inventory Checklist - Class B
### Emergency Contact Poster

**Facility:**

**Address:**  
(Le accurate and complete for emergency use)

### Emergency Phone Numbers

<table>
<thead>
<tr>
<th>Phone Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Department</td>
<td></td>
</tr>
<tr>
<td>Paramedics</td>
<td></td>
</tr>
<tr>
<td>Police</td>
<td></td>
</tr>
<tr>
<td>Security: (if applicable)</td>
<td></td>
</tr>
<tr>
<td>Building Manager: (If applicable)</td>
<td></td>
</tr>
<tr>
<td>«Q1» Superintendent</td>
<td></td>
</tr>
</tbody>
</table>

Name:  
Mobile Phone:

Attach map of facility location and emergency route to nearest hospital.
Emergency Evacuation Route Map

INSERT EMERGENCY EVACUATION ROUTE MAP(s) HERE
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

<table>
<thead>
<tr>
<th>Date</th>
<th>Inventory</th>
<th>Contents</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 -</td>
<td>Adhesive Bandages, 1&quot; x 3&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 -</td>
<td>Sterile Pad, 3&quot; x 3&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 -</td>
<td>Trauma Pad, 5&quot; x 9&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -</td>
<td>Roller Bandage, 2&quot; x 4 yds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -</td>
<td>Adhesive Tape 2.5 yd</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -</td>
<td>Breathing Barrier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -</td>
<td>Cold Pack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -</td>
<td>Eye Wash, 1 oz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 -</td>
<td>Eye Covering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 -</td>
<td>Pair Exam Gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -</td>
<td>Scissors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -</td>
<td>Triangular Bandage, 40&quot; x 40&quot; x 56&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 -</td>
<td>Hand Sanitizer, 0.9g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 -</td>
<td>Burn Treatment, 1/32 oz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -</td>
<td>Burn Dressing, gel soaked, 4&quot; x 4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 -</td>
<td>Antiseptic Applications, 1/57 oz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 -</td>
<td>Antibiotic Treatment Application, 1/57 oz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -</td>
<td>First-aid Guide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

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
Chapter 19 Bloodborne Pathogens

19.1 Purpose, Scope & Policy

19.1.1 Purpose

«Q1» 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.

19.1.2 Scope

This program outlines responsibilities for management and all employees.

19.1.2.1 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.

19.2 Roles & Responsibilities

19.2.1 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.

19.2.2 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.

19.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.

19.4 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.

0.0 Hazard Control Measures – Exposure Control Plan

19.4.1 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 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.

19.4.2 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. 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-handed 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.

19.4.3 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

19.4.4 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.
19.4.5 **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.

19.4.6 **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).
19.4.7 Recordkeeping

- Medical Records 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.
- Training Records Training records are to contain all information specified in 29 CFR 1910.1030(h) (2) and will be maintained for 3 years from the date on which the training occurred.
- Transfer of Records the company 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.

19.4.8 Investigation of Exposure Incidents

All exposure incidents shall be investigated, and proper accident/incident investigation procedures shall be followed.

19.5 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.

19.5.1 Initial

Initial training will be provided to any employee who has occupational exposure to bloodborne pathogens prior his or her initial assignment

19.5.2 Refresher

All employees in affected jobs will refresher training annually or when changes are made such as modifications of tasks or procedures.

19.6 Reference

OSHA Standard 29 CFR 1910.1030

19.7 Appendix

- Declination Statement
- Written Opinion
- Instructions for the Evaluating Physician
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____________
Written Opinion

To the Evaluating Physician:

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 (B) if vaccine was received.

(All other findings are to remain confidential and are not to be included on this page)

Please return this sheet to this employee, ____________________________.

Thank you for your evaluation of this employee.

Physician’s Signature: ____________________________________________

Physician’s Name (Printed): ______________________________________

Date: __________________________________________________________
Instructions for the Evaluating Physician

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 20 Permit Required Confined Space Program

20.1 Purpose, Scope, and Policy

20.1.1 Purpose

The purpose of this program is to inform employees, as well as others who might be affected, that «Q1» is complying with the OSHA Permit-Required Confined Space Standard, Title 29 Code of Federal Regulations 1926 Subpart AA.

20.1.2 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.

20.1.3 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 «Q1» where employees must enter a permit-required confined space as part of their job duties.

20.2 Roles & Responsibilities

20.2.1 Employer Responsibilities

«Q1» 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.

20.2.2 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.

20.2.3 Permit-Required Confined Space Entry Roles

20.2.3.1 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
20.2.3.2 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

20.2.3.3 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:
  o testing and monitoring equipment
  o ventilating equipment needed to obtain acceptable entry conditions
  o communications equipment
  o personal protective equipment when engineering or administrative controls do not adequately protect employees
  o 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
  o barriers and shields as required
  o equipment, such as ladders, needed for safe ingress and egress by authorized entrants
  o rescue and emergency equipment needed, except to the extent that the equipment is provided by rescue services
  o 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:
  o perform pre-entry testing to the extent feasible before entry is authorized
  o if entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working
  o 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
  o 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
  o 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
  o 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
  o attendants may be assigned to more than one permit space provided the duties can be effectively performed for each permit space
  o 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.

20.2.3.4 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 roles & 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.

20.2.3.5 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.

20.2.3.6 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.
20.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. vi

20.4 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

20.5 Hazard Control Measures

20.5.1 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.

20.5.2 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.
20.5.3 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.

20.5.4 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.

20.5.5 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.

20.5.6 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.

20.5.7 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.

20.5.8 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.

20.5.9 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)

20.5.10 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.

20.5.11 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.

20.5.12 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.
20.5.13 **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.

20.5.14 **Rescue and Emergency Services**

20.5.14.1 **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.

20.5.14.2 **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 made available to the medical facility treating the injured employee.

20.5.14.3 Designated Employee Confined Space Rescue Requirements

The company utilizes its own employees to perform rescue services in the event of a permit space emergency. Only employees designated by management can enter a permit space during an emergency to provide rescue and/or emergency services. The following measures, all equipment and training will be provided to these designated employees at no cost to them. Management will:

- provide each affected employee with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train each affected employee so the employee is proficient in the use of that PPE;
- train each affected employee to perform assigned rescue duties;
- ensure that employees successfully complete the training required and establish proficiency as authorized entrants.

- train each affected employee in basic first-aid and cardiopulmonary resuscitation (CPR). The employer must ensure that at least one member of the rescue team or service holding a current certification in basic first-aid and CPR is available; and
- ensure that affected employees practice making permit space rescues before attempting an actual rescue, and at least once every 12 months, by means of simulated rescue operations in which they remove dummies, mannequins, or actual persons from the actual permit spaces or from representative permit spaces, except practice rescue is not required where the affected employees properly performed a rescue operation during the last 12 months in the same permit space the authorized entrant will enter, or in a similar permit space. Representative permit spaces must, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.
20.5.15 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.

20.5.16 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.

20.5.17 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.

20.6 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.

20.6.1 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

20.6.1.1 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:
  o The entrant notices a warning sign or symptom of exposure to a dangerous situation.
  o A prohibited condition is detected.
• Exit procedures which include the need to exit the permit space as quickly as possible whenever:
  o An order to evacuate is given by the attendant or the Entry Supervisor
  o The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
  o A prohibited condition is recognized.
  o An evacuation alarm is activated.

20.6.1.2 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:
  o They are relieved by a second Attendant and
  o 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:
  o A prohibited condition is detected by the Attendant.
  o The Attendant detects the behavioral effects of hazard exposure in an Authorized Entrant.
  o The Attendant detects a situation outside the space that could endanger the Authorized Entrants.
  o 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:
  o Warn the unauthorized persons that they must stay away from the permit space.
  o Advise the unauthorized persons they must exit immediately if they have entered the permit space.
  o 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.
20.6.1.3 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.

20.6.2 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.

20.7 Reference

OSHA Standard 29 CFR 1926 AA

20.8 Appendix

- Confined Space Assessment Flowchart
- Confined Space Hazard Assessment
- Confined Space Entry Procedure
- Confined Space Entry Log
- Air Monitoring Log
Confined Space Assessment Flowchart

**Does the workplace contain Confined Spaces as defined by §1910.146(b)?**

- **YES**
  - **Will permit spaces be entered?**
    - **YES**
      - Inform employees as required by §1910.146(c)(2).
    - **NO**
      - Prevent employee entry as required by §1910.146(c)(3). Do task from outside space.
  - **NO**

- **NO**
  - Consult other applicable OSHA standards.

**Does the workplace contain Permit-Required Confined Spaces as defined by §1910.146(b)?**

- **YES**
  - Inform employees as required by §1910.146(c)(2).
  - Prevent employee entry as required by §1910.146(c)(3). Do task from outside space.
  - Task will be done by contractor's employees. Inform contractor as required by §1910.148(c)(1), (ii), and (iii). Contractor obtains information as required by §1910.146(c)(9), (ii), and (iii) from host.
  - Will contractors enter?
    - **YES**
      - Both contractors and host employees will enter space?
        - **YES**
          - Coordinate entry operation as required by §1910.146(c)(8)(iv) and (d)(10). Prevent unauthorized entry.
        - **NO**
          - Prevent unauthorized entry.
          - STOP
    - **NO**
      - Will host employees enter to perform entry tasks?
        - **YES**
          - Coordinate entry operation as required by §1910.146(c)(8)(iv) and (d)(10). Prevent unauthorized entry.
          - STOP
        - **NO**
          - Prevent unauthorized entry.

- **NO**
  - Does space have known or potential hazards?
    - **YES**
      - Can the hazards be eliminated?
        - **YES**
          - Space may be entered under §1910.146(c)(5).
        - **NO**
          - Prepare for entry via permit procedures.

  - **NO**
    - Employer may choose to reclassify space to non-permit required confined space using §1910.146(c)(7).

**Does space have known or potential hazards?**

- **YES**
  - Can the hazards be eliminated?
    - **YES**
      - Prepare for entry via permit procedures.
    - **NO**
      - Space may be entered under §1910.146(c)(5).

  - **NO**
    - Not a permit required confined space. §1910.146 does not apply. Consult other OSHA standards.

**Can the hazards be eliminated?**

- **YES**
  - Can the space be maintained in a condition safe to enter by continuous forced air ventilation only?
    - **YES**
      - Prepare for entry via permit procedures.
    - **NO**
      - Verify acceptable entry conditions (test results recorded, space isolated if needed, rescuers/means to summon available, entrants properly equipped, etc.)

  - **NO**
    - Permit not valid until conditions meet permit specifications.

**Can the space be maintained in a condition safe to enter by continuous forced air ventilation only?**

- **YES**
  - Permit issued by authorizing signature? Acceptable entry conditions maintained throughout entry?
    - **YES**
      - Entry tasks completed. Permit returned and canceled.
    - **NO**
      - Audit permit program and permit based on evaluation of entry by entrants, attendants, testers, and preparers, etc.

  - **NO**
    - Emergency exists (prohibited condition). Entrants evacuate, entry aborts. Call rescuers if needed. Permit is void. Reevaluate program to correct/prevent prohibited condition. Occurrence of emergency (usually) is proof of deficient program. New entry until program (and permit) is amended. (May require new program.)

**Prepare for entry via permit procedures.**

**Verify acceptable entry conditions (test results recorded, space isolated if needed, rescuers/means to summon available, entrants properly equipped, etc.).**

**Permit issued by authorizing signature? Acceptable entry conditions maintained throughout entry?**

**Entry tasks completed. Permit returned and canceled.**

**Audit permit program and permit based on evaluation of entry by entrants, attendants, testers, and preparers, etc.**

CONTINUE
## 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: |
| ☐ Below Grade | ☐ Above Grade | ☐ At Grade |

| 2) Describe any chemicals or hazardous materials used in the space: |
| 4) Means of Access into Space |
| ☐ Portable Ladder | ☐ Fixed Ladder | ☐ Stairs |
| ☐ Mechanical Means | ☐ Horizontal | ☐ Vertical |

### B. Confined Space Determination

<table>
<thead>
<tr>
<th>ASSESSMENT</th>
<th>YES</th>
<th>NO</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is there a limited means of access/egress?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>2. Is the space <strong>NOT</strong> intended for continuous human occupancy?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>3. Is the space large enough for a worker to enter?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does the space have the potential for a hazardous atmosphere?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

If a hazardous atmosphere was detected, please mark the hazard(s) below:

- ☐ Oxygen enrichment
- ☐ Oxygen Deficient
- ☐ Explosive Gas/Vapor
- ☐ Explosive Dust
- ☐ Chlorine
- ☐ Hydrogen Sulfide
- ☐ Carbon Monoxide
- Other: ____________________________________________

| 2. Will ventilation be required to enter the space? | ☐ | ☐ |

Ventilation System: (check all that apply) ☐ None ☐ Natural ☐ Forced Positive ☐ Forced Negative
C. Permit-required Confined Space Determination

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Does the space have the potential to engulf the entrant?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Please mark the engulfment hazard: Water</td>
<td>☐</td>
<td>Sand</td>
</tr>
<tr>
<td>4. Does the space have the potential of entrapping the entrant?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. Is there a potential for any other serious safety and/or health hazard?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

If ‘YES’, please indicate below:
☐ Electrical ☐ Moving Parts ☐ Noise ☐ Heat ☐ Cold
☐ Slips, Trips, and Falls ☐ Vertical Entry (> 5’) ☐ Skin or Eye Irritants ☐ Chemicals
☐ Other: ____________________________

If the answer to ANY 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 3, 4, or 5 of Section C is ‘YES’, the Alternate Entry Procedure CANNOT be used, and the space must be classified as a Permit-required Confined Space.

If only questions 1 and 2 of Section C can be answered ‘YES’, the space may be reclassified as an Alternate Entry Confined Space IF the following two criteria are met:

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is the only hazard an actual or potential hazardous atmosphere?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. If ‘YES’, will ventilation alone maintain safe conditions?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

If the answer to both questions 1 and 2 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

☐ Non-permit-required Confined Space
☐ Permit-required Confined Space ☐ Alternate Entry Procedures Permitted

EVALUATOR

Name: ____________________________ Title: ____________________________

Signature: ____________________________ Date: ____________________________
## Confined Space Entry Procedure

<table>
<thead>
<tr>
<th>Procedure No</th>
<th>Original Date</th>
<th>Developed By</th>
<th>Revision</th>
<th>Space Number</th>
</tr>
</thead>
</table>

### 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

<table>
<thead>
<tr>
<th>Assigned Position</th>
<th>Print Name</th>
<th>Training Verified (Entry Supervisor Signature)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry Supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competent Person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendant</td>
<td></td>
<td></td>
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<tr>
<td>Attendant (Optional)</td>
<td></td>
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<tr>
<td>Entrant</td>
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<tr>
<td>Entrant</td>
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<tr>
<td>Entrant</td>
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</tbody>
</table>

## (4) RESCUE and EMERGENCY SERVICES

Entry Supervisor must establish and document at least one of the following methods:

- **Non-entry Retrieval System**
  - Required for all vertical entrance >5’ deep
  - Must be equipped with mechanical retrieval device (winch with anti-drop system)

- **On-site rescue trained personnel**
  - Required for entrance into IDLH atmosphere/conditions

- **Third-party rescue team**
  - Emergency Services (911)
  - Must have 'reasonable' response time (qualified rescue personnel on site within fifteen (15) minutes)

## EMERGENCY SERVICES

Entry Supervisor MUST contact Rescue Service to Confirm Availability for Rescue Service

<table>
<thead>
<tr>
<th>Responder</th>
<th>Phone Number (non-emergency)</th>
<th>Contact Person</th>
<th>Approximate Response Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

The Entry Supervisor must inform the rescue service of hazard exposures in the confined space.

## (5) ATMOSPHERIC CONDITIONS

<table>
<thead>
<tr>
<th>Acceptable Conditions</th>
<th>Oxygen (O₂) 19.5% - 23.5%</th>
<th>Carbon Monoxide (CO) &lt;35 ppm</th>
<th>Explosive (LEL) &lt;10%</th>
<th>Toxic (H₂S) &lt;10 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Check</strong> (upon opening of space)</td>
<td>% ppm % ppm</td>
<td>% ppm</td>
<td>% ppm</td>
<td></td>
</tr>
<tr>
<td><strong>Pre-Entry Check</strong> (after ventilation)</td>
<td>% ppm % ppm</td>
<td>% ppm</td>
<td>% ppm</td>
<td></td>
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<tr>
<td></td>
<td>% ppm % ppm</td>
<td>% ppm</td>
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<tr>
<td></td>
<td>% ppm % ppm</td>
<td>% ppm</td>
<td>% ppm</td>
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</tbody>
</table>
### (6) KNOWN AND POTENTIAL HAZARDS

<table>
<thead>
<tr>
<th>Hazards</th>
<th>Pre-Entry Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atmospheric Conditions</td>
<td></td>
</tr>
<tr>
<td>Engulfment</td>
<td></td>
</tr>
<tr>
<td>Entrapment</td>
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<tr>
<td>Hazardous Energy</td>
<td></td>
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<tr>
<td>Thermal Energy</td>
<td></td>
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<tr>
<td>Residual Materials</td>
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<tr>
<td>Insufficient Lighting</td>
<td></td>
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<tr>
<td>Fire</td>
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<tr>
<td>Respiratory Protection</td>
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<tr>
<td>Rescue</td>
<td></td>
</tr>
</tbody>
</table>

### (7) ACCEPTABLE ENTRY CONDITIONS

<table>
<thead>
<tr>
<th>Hazards</th>
<th>Control Satisfied?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
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<tr>
<td>Atmospheric Conditions</td>
<td></td>
</tr>
<tr>
<td>Engulfment</td>
<td></td>
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<tr>
<td>Entrapment</td>
<td></td>
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<tr>
<td>Hazardous Energy Controls - LOTO Procedures</td>
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<tr>
<td>Thermal Energy</td>
<td></td>
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<tr>
<td>Residual Materials</td>
<td></td>
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<tr>
<td>Space Greater than 5’ in Depth</td>
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<tr>
<td>Insufficient Lighting</td>
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<tr>
<td>Fire</td>
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<tr>
<td>Respiratory Protection</td>
<td></td>
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<tr>
<td>Rescue</td>
<td></td>
</tr>
<tr>
<td>Task-Specific Personal Protective Equipment (PPE)</td>
<td></td>
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</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Date Issued</th>
<th>Time Issued</th>
<th>Time Expires</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Permit Prepared by</th>
<th>Entry Supervisor</th>
<th>Attendant</th>
<th>Entrant</th>
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</thead>
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<table>
<thead>
<tr>
<th>Print Name</th>
<th>Signature</th>
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</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>IN</th>
<th>OUT</th>
<th>IN</th>
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</tbody>
</table>

## (9) Entry Log

## (10) Air Monitoring Results

<table>
<thead>
<tr>
<th>Time (15-minute intervals)</th>
<th>Oxygen (O₂) 19.5% - 23.5%</th>
<th>Carbon Monoxide (CO) &lt;35 ppm</th>
<th>Explosive &lt;10% (LEL/LFL)</th>
<th>Toxic (H₂S) &lt;10 ppm</th>
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</table>

## (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 #: ________________

<table>
<thead>
<tr>
<th>Name</th>
<th>IN</th>
<th>OUT</th>
<th>IN</th>
<th>OUT</th>
<th>IN</th>
<th>OUT</th>
<th>IN</th>
<th>OUT</th>
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</tbody>
</table>

Attach Entry Log to Confined Space Entry Procedure and Entry Permit used for entry to the confined space.
Air Monitoring Log

Check if Air Monitoring Log is a: ☐ Stand-alone Log ☐ Supplemental Log

Procedure #: ______________________ Date of Entry: ______________ Space #: ______________________

<table>
<thead>
<tr>
<th>Time (15-minute intervals)</th>
<th>Oxygen (O₂) 19.5% - 23.5%</th>
<th>Carbon Monoxide (CO) &lt;35 ppm</th>
<th>Explosive &lt;10% (LEL/LFL)</th>
<th>Toxic (H₂S) &lt;10 ppm</th>
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<tbody>
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</table>

*Attach Air Monitoring Log to Confined Space Entry Procedure and Entry Permit used for entry to the confined space.*
Chapter 21 Personal Protective Equipment (PPE) Program

21.1 Purpose, Scope & Policy

21.1.1 Purpose

«Q1» will ensure that all work practices and job hazards are evaluated for potential injury. This evaluation will determine the appropriate personal protective equipment (PPE) required for the job.

21.1.2 Scope

The following list of personal protective equipment (PPE) is available to all employees and will be used as required by company policy and/or Federal, State, or Local regulations: ____________________________ (Required PPE). Prescription safety glasses and non-specialty safety-toe boots, if required, must be supplied by the worker. For questions about other items, please see your supervisor or the Safety Coordinator.

Employees can request PPE from PPERESONSIBLEPERSON.

21.1.3 Policy

Using personal protective equipment should always be considered the last line of defense after all attempts to remove or limit the exposure to the hazard through engineering or administrative controls have been fully exhausted.

21.2 Roles & Responsibilities

21.2.1 Employer Responsibilities

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.

21.2.2 Employee Responsibilities

It is the employee’s responsibility to wear and maintain their PPE in a sanitary and reliable condition. 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, but it must be approved by management.

21.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.

21.4 Hazards

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

21.5 Hazard Control Measures

21.5.1 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

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

21.5.2 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.

21.5.3 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.)

21.5.4 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 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.

21.5.5 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.

### 21.5.6 Body Protection

- When necessary, employees are provided and 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 other regulated carcinogens wear protective clothing as required by the specific applicable OSHA standards.
- Welders wear leather aprons, and 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 wear appropriate reflective warning garments (shirts, vests, jackets) when they work on foot near vehicular traffic hazards. In rainy weather, they wear orange or yellow rain gear during hours of darkness, and wear clothing that reflects light.

### 21.5.7 Ear Protection

All employees are instructed to wear their hearing protection prior to engaging in work that will result in excessive noise. If employees are exposed to excessive noise, hearing protection may be required. 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.

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

### 21.6 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.

#### 21.6.1 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.

#### 21.6.2 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.

21.7 Reference
OSHA Standard 29 CFR 1910 Subpart I

21.8 Appendix
- Glove Program
Glove Program

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.

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 22 Respiratory Protection Program

22.1 Purpose, Scope & Policy

22.1.1 Purpose

«Q1» 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.

22.1.2 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.

22.1.3 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.

22.2 Roles & Responsibilities

22.2.1 Employer Responsibilities

22.2.1.1 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.

22.2.1.2 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.

22.2.1.3 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.

22.2.2 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.

22.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. ix

22.4 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.
22.5 Hazard Control Measures

22.5.1 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.

22.5.2 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.

22.5.3 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.

22.5.4 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.

22.5.5 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.

22.5.6 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.
22.5.7 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.

22.5.8 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).

22.5.9 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.

22.5.9.1 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.”

22.5.9.2 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.

22.5.9.3 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.

22.5.9.4 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.

22.5.9.5 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.

22.5.9.6 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.

22.5.10  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.

22.5.10.1  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.

22.5.10.2  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.

22.5.11  Respirator Use

The program administrator will monitor the work area in order to be aware of changing conditions where employees are using respirators.
22.5.11.1 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.

22.5.11.2 Monitoring Respirator Effectiveness

The program administrator and/or supervisors (lead, department head, etc.) will be responsible to maintain appropriate surveillance of changes in work area conditions that may increase employee exposure or stress.

Employees will be permitted to leave the respirator use area to wash their faces and respirator face pieces as needed to prevent skin or eye irritation associated with respirator use.

Whenever the respirator user can detect vapor, gas, or particulate breakthrough (by odor, taste, and/or irritation effects), a change in breathing resistance or leakage of the face piece, the employee will be allowed to leave the respirator use area to replace the respirator or the filter, cartridge, or canister elements.

Employees will be permitted to leave the respirator use area if they are replacing filter cartridge, canister elements according to the established replacement schedule.

Employees will be permitted to leave the respirator use area if 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.

Employees will be permitted to leave the respirator use area if the employee experiences severe discomfort in wearing the respirator or if the employee experiences sensations of dizziness, nausea, weakness, breathing difficulty, coughing, sneezing, vomiting, fever, and chills.

22.5.11.3 Maintenance and Care

The program administrator will oversee the maintenance and care program including:

- Cleaning and disinfecting procedures.
- Proper storage.
- Regular inspections for defects.

22.5.11.4 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.

22.5.11.5 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.

22.5.11.6 Inspection

Respirators used in routine situations will be inspected before each use and during cleaning.

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.

22.5.11.7 Repair

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 discard immediately.

22.5.12 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.
22.5.13  **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.

22.5.14  **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.

22.6  **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.

22.6.1 Initial

New employees will be provided respirator training prior to using a respirator in the workplace.

22.6.2 Refresher

Employees will be retrained annually and more often as needed (e.g., if they change area/location/position and need to use a different respirator).

Recommanding 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.
22.7 Reference

OSHA Standard 29 CFR 1910.134

22.8 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
Instructions for Administration of Respiratory Medical Evaluation Questionnaire

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.
Respiratory Evaluation: Employer Authorization & Information

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)

- [ ] Air-purifying (non-powered)
- [ ] Air-purifying (powered)
- [ ] Atmosphere Supplying Respirator
- [ ] Combination Air-line and SCBA
- [ ] Continuous-Flow Respirator
- [ ] Supplied-Air Respirator
- [ ] Open Circuit SCBA
- [ ] Full Face with canisters
- [ ] 1/2 Face with canisters
- [ ] Closed Circuit SCBA

Make __________________________ Model __________________________ Cartridge __________________________

Special Work Considerations (Mark all that apply while using Respirator)

- [ ] Protective Clothing
- [ ] Enclosed Spaces
- [ ] Atmosphere Supplying Respirator
- [ ] Combination Air-line and SCBA
- [ ] Temperature Extremes
- [ ] High Places
- [ ] Low Places
- [ ] Mostly Hot
- [ ] Mostly Cold
- [ ] Other: __________________________

Exposure to Hazardous Materials (Mark all that apply)

- [ ] Arsenic
- [ ] Formaldehyde
- [ ] Chromium
- [ ] Textiles
- [ ] Cadmium
- [ ] Methylene Chloride
- [ ] Cotton Seed/Dust
- [ ] Silica
- [ ] Coke Oven
- [ ] Benzene
- [ ] Lead
- [ ] Other(s): __________________________

Extent of Usage

☐ Daily; Total Hours ______
☐ Occasionally (Twice a week or less); Total Hours ______
☐ Rarely or in case of Emergency; Total Hours ______

Expected Physical Effort Required

☐ Light
☐ Moderate
☐ Heavy

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 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.

☐ 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 ____________________________

Version: December 1, 2019 22-13 © 2019 FCA International
Mandatory Respiratory Medical Evaluation Questionnaire – English

(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): _____________________________

________________________________________________________________________
Mandatory Respiratory Medical Evaluation Questionnaire - Spanish

(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. (Mandatory) 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 de 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. (Mandatory) 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 respuestas.

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 alérgicas que no lo deja respirar: Sí o No
   d. Claustrofobia (miedo de estar en espacios cerrados): Sí o No
   e. Dificultad oiendo 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. Injuria o cirugía en el pecho: Sí o No
   l. Otro problema de los pulmones que le ha dicho su médico: 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 está 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 está 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. Falta 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

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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 dificulta: 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 respirador: 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 engorrota miento 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. ¿Está 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:

   __________________________________________________________________________

3. ¿Ha trabajado con los siguientes materiales o las condiciones anotadas abajo?:

   a. Asbestos: Sí o No
   b. Silice (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

   Describa las exposiciones peligrosas: _________

4. ¿Tiene usted otro trabajo o un negocio aparte de este? ______________________________

5. Apunte sus previos trabajos: ______________________________________________________

6. Apunte sus pasatiempos: __________________________________________________________
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 remedies caseros o medicinas que compra sin receta)? Sí o No

Si la respuesta es: Sí, 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 tráfico 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): Sí 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; traspallear; 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 qué va a estar usando: __________________________

14. ¿Va a estar trabajando en condiciones calurosas (temperatura más 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 esté 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 esté 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 esté usando el respirador: __________________________

19. Describa alguna responsabilidad especial que usted va a tener cuando esté usando 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.  
   A. True  
   B. False

2. The best place to store a respirator is in the worker’s toolbox where it will always be readily available.  
   A. True  
   B. 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.  
   A. Verdadero  
   B. Falso

2. El mejor lugar para guardar un respirador es la caja de herramientas, donde estará fácilmente disponible.  
   A. Verdadero  
   B. 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 empieza 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 empapques.  
   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 empapques 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: ____________
Fit Test Procedures

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 will be performed for 15 seconds. The test subject will 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.


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.
(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: ___________________________
OSHA 1910.134 Appendix D: Mandatory Information for Employees Using Respirators When Not Required Under the Standard – Spanish

(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: ____________________________
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:

The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or

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 23 Hearing Conservation Program

23.1 Purpose, Scope, and Policy

23.1.1 Purpose

The purpose of the «Q1» 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

«Q1» 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.

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.

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 a Permissible Exposure Limit of 90dBA over an eight-hour work day with a fifty (50) percent reduction in exposure time for every 5dB increase in noise level. OSHA has identified an action level of 85dBA over an eight-hour work day.

<table>
<thead>
<tr>
<th>Duration per day, hours</th>
<th>Sound level dBA SSWL response</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
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<tr>
<td>6</td>
<td>92</td>
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<tr>
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</tr>
<tr>
<td>1 1/2</td>
<td>102</td>
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<td>105</td>
</tr>
<tr>
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<td>110</td>
</tr>
<tr>
<td>1/3 or less</td>
<td>115</td>
</tr>
</tbody>
</table>

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

**Typical Sound Levels**

- 140 - Threshold of Pain
- 130 - Jet Taking Off (200' away)
- 120 - Operating Heavy Equipment
- 110 - Night Club (with music)
- 100 - Construction Site
- 90 - Boiler Room
- 80 - Freight Train (100' away)
- 70 - Classroom Chatter
- 60 - Conversation (3' away)
- 50 - Urban Residence
- 40 - Soft Whisper (5’ away)
- 30 - North Rim of Grand Canyon
- 20 - Silent Study Room
- 10 - Thunder
- 0 - Threshold of Hearing (1,000 Hz)

**Sound Exposure Levels TWA (NIOSH)**

- 118dBA - 7 seconds
- 115dBA - 15 seconds
- 112dBA - 30 seconds
- 109dBA - 1 minute
- 106dBA - 3 minutes
- 103dBA - 7 minutes
- 100dBA - 15 minutes
- 97dBA - 30 minutes
- 94dBA - 1 hour
- 91dBA - 2 hours
- 88dBA - 4 hours
- **85dBA - 8 hours TWA**
A good rule of thumb is to wear hearing protection any time it is necessary to raise your voice to have a conversation.

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 ontological examination, as appropriate.
- The employee will be informed of the need for an ontological 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 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. «Q1» 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 Material Handling and Storage

24.1 Purpose, Scope & Policy

24.1.1 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.

24.1.2 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.

24.1.3 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.

24.2 Roles & Responsibilities

24.2.1 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.

24.2.1.1 Supervisors

Observe work in progress to assure safe work practices and proper condition of any tools and equipment necessary for the job.

24.2.2 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.

24.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.

24.4 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.

24.5 Hazard Control Measures

24.5.1 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.

24.5.1.1 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.

24.5.1.2 Cranes

Only thoroughly trained and competent workers to 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.
24.5.1.3 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.

24.5.1.4 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.

24.5.1.5 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.)

24.5.2 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.

24.5.3 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.

24.5.3.1 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.

24.5.3.2 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.
24.5.4 **Housekeeping**

Storage areas will be kept free from accumulation of materials that create hazards for tripping, fire, explosion, or pest harborage.

24.5.5 **Clearance Limits**

Clearance signs to warn of clearance limits will be provided and clearly posted.

24.5.6 **Material, Handling Storing Requirements**

24.5.6.1 **Wood**

Lumber must be stacked no more than 16 feet high if it is handled manually; 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.

24.5.6.2 **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.

24.5.6.3 **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.

24.5.6.4 **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.

24.5.6.5 Aluminum Extrusions

24.5.6.5.1 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.

24.5.6.5.2 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.

24.5.6.5.3 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.

24.5.6.5.4 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.

24.5.6.5 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.

24.5.6.6 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.

24.5.6.6 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.

24.5.6.6.1 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.

### 24.5.6.6.2 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.

### 24.5.6.6.2.1 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.

**24.5.6.6.3 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*

### 24.6 Training

#### 24.6.1 Initial

Initial training will be conducted through new hire orientation.

#### 24.6.2 Refresher

Refresher training will be conducted as needed. Refresher training will be given if an employee demonstrates a lack of safe material handling practices.

### 24.7 Reference

OSHA Standard 29 CFR 1926.200
Chapter 25 Back Injury Prevention Program

25.1 Purpose, Scope & Policy

25.1.1 Purpose

The purpose of this program is to help reduce the likelihood of serious strains and sprains, including back injuries.

25.1.2 Scope

Everything we do affects our back.

25.1.3 Policy

«Q1» 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.

25.2 Roles & Responsibilities

25.2.1 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.

25.2.2 Supervisors

Observe work in progress to assure proper lifting techniques are utilized.

25.2.3 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.

25.3 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.

25.4 Hazard Control Measures

25.4.1 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.

25.4.2 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.

25.4.3 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.

25.4.4 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.

25.4.5 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.

25.4.6 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.
25.4.7 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.

25.4.8 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.

25.4.9 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.

25.4.10 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.

25.5 Training

25.5.1 Initial

Initial training will be conducted through new hire orientation.

25.5.2 Refresher

Refresher training will be conducted as needed. Refresher training will be given if an employee demonstrates a lack of safe material handling practices.

25.6 Reference

OSHA Standard 29 CFR 1926.200
Chapter 26 Hand and Power Tools

26.1 Purpose, Scope & Policy

26.1.1 Purpose

The company utilizes many different types of hand and power tools throughout any given work day. It is vital to their health and well-being that workers understand the dangers and precautions to be taken with each particular type of tool utilized. There is no substitute for reading and thoroughly understanding the manufacturers’ guidelines for the safe and effective use of a tool.

26.1.2 Scope

This program outlines responsibilities for management and all employees.

26.1.3 Policy

All employees are required to follow the minimum procedures outlined in this program.

26.2 Roles & Responsibilities

26.2.1 Employer Responsibilities

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.

26.2.2 Employee Responsibilities

It is the employee’s responsibility to attend training sessions and follow all safety procedures regarding the use of hand and powered tools. Employees will ensure that guards are in place and must report any unsafe or defective tools.

26.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. xii

26.4 Hazards

Hazards associated with hand and powered tools include simple lacerations to serious amputations. Employees risk being injured by not using tools properly and by not wearing the proper PPE that is required with each tool.

26.5 Hazard Control Measures

26.5.1 General

- Always use the personal protective equipment required to prevent injury.
- Always follow the manufacturers’ guidelines for safe and effective use of the tool.
- All hand and power tools will be maintained in a safe condition.
- When designed to accommodate guards, the tool will be equipped with such guards when in use.
- Reciprocating, rotating, or moving parts of equipment will be guarded if such parts are exposed to contact by employees or otherwise create a hazard.
- Point of operation guards will be in place and not defeated on tools such as table saws, circular saws, jointers, etc.
- Abrasive wheel 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 ¼” of the wheel. The tool rest will be properly adjusted to within 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.
• All abrasive wheels will be closely inspected and ring-tested before mounting to ensure that they are free from cracks or defects.
• All abrasive wheels will match the rpm specifications of the grinder to which they are attached.
• Wrenches, including adjustable, pipe, end, and socket wrenches will not be used when jaws are sprung to the point that slippage occurs.
• Impact tools, such as drift pins, wedges, and chisels, will be kept free of mushroomed heads. Loose or deformed sections of these tools may be “dressed” off on a bench grinder so that they do not crack from the tool while being struck, causing injury.
• Wooden handles of tools will be kept free of splinters or cracks and will be kept secure in the tool.
• Electric power operated tools will either be of the approved double-insulated type or grounded.
• The use of electric cords or pneumatic hoses for hoisting or lowering tools will not be permitted.
• Pneumatic tools will have the hoses secured/pinned if of a size where they are equipped with a means to do so to prevent accidental disengagement.
• Compressed air used for cleaning purposes will be reduced to less than 30 p.s.i with the use of “safety nozzles”. This type of nozzle provides for blowout of excess pressure if “dead-ended” against an employee’s skin.
• Abrasive blast cleaning nozzles will be equipped with a “dead-man” switch.
• All fuel powered tools will be stopped while being refueled or maintained. Fuel will be transported, handled, and stored properly in approved containers.
• Care will be taken as to the development of hazardous atmospheres when fuel powered tools are operated in enclosed or tight spaces.
• Only employees who have been trained in its safe operation will be allowed to operate a powder-actuated tool and a certification card must be available at all times.
• Powder-actuated tools will be operated in a manner fully compliant with both the manufacturer’s safe operating procedures as well as the specific requirements of the OSHA standards in relation to these tools.
• 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.
• Long hair, loose clothing, jewelry, gloves, etc. will not be allowed near rotating or powered equipment due to the hazard of the worker being drug into the equipment.

26.6 Training

26.6.1 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.

26.6.2 Refresher

Refresher training will be conducted as needed. Refresher training will be given if an employee demonstrates a lack of safe use during tool operation.

26.7 Reference

OSHA Standard 29 CFR 1910 Subpart P
Chapter 27 Machine Guarding Program

27.1 Purpose, Scope, and Policy

27.1.1 Purpose

The purpose of «Q1»'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.

27.1.2 Scope

This program outlines responsibilities for all employees.

27.1.3 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.

27.2 Roles & Responsibilities

27.2.1 Employer Responsibilities

It is management’s responsibility to ensure all machinery is maintained with the guarding originally provided by the manufacturer.

27.2.2 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.

27.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.xiii

27.4 Hazards

Hazards associated with unguarded or improperly guarded machines can lead to laceration, fractures, amputations, or death.

27.5 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.

27.5.1 Prevent contact

The guards prevent hands, arms, or any part of an employee's body or clothing from contacting dangerous moving parts.
27.5.2 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.

27.5.3 Protect from falling objects

The guards ensure that no objects can fall into moving parts.

27.5.4 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.

27.5.5 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.

27.5.6 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.

27.6 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.

27.6.1 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.

27.6.2 Refresher

Refresher training will be conducted as needed. Refresher training will be given if an employee demonstrates a lack of safe use during equipment/machinery operation.

27.7 Reference

OSHA Standard 29 CFR 1926.600
Chapter 28 Hot Work Safety Program

28.1 Purpose, Scope, and Policy

28.1.1 Purpose

The purpose of this program is to protect life and property from fire and hazards associated with welding, cutting, brazing, and grinding operations.

28.1.2 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.

28.1.3 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 «Q1», or observed by supervision to commit unsafe acts involving hot work may be subject to disciplinary action up to and including termination, or retraining.

28.2 Roles & Responsibilities

28.2.1 Employer Responsibilities

28.2.1.1 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.

28.2.1.2 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

28.2.2 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.

28.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.
28.4 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.

28.5 Hazard Control Measures

28.5.1 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.

28.5.2 Fire Prevention

28.5.2.1 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
  o 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
  o 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
  o 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

28.5.2.2 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

28.5.2.3 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

28.5.2.4 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.

28.5.2.5 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.

28.5.2.5.1 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.
28.5.2.5.2 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

28.5.2.6 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

28.5.2.7 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

28.5.3 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.

### 28.5.4 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.

### 28.5.5 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.

### 28.5.6 Compressed Gas Cylinders

#### 28.5.6.1 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.

28.5.6.2 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.

28.5.6.3 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.

28.5.6.4 Use of Fuel Gas

«Q1» 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.

28.5.6.4.1 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.

28.5.6.4.2 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.

28.5.6.4.3 Regulators and Gauges

Oxygen and fuel gas pressure regulators, including their related gauges, will be in proper working order while in use.

28.5.6.4.4 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.

28.5.7 Electric/Arc-Welding Equipment

28.5.7.1 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.

28.5.7.2 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.

28.5.7.3 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, it's 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.

28.5.7.4 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.

28.5.7.5 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.

### 28.5.8 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.

### 28.5.9 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;

#### 28.5.9.1 Beryllium-containing Base or Filler Metals

Because of its high toxicity, work involving beryllium will be done with both local exhaust ventilation and airline 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.

28.5.9.2 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.

28.5.9.3 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.

28.5.9.4 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.

28.5.9.5 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.

28.6 Training

28.6.1 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
28.6.2 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.

28.7 Reference

OSHA Standard 29 CFR 1926.350 – 1926.353

28.8 Appendix

- PPE - Shade Tables
- Hot Work Safety Checklist
- Hot Work Permit
PPE Shade Tables

Table 1: Filter Lenses for Protection During Shielded Metal Arc-Welding

<table>
<thead>
<tr>
<th>Operation</th>
<th>Electrode Size – inch (mm)</th>
<th>Arc Current (Amperes)</th>
<th>OSHA Minimum Protective Shade Number</th>
<th>ANSI &amp; AWS Shade Number Recommendations*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shielded Metal Arc Welding (SMAW)</td>
<td>Less than 3/32 (2.4)</td>
<td>Fewer than 60</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3/32 – 5/32 (2.4 - 4.0)</td>
<td>60 – 160</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>More than 5/32 – 1/4 (4.0 – 6.4)</td>
<td>More than 160 – 250</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>More than 1/4 (6.4)</td>
<td>More than 250 – 550</td>
<td>11</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 2: Filter Lenses for Gas Welding and Oxygen Cutting Operations

<table>
<thead>
<tr>
<th>Operation</th>
<th>Plate Thickness Inches</th>
<th>Plate Thickness mm</th>
<th>OSHA Minimum Protective Shade Number</th>
<th>ANSI &amp; AWS Shade Number Recommendations*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Welding</td>
<td>Under 1/8</td>
<td>Under 3.2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>1/4 – 1/2</td>
<td>3.2 to 12.7</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Over 1/2</td>
<td>Over 12.7</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Oxygen Cutting</td>
<td>Under 1</td>
<td>Under 25</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1 to 6</td>
<td>25 to 150</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Over 6</td>
<td>Over 150</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

* 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

<table>
<thead>
<tr>
<th>Operation</th>
<th>Arc Current (amperes)</th>
<th>OSHA Minimum Protective Shade Number</th>
<th>ANSI &amp; AWS Shade Number Recommendations*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Metal Arc Welding (GMAW) and Flux Cored Arc Welding (FCAW)</td>
<td>Fewer than 60</td>
<td>7</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>60 – 160</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>More than 160 – 250</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>More than 250 – 500</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Gas Tungsten Arc Welding (GTAW)</td>
<td>Fewer than 50</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>50 – 150</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>More than 150 – 500</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Air Carbon Arc Cutting (CAC-A)</td>
<td>Fewer than 500</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Air Carbon Arc Cutting (CAC-A)</td>
<td>500 – 1,000</td>
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<td>14</td>
</tr>
<tr>
<td>Plasma Arc Welding (PAW)</td>
<td>Fewer than 20</td>
<td>6</td>
<td>6 – 8</td>
</tr>
<tr>
<td></td>
<td>20 – 100</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>More than 100 – 400</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>More than 400 – 800</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Plasma Arc Cutting (PAC) (Light)**</td>
<td>Fewer than 300</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Plasma Arc Cutting (PAC) (Medium)**</td>
<td>300 – 400</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Plasma Arc Cutting (PAC) (Heavy)**</td>
<td>More than 400 - 800</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Torch Brazing (TB)</td>
<td></td>
<td>3</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Torch Soldering (TS)</td>
<td></td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Carbon Arc Welding (CAW)</td>
<td></td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

** 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.
Hot Work Safety Checklist

- 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)**

<table>
<thead>
<tr>
<th>Project:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competent Person Responsible for Operation:</td>
<td>(print name)</td>
</tr>
<tr>
<td>I understand the expectations of this Hot Work Permit and the responsibility to implement the requirements:</td>
<td>(signature)</td>
</tr>
<tr>
<td>Designated Fire Watch:</td>
<td>(print name)</td>
</tr>
<tr>
<td>(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)</td>
<td></td>
</tr>
</tbody>
</table>

## Type and Location of Work Performed

<table>
<thead>
<tr>
<th>Location of Hot Work:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Hot Work:</td>
</tr>
<tr>
<td>Description of Hot Work:</td>
</tr>
<tr>
<td>Start Time:</td>
</tr>
</tbody>
</table>

## Required Precautions

<table>
<thead>
<tr>
<th>YES</th>
<th>N/A</th>
<th>CP Init</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work area inspected for hazards above, below, and adjacent to work area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire extinguisher (10# ABC minimum) present, charged, and within 20’ of work area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammables and combustibles removed or protected, and area swept (35’ minimum)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wall and floor openings covered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welding blankets / screens provided</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot Work equipment inspected and in good repair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoke / heat detectors protected or taken out of service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sprinkler heads in area identified and protected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Watch will inspect Hot Work area at 30 minutes after Hot Work has been completed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 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: (print name) (signature) Date: 

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: (print name) (signature) Date: 

Version: December 1, 2019 28-16 © 2019 FCA International
Chapter 29 Electrical Safety

29.1 Purpose, Scope & Policy

29.1.1 Purpose

«Q1» has developed this policy on electrical safety to establish work policies, practices, and procedures to train employees in basic electrical hazard recognition and safe work practices.

29.1.2 Scope

This program applies to qualified and non-qualified employees who are exposed to electricity as part of their job.

29.1.3 Policy

All employees are required to follow the minimum procedures outlined in this program. No employees will be allowed to perform any work on energized electrical equipment.

29.2 Roles & Responsibilities

29.2.1 Employer Responsibilities

29.2.1.1 Management

Ensure that the development of electrical safety programs and procedures in accordance with OSHA requirements and/or as indicated by events and circumstances. Provide oversight of projects and proper tools and equipment.

29.2.1.2 Supervisors

Observe work in progress and enforce «Q1» 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 employees and or qualified contractors perform electrical repairs or installations.

29.2.2 Employee Responsibilities

Employees are responsible to use electrical equipment, tools, and appliances according to this program, for attending required training sessions when directed to do so and to report unsafe conditions to their supervisor immediately. No employees may work on electric circuit parts or equipment that has not been de-energized.

29.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.xv

29.4 Hazards

Improperly monitored and maintained electrical conditions and work practices can lead to hazards including, but not limited to:

- Electrical shock
- Skin burns
- Lacerations & amputation
- Fires & explosions
- Arc Blast
- Bodily injury
- Death
29.5 **Hazard Control Measures**

29.5.1 **Approval**

Electrical conductors and equipment used must be approved.

29.5.2 **Examination, Installation, and Use of Equipment**

All electrical conductors and equipment shall be considered live until proven otherwise.

Electrical equipment must 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.

29.5.3 **Guarding**

Live parts of electric equipment operating at 50 volts 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 or more above the floor or other working surface and so arranged as to exclude unqualified persons. Installations over 600 volts 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 unqualified persons to enter.

Electric installations that are over 600 volts 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.

29.5.4 **Inspections**

Electrical equipment, tools, and appliances must be inspected prior to each use.

The use of a hard fixed GFCI or a portable GFCI adapter shall be used with all portable hand tools, electric extension cords, drop lights and all 110-volt 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.

29.5.5 **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 illumination exists to enable employees to work safely. If employees are subject to handle long dimensional conductor objects (ducts or pipes), steps for safe work practices shall be employed to ensure the safety of workers.

29.5.6 Extension Cords

Use only three-wire, grounded, extension cords and cables that conform to a hard service rating of 14 amperes 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 14 amps. Cords must have suitable strain relief provisions at both the plug the receptacle ends. Work lamps (drop light) used to power electrical tools must have a 3 wire, grounded outlet, unless powering insulated tools. Adapters that allow three wire, 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, 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 removed from service and repaired or replaced.

29.5.7 Outlets

Outlets connected to circuits with different voltages must use a design such that the attachment plugs on the circuits are not interchangeable.

29.5.8 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.
29.5.9 **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 labelled with the voltage rating.

Each breaker within a breaker panel must be labelled for the service it provides.

Disconnect switches providing power for individual equipment must be labelled accordingly.

A minimum clear distance of 3’ shall be kept around all electrical equipment operating up to 150 volts for the purpose of easy and safe servicing. Above 150 volts and up to 600 volts, this distance will be increased to 4’. For installations over 600 volts, Table K-2 of 29 CFR 1926.403 will be utilized.

29.5.10 **Ladders**

Only approved, non-conductive ladders, may 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.

29.5.11 **Energized and Overhead High Voltage Power Lines & Equipment**

A minimum clearance of 10 feet from high voltage lines must be maintained when operating vehicular and mechanical equipment such as forklifts, cranes, winch trucks, and other similar equipment.

When possible, power lines shall be de-energized and grounded or other protective measures shall be provided before work is started.

Minimum approach distance to energized high power voltages lines for unqualified employees is 10 feet.

Minimum approach distance for qualified employees shall be followed per 29 CFR 1910.333(c)(3)(ii) Qualified Persons – Table S-5 (Approach Distances for Qualified Employees – Alternating Current). Approach distances are 10’ for 50kV plus 4” for every additional 10kV.

29.5.12 **Confined or Enclosed Work Spaces**

When an employee works in a confined or enclosed space that contains exposed energized parts, the employee shall isolate the energy source and turn off the source and lock and tag out the energy source (Only qualified electricians can work on an exposed energy source).

Protective shields, protective barriers or insulating materials as necessary shall be provided.

29.5.13 **Enclosures, Breaker Panels, and Distribution Rooms**

A clear working space 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 permit access for maintenance and alteration.

A minimum two-foot working floor space in front of panels and enclosures shall be painted yellow.

Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to work safely.

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.)

29.5.14 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 «Q1»’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 «Q1»’s 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.

29.5.15 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 make contact with the victim, begin CPR if the person’s heart has stopped or they are not breathing.

Call for help immediately.

29.5.16 Electric Welders

A disconnecting means 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.

29.5.17 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 ground rod six feet or longer.

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 degrees F or less shall have a ground strap from the container and attached to the skid or a ground rod placed in the ground.
29.5.18 Assured Grounding

OSHA requires that employers shall use either ground fault circuit interrupters (GFCI) or an assured equipment grounding conductor program to protect personnel from electrical shock while working. «Q1» will use GFCI’s in lieu of an assured grounding program.

29.5.19 Ground Fault Circuit Interrupters

All 120-volt, 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 for personnel protection.

- All hand portable electric tools and extension cords shall use a GFCI.
- Additionally, approved GFCI’s shall be used for 240-Volt circuits in the same service as described above.
- GFCI’s must be used on all 120 volt, single-phase 15 amp and 20-amp receptacles within 6 feet of a sink, damp areas or on installed outdoor equipment.
- The GFCI must be the first device plugged into a permanent receptacle.
- The GFCI must be tested before each use.

GFCI’s shall be utilized as close to the source of the power as possible.

29.6 Training

29.6.1 Initial

29.6.1.1 Qualified Workers

No employees at this company will be trained as Qualified Workers in relation to electrical safe work practices.

29.6.1.2 Unqualified Workers

Unqualified workers will be trained on the basic electrical safety as presented in this program during new hire orientation.

29.6.2 Refresher

Training will be conducted annually or as needed. Refresher training will be given if an employee demonstrates a lack of safe use during tool operation.

29.7 Reference

OSHA Standard 29 CFR 1926.402 – 1926.408
Chapter 30 Control of Hazardous Energy Program – Lockout/Tagout

30.1 Purpose, Scope, and Policy

30.1.1 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.

30.1.2 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.

30.1.3 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.

30.2 Roles & Responsibilities

30.2.1 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

30.2.2 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.

30.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. xvi

30.4 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.

30.5 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.

30.5.1 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.

30.5.2 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 in this program for review.

Prior to working on, repairing, adjusting, maintaining, or replacing machinery and equipment, the following procedure will be utilized to place the machinery and equipment in a neutral or zero energy state:
30.5.2.1 Prepare for Shutdown

- Before authorized employees shut down a machine or piece of equipment, the authorized employee will have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the means to control the energy.
- Notify all affected employees that the machinery, equipment, or process will be out of service.

30.5.2.2 Machine or Equipment Shutdown

- The machine or equipment will be shut down using the specific 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.).

30.5.2.3 Machine or Equipment Isolation

- All energy control devices needed 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.

30.5.2.4 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 prevent activation of the equipment.
- Where tagout devices are used they will be affixed in such a manner that will clearly state that the operation or the movement of energy isolating devices from the "safe" or "off" positions is prohibited.
- 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.
  - Where tagout devices are used they will be affixed in such a manner that will clearly state that the operation or the movement of energy isolating devices from the "safe" or "off" positions is prohibited.

30.5.2.5 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 rendered safe.
- 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.

30.5.2.6 Verification of Isolation

- Prior to working 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 tagouts by following the normal start up procedures (depress start button, etc.).
- CAUTION: After testing, place controls in OFF or NEUTRAL position.
30.5.3 **Extended Lockout/Tagout**

Should the shift change before the machinery or equipment can be restored to service, the lock and tagout must remain. If the task is reassigned to the next shift, those employees must lock and tagout before the previous shift may remove their lock and tag.

30.5.4 **Release from Lockout/Tagout**

Before lockout or tagout devices are removed and the energy restored to the machine or equipment, the following actions will be taken:

- **Machine or Equipment**
  - The work area will be thoroughly inspected to ensure that nonessential items have been removed and that machine or equipment components are operational.
  - All guarding that was removed in the servicing operations will be replaced.

- **Employees**
  - The work area will be checked to ensure that all employees have been safely positioned.
  - Before the lockout or tagout devices are removed, affected employees will be notified that the lockout or tagout devices are being removed and the equipment is being restored to service.

30.5.4.1 **Lockout/Tagout Device Removal**

- Each lockout or tagout device will be removed from each energy isolating device by the Authorized Employee who applied the device.

30.5.4.2 **Re-energization of Equipment**

- All personnel will be kept clear of equipment during initial startup.
- De-energization devices will be restored to normal operating positions.

30.5.5 **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.

30.5.6 **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.

30.5.7 **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.
30.5.8 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.

30.5.9 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.

30.5.10 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.

30.5.11 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.

30.5.11.1 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.

### 30.5.11.2 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.

### 30.6 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.

### 30.6.1 Initial

#### 30.6.1.1 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

30.6.1.2 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.

30.6.1.3 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.

30.6.2 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.

30.7 Reference

OSHA Standard 29 CFR 1910.147

30.8 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

<table>
<thead>
<tr>
<th>Procedure Number</th>
<th>Equipment Name</th>
<th>Department</th>
<th>Date Created</th>
<th>Date Revised</th>
<th>Inspection Date</th>
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</table>
Authorized Employee - Certification of Initial Inspection

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.

Six Step Procedure for Lockout/Tagout

☒ Prepare for shutdown
   ○ Procedure understood
   ○ Authorized Employee notified Affected Employees

☒ Shutdown machine or equipment using normal methods

☒ Machine or equipment isolation

☒ Lockout/tagout device application
   ○ All necessary devices affixed
   ○ All affixed properly to ensure no unintentional start
   ○ Tags properly completed and attached

☒ Stored energy identified and released

☒ Verification of isolation

Release from Lockout/Tagout

☒ Inspect work area and machine to ensure all guards in place, no loose tools, or parts

☒ Area cleared and Affected Employees notified

☒ Lockout/Tagout device removal

☒ Re-energization of machine

Recommended Changes to Procedure: ☐ No Changes

____________________________________________________________________________

____________________________________________________________________________

____________________________________________________________________________

Inspector: _______________________________       Employee: _______________________________
Authorized Employee - Certification of Periodic Inspection

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.

<table>
<thead>
<tr>
<th>Machine Group</th>
<th>Reviewed (date)</th>
<th>Deviations or Inadequacies</th>
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</thead>
<tbody>
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</tbody>
</table>

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**

**LOCKOUT/TAGOUT PROCEDURE**

**Simon Mini Flexo Folder/Gluer**

**P-FOF-1**

**Production**

**DANGER**

For use by trained and **AUTHORIZED** employees only. If you have questions contact your supervisor or the maintenance department.

**PURPOSE**

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

**SHUT DOWN PROCEDURE**

1. Depress Emergency Stop (E-Stop) Switch on Control Panel
2. Communicate to all **AFFECTED** employees
3. Shut down the equipment using normal stopping procedure
4. Isolate energy sources
5. Apply lockout devices, locks, and tags

**LOCKOUT APPLICATION PROCESS**

1. Communicate to all **AFFECTED** 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

**COLOR CODES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
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<td>Control Gravity</td>
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<td>CP</td>
<td>Control Panel</td>
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<td>V</td>
<td>Valve</td>
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<td>O</td>
<td>Other</td>
</tr>
</tbody>
</table>

**EQUIPMENT IDENTIFICATION AND ENERGY ISOLATION PROCEDURE**

**Control Panel**

**E-Stop Switch**

**Energy Tag and Description**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Isolation Procedure &amp; Lockout Devices</th>
<th>Method of Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E-1</strong></td>
<td>Main Disconnect (labeled FOLL-1-E1)</td>
<td>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. 1 Lock &amp; Tag</td>
</tr>
<tr>
<td></td>
<td>Electrical 480 VAC</td>
<td></td>
</tr>
<tr>
<td><strong>E-2</strong></td>
<td>Main Disconnect (labeled FOLL-1-E2)</td>
<td>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. 1 Lock &amp; Tag</td>
</tr>
<tr>
<td></td>
<td>Electrical 480 VAC</td>
<td></td>
</tr>
<tr>
<td><strong>P-1</strong></td>
<td>Air Valve (labeled FOLL-P1)</td>
<td>Turn valve to the OFF position and secure with valve handle lockout device. Secure and secure. Attempt to operate machine, no activity should occur. Verify valve handle lockout device is locked and secure. Proceed to step P-1. 1 Lock &amp; Tag</td>
</tr>
</tbody>
</table>

**LOCKOUT REMOVAL PROCESS**

1. Communicate to all **AFFECTED** 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

**START UP PROCEDURE**

1. Open air valve FOLL-P1
2. Turn switch FOLL-E2 to the ‘ON’ position
3. Turn switch FOLL-E1 to the ‘ON’ position
4. Release Emergency Stop (E-Stop) Switch on Control Panel

**REVIEWED BY:**

**Maintenance**

Signature:    Date:  

**Management**

Signature:    Date:  

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Chapter 31 Scaffolding Program

31.1 Purpose, Scope & Policy

31.1.1 Purpose
«Q1» has developed these common-sense guidelines which are designed to promote safety in the erecting, dismantling, and use of scaffolds. These guidelines do not purport to be all-inclusive nor to supplant or replace other additional safety and precautionary measures to cover usual or unusual conditions. Manufacturer’s recommendations and guidelines are also to be consulted to ensure safe work practices are being followed.

31.1.2 Scope
This chapter applies to all scaffolds that may be used in this job site, including scissor lifts.

31.1.3 Policy
All employees are required to follow the minimum procedures outlined in this program.

31.2 Roles & Responsibilities

31.2.1 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 assure that all employees working on scaffold systems have completed the necessary training prior to the commencement of work. Competent Person for scaffold work shall also be designated by the company prior to commencing any scaffold work.

31.2.2 Employee Responsibilities
It shall be the employee’s responsibility to follow safety procedures that are in place regarding scaffolding. It is also the employee’s responsibility to attend training, and only perform scaffold related activities that they have been trained to perform. Employees need to be alert when assembling and disassembling scaffolds.

31.3 Definitions
See Definitions Chapter at the end of the Safety and Health Manual.

31.4 Hazards
Any elevated work presents many potential hazards; (fall, electrical, falling objects, and load capacity), therefore, it is essential that precautionary measures are thorough.

31.5 Hazard Control Measures

31.5.1 General Scaffolding Guidelines

- Do not erect, dismantle, or alter a scaffold unless under the supervision of a competent person.
- 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.

- Inspect all equipment before using. Never use any equipment that is damaged or defective in any way. Remove it from service or tag it out of service.
- Scaffolds must be erected in accordance with design and/or manufacturers' recommendations.
- Do not abuse or misuse the scaffold equipment.
- Erected scaffolds should be continually inspected by users to be sure that they are maintained in safe condition. Report any unsafe condition to your supervisor.
- 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 toe boards, 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 4 times the maximum intended load.
- Do not work on scaffolds if your physical condition is such that you feel dizzy or unsteady in any way.

31.5.2 Erection and Use of Scaffolds

- Do not erect, dismantle, or alter a scaffold unless under the supervision of a competent person.
- 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.
- Use adjusting screws or other approved methods instead of blocking to adjust to uneven grade conditions.
- Bracing, leveling & 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.
- Bracing, leveling & 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.
- Tie continuous (running) scaffolds to the wall or structure at each end and at least every 30 feet of length when the scaffold height to base width ratio exceeds 4:1 or the manufacturers’ recommendations, whichever is lower. Begin ties or stabilizers when the scaffold height exceeds that dimension, and repeat at vertical intervals not greater than:
  - 20 feet for scaffolds 3' wide or less, or
  - 26 feet for scaffolds over 3’ wide.
- The top anchor shall be placed no lower than four (4) times 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 insure 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.
31.5.3 Fall Protection

Each employee on a scaffold more than 10 feet (3.1 m) above a lower level shall be protected from falling to that lower level.

- Guardrail systems must be installed along all open sides and ends of platforms and must be in place before the scaffold is released for use by employees other than erection/dismantling crews.
- Walkways located within a scaffold must have guardrail systems installed within 9½ inches of and along at least one side of the walkway.
- Each top rail or equivalent member of a guardrail system must be able to withstand a force of at least 200 pounds applied in any downward or horizontal direction, at any point along its top edge.
- 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 38 inches (0.97 m) and 45 inches (1.2 m) above the platform surface.
- Midrails, screens, mesh, intermediate vertical members, solid panels, etc., must be able to withstand a force of at least 150 pounds applied in any downward or horizontal direction, at any point along the midrail or other member.
- When midrails are used, they must 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 must 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 must be no more than 19 inches apart.
- Guardrails must be surfaced to prevent punctures or lacerations to employees and to prevent snagging of clothing, which may cause employees to lose their balance.
- Ends of rails may not extend beyond their terminal posts, unless they do not constitute a projection hazard to employees.
- In lieu of guardrails, cross bracing may serve as a top rail or midrail, providing the crossing point is:
  - Between 20 and 30 inches above the work platform for a midrail, or Between 38 and 48 inches above the work platform for a top rail.
- 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 90 degrees 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.
- 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 1” except where warranted due to brackets which prevent complete coverage. In this case, the gap must not exceed 9.5”. (See 29 CFR 1926.451 (b)(1))
  - Check each plank prior to use to be sure plank is not warped, damaged, or otherwise unsafe.
  - Planking shall have at least 12" overlap and extend 6" beyond center of support, or be cleated or restrained at both ends to prevent sliding off supports.
  - Only materials rated appropriately to be used as scaffold plank shall be used for this purpose.
31.5.4 Dismantling Scaffolding

- Do not erect, dismantle, or alter a scaffold unless under the supervision of a competent person.
- Check to assure 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 be sure 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, who would be 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 using it 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.

31.6 Training

31.6.1 Initial

The employer 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 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;
The employer 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;

31.6.2 Refresher

When the employer 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 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;
- Where inadequacies in an affected employee’s work involving scaffolds indicate that the employee has not retained the requisite proficiency
- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

31.7 Reference

OSHA Standard 29 CFR 1926 Subpart L
Chapter 32 Mobile Elevated Work Platform Program

32.1 Purpose, Scope & Policy

32.1.1 Purpose
The purpose of this program is to provide workers with an understanding of the dangers associated and the precautions that will be taken with each particular type of lift utilized.

32.1.2 Scope
Aerial work platforms include the following devices used to elevate personnel to jobsites above ground: extendible boom platforms, aerial ladders, articulating boom platforms, vertical towers, and any combination of the above.

32.1.3 Policy
This program is to provide guidelines to safe operation of aerial work platforms. Management understands that not following safety guidelines can lead to serious injury or death.

32.2 Roles & Responsibilities

32.2.1 Employer Responsibilities
It is management’s role to provide employees with the proper training regarding the safe operation of aerial lifts. Management will supply employees with the proper safety equipment needed to operate aerial lifts in a safe manner.

32.2.2 Employee Responsibilities
It is the employee’s responsibility to follow safety precautions and policies set forth by management. Employees will operate aerial lift platforms in a safe manner and know that only trained personnel will be allowed to operate aerial lift platforms. Employees will attend all safety training required by this program. Employees will be responsible for reporting and unsafe conditions or concerns related to aerial work platforms to management.

32.3 Definitions
See Definitions Chapter at the end of the Safety and Health Manual.xviii

32.4 Hazards
Hazards associated with aerial work platforms range from electrocutions to falls. Electrocutons may occur when the lift makes contact with overhead power lines. Fall injuries and fatalities from lifts are due to working without a fall restraint or a fall protection system. Injuries and fatalities may also occur due to overturned lifts or trucks when the vehicle is not set on stable ground. Slips and falls may occur from improper use of the bucket, side rails or ladders.

32.5 Hazard Control Measures
Extendible and articulating boom platforms:

- Always follow manufacturers’ guidelines for safe and effective use of the lift.
- A copy of the manufacturers’ guidelines must be available on the lift at all times.
- Only trained personnel will operate an aerial lift.
- Lift controls will be tested each day prior to use to determine if such controls are in safe working condition. If any control system is found to be inoperative, the lift will be taken out of service until repaired.
• It is prohibited to tie off to an adjacent pole, structure, or equipment while working from an aerial lift.
• While operating the aerial lift, workers will ensure that guardrails and access gates are completely closed and latched in place.
• Employees will always have two feet on the floor of the platform and never climb or sit on the edge of the basket.
• Boom and basket load limits specified by the manufacturer will not be exceeded.
• At no time is an aerial lift to be utilized to hoist materials or equipment from outside of the basket unless the manufacturers’ instruction manual permits such operations.
• Care will be taken by the workers to check for obstructions both on the driving surface and overhead.
• If equipped with outriggers, they must be extended and landed on good solid, stable ground or outrigger pads.
• All brakes and outriggers will be set when in use and will all be positioned on pads or a solid surface.
• Aerial lift operators must ensure that the turntable and swing radius areas are clear of obstructions and personnel before rotating the lift. Extreme care must be utilized when operating in close proximity to obstructions or other equipment so as not to crush another worker with the rotating counterweight.
• Emergency cutoff switches shall be clearly marked and readily accessible for use in the event of a malfunction.
• Extreme care shall be taken when moving the aerial lift with the boom extended as any obstructions or inconsistency on the ground can cause a whipping action at the basket.
• Aerial lift trucks may not be moved when the boom is elevated in a working position with employees in the basket, unless it is specifically designed to do so.
• Articulating boom and extendible boom platforms, primarily designed as personnel carriers, will have both platform (upper) and lower controls.
• The insulated portion of an aerial lift will not be altered in any manner that might reduce its insulating value.
• When working near overhead power lines, minimum safe working distances will be maintained. The manufacturers’ recommendations in the operators’ manual must be utilized. If the manufacturer makes no recommendations, a minimum of 10’ for power lines up to 50 KV (50,000 volts) will be utilized. For lines in excess of 50 KV, add 4” for every additional 10 KV.

### 32.6 Training

#### 32.6.1 Initial

Initial training will be given to each employee prior to using an aerial work platform. Only trained personnel will operate the aerial device. Initial training requires classroom instruction, testing, and hands on operation.

#### 32.6.2 Refresher

Refresher training will take place as needed or every three years. Refresher training will also be given when new equipment is being used that is not similar to the previous equipment the employee was trained on. Refresher training can be given to any employee observed using the aerial device in an unsafe manner, if the operator has been involved in an accident, or if the condition of the workplace changes.

#### 32.6.3 Recertification

Employees will be recertified every three years.

### 32.7 Reference

OSHA Standard 29 CFR 1926.453
Chapter 33 Fall Protection Program

33.1 Purpose, Scope & Policy

33.1.1 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.

33.1.2 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.

33.1.3 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.

33.2 Roles & Responsibilities

«Q1» 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. «Q1» 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.

33.2.1 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.

33.2.2 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.

33.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.xix

33.4 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.
33.5 Hazard Control Measures

33.5.1 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.

33.5.2 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.

33.5.3 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.

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.

If a personal fall arrest system is used for fall protection, it 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 can't fall more than six feet nor contact any lower level.
• Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.
• Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet or the free fall distance permitted by the system, whichever is less.
• Equipment must be inspected prior to each use for wear or damage. Defective components must be removed from service.
• Equipment must not be used for any other purpose other than that intended.
• They must be removed from service if subjected to an impact load during a fall.

33.5.4 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.

33.5.5 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.

33.5.6 Ropes and Straps (Webbing)
Ropes and straps used in lanyards, lifelines, and strength components of body belts and body harnesses will be made of synthetic fibers.
Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds.

33.5.7 Anchorage Points
Anchorages 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.

Anchorages 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.

33.5.8 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.

33.5.8.1 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.

33.5.8.2 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.

33.5.8.3 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.

33.5.9 Safety Net Systems

«Q1» 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.

33.5.10 Additional Fall Protection Requirements

In addition to the systems and criteria already mentioned, the following fall hazards will be evaluated, and the listed fall protection requirements will be adhered to.

• Covers - Covers located in roadways and vehicular aisles must be able to support at least twice the maximum axle load of the largest vehicle to which the cover might be subjected. All other covers must be able to support at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any time. To prevent accidental displacement resulting from wind, equipment, or worker’s activities, all covers must be secured. All covers must bear the word “HOLE.”
• Hoist Areas – Each employee in a hoist area shall be protected from falling 6 feet or more by guardrail systems or personal fall arrest systems. If guardrail systems (or chain gate or guardrail), or portions of, must be removed to facilitate hoisting operations, as during the landing of materials, and a worker must lean through the access opening or out over the edge of the access opening to
receive or guide equipment and materials, that employee must be protected by a personal fall arrest system.

- Holes – Personal fall arrest systems, covers, or guardrail systems shall be erected around holes (including skylights) that are more than 6 feet above lower levels.

33.5.11 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 6 feet or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches 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.

33.5.12 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.

33.5.13 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.

33.6 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.

33.6.1 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.

33.6.2 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.

33.6.3 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.

33.7 Reference

OSHA Standard 29 CFR 1926.500 – 1926.503
Chapter 34 Stairways and Ladders Program

34.1 Purpose, Scope & Policy

34.1.1 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.

34.1.2 Scope
This program applies to all stairways and ladders used in construction, alteration, repair, painting, decorating and demolition work.

34.1.3 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.

34.2 Roles & Responsibilities

34.2.1 Management Responsibilities
Provide oversight of projects and proper tools and equipment.

34.2.2 Supervisor Responsibilities
Observe work in progress and enforce company policies and procedures, using the disciplinary action program when necessary.

34.2.3 Employee Responsibilities
Adhere to company safety policies and procedures.

34.3 Definitions
See Definitions Chapter at the end of the Safety and Health Manual.\textsuperscript{xx}

34.4 Hazards

34.4.1 Work Area
The environment changes as work is completed creating a potential for new and existing fall hazards.

34.4.2 Fall Protection Systems
Correct procedures for erecting, maintaining, and disassembling various devices and systems must be followed at all times.

34.4.3 Load and Capacity
Stairways and ladders must be properly constructed, inspected, and placed properly before safe access can be achieved.
34.5 Hazard Control Measures

34.5.1 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.

34.5.2 Fall Protection Systems

Inspect stair rail system.
Ensure the point of access is clear and free of debris.

34.5.3 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.

34.5.4 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.

34.5.5 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).

34.5.6 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.

34.5.7 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.

34.5.8 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.

34.6 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.

34.6.1 Initial

Employees must be trained by a competent person on the hazards of stairways and ladders.

34.6.2 Refresher

Employees will be re-trained if they are observed not following procedures.

34.7 Reference

OSHA Standard 29 CFR 1926 Subpart X
Chapter 35 Powered Industrial Trucks

35.1 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.

35.1.1 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.

35.1.2 Policy

All employees must successfully complete this training program and receive certification prior to the operation of any powered industrial truck.

35.2 Roles & Responsibilities

35.2.1 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

35.2.2 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

35.3 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.

35.4 Hazards

35.4.1 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.

35.4.2 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.
35.4.3 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.

35.4.4 Fire

Improper refueling procedures or LP gas cylinder change out can lead to a fire or explosion.

35.4.5 Chemical Contact

Improper battery charging procedures can lead to contact with battery acid.

35.5 Hazard Control Measures

35.5.1 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.

35.5.2 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.

35.5.3 Operation General

35.5.3.1 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 25 ft. 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

35.5.3.2 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

35.5.3.3 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

35.5.3.4 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.

35.5.4 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.

35.5.5 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.

35.5.6 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.

35.6 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.

35.6.1 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.

35.6.1.1 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

35.6.1.2 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 vehicle’s stability.
• Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

35.6.2 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.

35.6.3 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.

35.6.4 Recertification

An evaluation of each PIT operator's performance will be conducted at least once every three years.

35.7 Reference

SHA Standard 29 CFR 1910.178

35.8 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

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Note any deficiencies with an ‘X’ (Anote cualquier deficiencia con una ‘X’)

Report any operational deficiencies to your supervisor for corrective action.
Reporte cualguier deficiencia que vea a su supervisor.

Any of these defective? Take out of service! (Algo de esto defectuoso? [Poner fuera de servicio])

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<td></td>
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</tr>
</tbody>
</table>

Any of these defective? Take out of service! (Algo de esto defectuoso? ¡Poner fuera de servicio!

Note any deficiencies with an ’X’ (Anote cualquier deficiencia con una ’X’)

Version: December 1, 2019

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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: ________________________________
Types of Powered Industrial Trucks

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: 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 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 36 Construction Crane Program

36.1 Purpose, Scope, and Policy

36.1.1 Purpose

Cranes are a vital part of many of the construction operations undertaken by «Q1». 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.

36.1.2 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.

36.1.3 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.

36.2 Roles & Responsibilities

36.2.1 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.

36.2.2 Supervisor Responsibilities

Supervisors must direct activities to result in proper methods to control hazards and monitor employee performance for safe work practices.

36.2.3 Employee Responsibilities

Employees are responsible for following safety guidelines and performing work in a safe manner.

36.2.4 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.

36.2.5 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.
36.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. xxii

36.4 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

36.5 Hazard Control Measures

36.5.1 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.

36.5.2 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

36.5.2.1 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

36.5.2.2 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.

36.5.2.3 The Rigger

Only employees who meet the definition of qualified riggers may be used to perform rigging applications during the assembly or disassembly operation.

36.5.3 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

36.5.3.1 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:
  o 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.
  o 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.
36.5.3.1.1 20-Foot Clearance Alternatives

<table>
<thead>
<tr>
<th>Voltage (kV)</th>
<th>Minimum Clearance Distance (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50</td>
<td>10</td>
</tr>
<tr>
<td>50 to 200</td>
<td>15</td>
</tr>
<tr>
<td>200 to 350</td>
<td>20</td>
</tr>
<tr>
<td>350 to 500</td>
<td>25</td>
</tr>
<tr>
<td>500 to 750</td>
<td>35</td>
</tr>
<tr>
<td>750 to 1000</td>
<td>45</td>
</tr>
<tr>
<td>Over 1000</td>
<td>As established by the line owner</td>
</tr>
</tbody>
</table>

(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.

36.5.3.2 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.

36.5.4 Crane Inspection

36.5.4.1 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.

36.5.4.2 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.

36.5.4.3 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.

36.5.4.4 Annual/Comprehensive Inspection

Annual crane inspections must be conducted by a qualified person.

36.5.4.4.1 Documentation of annual/comprehensive inspection

Documentation of the annual inspection must be maintained by the employer for a minimum of twelve (12) months:
36.5.4.5 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.

36.5.4.6 Post-assembly Inspections

Prior to use, the equipment must be inspected by a qualified person to ensure it meets the manufacturer’s assembly criteria.

36.5.4.7 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.

36.5.4.8 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.

36.5.4.9 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.

36.5.4.10 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.

36.5.4.11 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.

36.5.4.11.1 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.

36.5.4.11.2 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

36.5.5 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.

36.5.5.1 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.

36.5.5.2 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 were 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.

36.5.5.3 Handling the Load

No crane shall be loaded beyond its rated capacity, except for test purposes.
36.5.5.3.1 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.

36.5.5.3.2 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.

36.5.6 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).

36.5.6.1 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.
36.5.6.2 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.

36.5.6.3 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.

36.5.6.4 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.

36.5.7 Signals

36.5.7.1 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.

36.5.7.2 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.

36.5.7.2.1 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.

36.5.7.2.2 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

36.5.7.2.3 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.

36.5.8 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 drawworks when the equipment is running or when the employee is in the cab or on the deck.
36.5.8.1 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.

36.5.8.2 Steps, Handholds, Ladders, Grabrails, Guardrails, and Railings:

If these devices were originally installed on equipment they must be maintained in good condition.

36.5.8.3 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.

36.5.8.4 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

36.5.9 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.

36.5.10 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.

36.5.10.1.1 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.

36.5.10.1.2 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.

36.5.11 Lifts Using Other Equipment

36.5.11.1 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.

36.5.11.2 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.

36.5.11.3 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.

36.5.11.4 **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.

36.5.12 **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.

36.6 **Training**

36.6.1 **Operator Qualifications and Certification**

All crane operators must be certified by a nationally accredited organization such as the Operating Engineer's Certification Program (OECP) 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 350 kV 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 to 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.

36.6.2 **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.

36.6.3 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

36.7 Reference

OSHA Standard 29 CFR 1926 Subpart CC
ASME B30.5

36.8 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

The use of equipment to hoist employees is prohibited except where the employer demonstrates that the erection, use, and dismantling of conventional means of reaching the work area, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform, or scaffold, would be more hazardous, or is not possible due to the structural design of the project or worksite conditions.

Use of Personnel Platform

When using equipment to hoist employees, the employees must be in a personnel platform that meets the following requirements:

- The personnel platform and attachment/suspension system used for hoisting personnel must be designed by a qualified person familiar with structural design.
- The system used to connect the personnel platform to the equipment must allow the platform to remain within ten (10) degrees of level, regardless of boom angle.
- The suspension system must be designed to minimize tipping of the platform due to movement of employees occupying the platform.
- The personnel platform (including the guardrail system and personal fall arrest system anchorage points) must be capable of supporting, without failure, its own weight and at least five (5) times the maximum intended load.
- All welding of the personnel platform and its components must be performed by a certified welder familiar with the weld grades, types, and material specified in the platform design.
- The personnel platform must be equipped with a guardrail system which meets the requirements of OSHA Standard 29 CFR 1926 Subpart M and must be enclosed from the toeboard to mid-rail with either solid construction material or expanded metal having openings no greater than ½ inch (1.27 cm). Anchorage points to which personal fall arrest systems are attached must meet the anchorage requirements in OSHA Standard 29 CFR 1926 Subpart M.
- A grab rail must be installed inside the entire perimeter of the personnel platform except for access gates and doors.
- Access gates and doors must be equipped with a device that prevents accidental opening.
- Headroom must be sufficient to allow employees to stand upright in 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 ½ 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.

Equipment Criteria

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 when attached.

Shackles used in place of hooks must be of the alloy anchor type, with either:

- a bolt, nut, and retaining pin, in place; or
- of the screw type, with the screw pin secured from accidental removal.

Where other detachable devices are used, they must be closed and locked to the same extent as the devices addressed above. Such devices must be closed and locked when attached.

**Rope bridles**

When a rope bridle is used to suspend the personnel platform, each bridle leg must be connected to a master link or shackle in a manner that ensures that the load is evenly divided among the bridle legs.

Rigging hardware (including wire rope, shackles, rings, master links, and other rigging hardware) and hooks must be capable of supporting, without failure, at least five (5) times the maximum intended load applied or transmitted to that component. Where rotation resistant rope is used, the slings must be capable of supporting without failure at least ten (10) times the maximum intended load.

Eyes in wire rope slings must be fabricated with thimbles.

Bridles and associated rigging for suspending the personnel platform must be used only for the platform and the necessary equipment and materials to do the work. The bridles and associated rigging must not have been used for any purpose other than hoisting personnel.

**Trial Lift and Inspection**

A trial lift with the unoccupied personnel platform loaded at least to the anticipated lift weight 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:
• 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 to ensure that all conditions exist before the lift of personnel proceeds:
  o Hoist ropes must be free of defects.
  o Multiple part lines must not be twisted around each other.
  o The primary attachment must be centered over the platform.
  o If the load rope is slack, the hoisting system must be inspected to ensure that all ropes are properly seated on drums and in sheaves.

Any condition found during the trial lift and subsequent inspection(s) that fails to meet a requirement of this standard or otherwise creates a safety hazard must be corrected before hoisting personnel.

Proof Testing
At each jobsite, prior to hoisting employees on the personnel platform, and after any repair or modification, the platform and rigging must be proof tested to 125 percent of the platform's rated capacity. The proof test may be done concurrently with the trial lift.

The platform must be lowered by controlled load lowering, braked, and held in a suspended position for a minimum of five (5) minutes with the test load evenly distributed on the platform.

After proof testing, a competent person must inspect the platform and rigging to determine if the test has been passed. If any deficiencies are found that pose a safety hazard, the platform and rigging must not be used to hoist personnel until the deficiencies are corrected, the test is repeated, and a competent person determines that the test has been passed. (See § 1926.1417 for tag-out and related requirements.)

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.
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 using the controls in the platform must be a qualified person with respect to their use, including the safe limitations of the equipment and hazards associated with its operation.
- The equipment operator must be at a set of equipment controls that include boom and swing functions of the equipment.
- The operating manual for the platform must be in the platform or on the equipment.

**Environmental Conditions**

Employees being hoisted must remain in direct communication with the signal person (where used), or the operator.

**Wind**

When wind speed (sustained or gusts) exceeds twenty (20) mph at the personnel platform, a qualified person must determine if, in light of the wind conditions, it is not safe to lift personnel. If it is not, the lifting operation must not begin (or, if already in progress, must be terminated).

**Other Weather and Environmental Conditions**

A qualified person must determine if indications of dangerous weather conditions, or other impending or existing danger exist, whether it is safe to lift personnel. If unsafe, the lifting operation must not begin (or, if already in progress, must be terminated).

**Fall Protection**

Except over water, employees occupying the personnel platform must be provided with and use a personal fall arrest system. The system must be attached to a structural member within the personnel platform.

**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.
• 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:
  o Equipment travel must be limited to boom length.
  o The boom must be parallel to the direction of travel, except where it is safer to do otherwise.
  o 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:

- held to review the applicable requirements of this section and the procedures that will be followed.
- attended by the equipment operator, signal person (if used for the lift), employees to be hoisted, and the person responsible for the task to be performed.
- held prior to the trial lift at each new work location and must be repeated for any employees newly assigned to the operation.

**If client engages in hoisting personnel using a crane, delete this box.**

Otherwise, delete this section.
Powerline Safety Flow Chart

IDENTIFY WORK ZONE

A Mark boundaries and do not operate equipment beyond boundary, OR
B Define the work zone as 360° around equipment up to its maximum reach.

Can any part of the crane, load line, or load in the work zone, get closer than 20 ft (50 ft if above 350 kv) to a powerline?

NO Clear to Operate Crane

YES

PICK AN OPTION

A Contact utility to determine voltage and maintain clearance listed in Table A

THEN YOU MUST

- Conduct and Document a Planning Meeting
- Use a Non-Conductive Tagline if one is used

AND

- Erect and Maintain an Elevated Warning Line, Barricade or Line of Signs at 20' or 50' if utilizing Option B, OR
- Table A distances if utilizing Option A

ALSO

- MUST implement one of these:
  - Use Dedicated Spotter *
  - Use Proximity Alarm
  - Use Range Control Warning Device
  - Use Range of Movement Limiting Device
  - Use Insulating Link/Device

YES Clear to Operate Crane

* DEDICATED SPOTTER MUST:

1. Be equipped with a visual aid.
2. Be positioned to effectively gauge clearance distance.
3. Must be able to communicate effectively. (ie. radio, air horn)
4. Give timely information to the operator so clearance is maintained.

TABLE A DISTANCES

<table>
<thead>
<tr>
<th>Voltage Class</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50 kv</td>
<td>10 ft.</td>
</tr>
<tr>
<td>51 kv &gt; 200 kv</td>
<td>15 ft.</td>
</tr>
<tr>
<td>201 kv &gt; 350 kv</td>
<td>20 ft.</td>
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<tr>
<td>351 kv &gt; 500 kv</td>
<td>25 ft.</td>
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<tr>
<td>501 kv &gt; 750 kv</td>
<td>35 ft.</td>
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<tr>
<td>751 kv &gt; 1000kv</td>
<td>45 ft.</td>
</tr>
</tbody>
</table>
Crane Hand Signals - Construction Cranes

Hoist
Lower
Use Main Hoist
Use Whipline
Raise Boom

Lower Boom
Move Slowly
Raise the Boom
Lower the Load
Swing

Stop
Emergency Stop
Travel
Dog Everything
Travel (Both Tracks)

Travel (One Track)
Extend Boom
Retract Boom
Extend Boom (One Hand)
Retract Boom (One Hand)
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.

<table>
<thead>
<tr>
<th>Crane Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit #:</td>
</tr>
<tr>
<td>S = Satisfactory</td>
</tr>
</tbody>
</table>

1.0 Pre-Operation Items

1.1 Monthly and annual inspection records on hand

1.2 Operator’s Manual on hand (correct manual, in cab, legible)

1.3 Identified deficiencies repaired

1.4 Operational test of all functions

2.0 Safety/Warning devices

2.1 Load chart for specific configuration

2.2 Load indicator

2.3 Boom angle and radius reading correctly

2.4 Anti-two block system present and working

2.5 Line riders in place for lift crane service

2.6 Signal horn

2.8 Swing warning devices

3.0 Cab

3.1 Seat and seat belt/restraints

3.2 Mirrors

3.3 Glass, windows, and wipers

3.4 Lights (headlights, signal and marker lights, area lighting)

3.5 Instrument panel

3.6 Steps and handholds

3.7 Controls properly and legibly identified

3.8 Identification plates and warning labels in place

3.9 Fire extinguisher present and within annual inspection

3.10 Steering

3.11 Travel alarm

3.12 Travel brakes

3.13 Parking brake

3.14 Swing brake operation, adjustment, and condition

3.15 Swing radius protection

4.0 Mechanical Items

4.1 Daily grease points

4.2 Fluid levels (oil, coolant, hydraulic oil, etc.)

4.3 Engine air cleaner

4.4 Belts and hoses

4.5 Fuel system sedimenters

4.6 Main engine clutch/disconnect

4.7 Cooling system (engine and hydraulic)

4.8 Air system (condensate drain)
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<td>4.10</td>
<td>Guards and covers in place</td>
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<td><strong>5.0 Crane Items</strong></td>
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<td>Weight and capacity of blocks, balls, and below-the-hook rigging identified</td>
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<td>5.2</td>
<td>Swing brake operation, adjustment, and condition</td>
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<td>Positive swing/house lock</td>
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<td>Boom hoist pawl operation</td>
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<td>Load hoist brakes and pedal stroke</td>
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<td>7.7</td>
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### Approvals

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<th>Role</th>
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<tr>
<td>Crane Operator:</td>
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<tr>
<td>Mechanic:</td>
<td>______________</td>
<td>___________</td>
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<tr>
<td>Supervisor:</td>
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### 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 ☐ NO ☐
2) Will the pick require the use of multiple cranes?  YES ☐ NO ☐
3) Will the pick be made over an occupied building or facility?  YES ☐ NO ☐

#### Crane Considerations

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>YES ☐ NO ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is the lift within the device’s rated capacity? (based on boom height, length, etc.)</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>2</td>
<td>Have boom deflections been considered?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>3</td>
<td>Have all potential crane boom obstructions been identified and addressed?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>4</td>
<td>Have environmental considerations been addressed? (wind, rain, weather, lightning, water accumulation, ground condition, etc.)</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>5</td>
<td>Have electrical hazards been addressed? (overhead/underground)</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td></td>
<td>Clearance distances established?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td></td>
<td>Is a spotter required?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td></td>
<td>Public utility contacted?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>6</td>
<td>Is crane swing radius properly barricaded and personnel advised of hazards?</td>
<td>YES ☐ NO ☐</td>
</tr>
</tbody>
</table>

#### Load Considerations

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>YES ☐ NO ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have the weights and center of gravity been determined?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>2</td>
<td>Is there anything inside/outside the loads that could shift during the lift?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>3</td>
<td>Does the rigging need protection from the load?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>4</td>
<td>Have all anchor bolts, tie-downs, or fasteners been removed?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>5</td>
<td>Are load cells required to verify the loads are free?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>6</td>
<td>Are the attachment points rated for the load?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>7</td>
<td>Are the loads structurally capable of being lifted (bending and twisting issues)</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>8</td>
<td>Is a Critical Lift Plan required?</td>
<td>YES ☐ NO ☐</td>
</tr>
</tbody>
</table>
### Rigging Considerations

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Has all rigging been inspected by a qualified rigger or competent person?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Have sling angles been calculated?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Are shackles correctly sized for the sling eyes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Are load softeners needed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Is the crane equipped with an anti-two-block system?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Personnel Considerations

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have the roles, responsibilities, and qualifications for personnel been defined? (Lift Supervisor, Operator, Rigger, Signal Person)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Has a pre-lift meeting been conducted?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Have personnel been trained to the required tasks?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Area Preparation

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have the locations for the load landings been inspected and prepared?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Is blocking, cribbing, or dunnage available to set the load upon?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Have travel paths been determined and cordoned off?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Have personnel in the area been notified of the lift operation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Have ground bearing support questions been addressed?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Comments

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>

### Approvals

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crane Operator:</td>
<td>Name:________________________ Signature:_______________________ Date:_________</td>
</tr>
<tr>
<td>Signal Person:</td>
<td>Name:________________________ Signature:_______________________ Date:_________</td>
</tr>
<tr>
<td>Rigger:</td>
<td>Name:________________________ Signature:_______________________ Date:_________</td>
</tr>
<tr>
<td>Rigger:</td>
<td>Name:________________________ Signature:_______________________ Date:_________</td>
</tr>
<tr>
<td>Contractor Rep:</td>
<td>Name:________________________ Signature:_______________________ Date:_________</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Make:</th>
<th>Model:</th>
<th>Capacity (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
<td>Track ✓ Tires ✓ Other:</td>
<td></td>
</tr>
<tr>
<td>Total Boom Length:</td>
<td>Will Jib be Used?</td>
<td>YES ✓ NO ❑ Jib Length:</td>
</tr>
<tr>
<td>Max Boom Length Required:</td>
<td>Maximum Pick Radius Required:</td>
<td></td>
</tr>
</tbody>
</table>

- 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.
- 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.

<table>
<thead>
<tr>
<th>Load Dimensions (meters)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width/Diameter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rigging Weight (including spreader/equalizer bar)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total below the hook weight</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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   - NO

2) Will the lift require the use of multiple cranes?  
   - YES   - NO

3) Will the lift be made over an occupied building or facility?  
   - YES   - NO

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?  
   (if ‘YES’, a traffic control plan must be submitted)  
   - YES   - NO

2) Are there overhead power lines or other hazards in the lift area?  
   - YES   - NO

3) Will the load or any part of the crane be over or within fifteen (15) feet of electrical lines, pipes, process systems, or operating equipment?  
   - YES   - NO

4) Will the crane height exceed 120 feet?  
   (If ‘YES’, the crane must have a light beacon at the tip)  
   - YES   - NO

5) Will the crane height exceed 200 feet?  
   (If ‘YES’, the FAA must be notified at least 30 days prior to the lift)  
   - YES   - NO

7. Wind Speed

Lifts are not allowed when wind speed is in excess of twenty (20) miles per hour

<table>
<thead>
<tr>
<th>Wind speed at time of lift</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MPH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. Additional Information (Required)

Documentation of the following information must be provided.

Do not proceed until all items can be marked ‘YES’

1) Plot plan showing crane location, adjacent structures, roadways, utilities, etc. within crane swing radius
   YES ☐ NO ☐

2) Scale elevation sketch showing crane location, adjacent structures, and load
   YES ☐ NO ☐

3) Applicable crane load charts
   YES ☐ NO ☐

4) Valid crane operator’s licenses for all crane operators involved in the lift operation.
   YES ☐ NO ☐

5) Valid third-party annual and periodic inspection certificates
   YES ☐ NO ☐

9. Comments, Notes, and Sketches
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.
<table>
<thead>
<tr>
<th>CRITICAL LIFT PLAN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Load Chart</strong></td>
</tr>
<tr>
<td>Show here or attach calculations, drawings, etc.</td>
</tr>
<tr>
<td>Load Calculations</td>
</tr>
<tr>
<td>--------------------</td>
</tr>
<tr>
<td>Show here or attach calculations, drawings, etc.</td>
</tr>
</tbody>
</table>
### CRITICAL LIFT PLAN

#### Bearing Pressures and Ground Conditions

Show here or attach calculations, drawings, etc.
<table>
<thead>
<tr>
<th>CRITICAL LIFT PLAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator, Rigger, Signal Person Qualifications</td>
</tr>
</tbody>
</table>

Show here or attach calculations, drawings, etc.
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

<table>
<thead>
<tr>
<th>Company/Organization:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Address:</td>
<td>(Street)</td>
</tr>
<tr>
<td></td>
<td>(City)    (State) (Zip Code)</td>
</tr>
<tr>
<td>Supervisor:</td>
<td>(name)    (title) (phone number)</td>
</tr>
<tr>
<td>Period of employment:</td>
<td>From: (mm/dd/yyyy) to: (mm/dd/yyyy)</td>
</tr>
<tr>
<td>Approximate number of</td>
<td>crane-related experience during this period:</td>
</tr>
<tr>
<td>Describe your specific</td>
<td>job responsibilities and experience:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Reference #3

<table>
<thead>
<tr>
<th>Company/Organization:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Address:</td>
<td>(Street)</td>
</tr>
<tr>
<td></td>
<td>(City)    (State) (Zip Code)</td>
</tr>
<tr>
<td>Supervisor:</td>
<td>(name)    (title) (phone number)</td>
</tr>
<tr>
<td>Period of employment:</td>
<td>From: (mm/dd/yyyy) to: (mm/dd/yyyy)</td>
</tr>
<tr>
<td>Approximate number of</td>
<td>crane-related experience during this period:</td>
</tr>
<tr>
<td>Describe your specific</td>
<td>job responsibilities and experience:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 37 Rigging Safety Program

37.1 Purpose, Scope & Policy

37.1.1 Purpose

The purpose of the rigging program is to ensure safe use of slings.

37.1.2 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.

37.1.3 Policy

All employees will comply with the rigging safety program to ensure safety and minimize the risk of incidents happening.

37.2 Roles & Responsibilities

37.2.1 Employer Responsibilities

37.2.1.1 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.

37.2.1.2 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.

37.2.2 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.

37.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual.xxii

37.4 Hazards

37.4.1 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.

37.4.2 Struck by Load

Employees can be struck by the load while it is being moved (traversed) causing death or serious injury.

37.4.3 Rigging Failure

Rigging can fail not only if subjected to loads heavier than the rated capacity, but also due to damage or excessive wear.
37.5 Hazard Control Measures

37.5.1 By Hazard

37.5.1.1 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.

37.5.1.2 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.

37.5.1.3 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.

37.5.2 Specific Types of Slings

37.5.2.1 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

<table>
<thead>
<tr>
<th>Chain Size (inches)</th>
<th>Maximum Allowable Wear (inches)</th>
<th>Chain Size (inches)</th>
<th>Maximum Allowable Wear (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>3/64</td>
<td>1</td>
<td>3/16</td>
</tr>
<tr>
<td>3/8</td>
<td>5/64</td>
<td>1 - 1/8</td>
<td>7/32</td>
</tr>
<tr>
<td>1/2</td>
<td>7/64</td>
<td>1 - 1/4</td>
<td>1/4</td>
</tr>
<tr>
<td>5/8</td>
<td>9/64</td>
<td>1 - 3/8</td>
<td>9/32</td>
</tr>
<tr>
<td>3/4</td>
<td>5/32</td>
<td>1 - 1/2</td>
<td>5/16</td>
</tr>
<tr>
<td>7/8</td>
<td>11/64</td>
<td>1 - 3/4</td>
<td>11/32</td>
</tr>
</tbody>
</table>

### 37.5.2.2 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.

### 37.5.2.3 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.
37.5.2.4 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

37.5.2.5 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

37.6 Training

Training will be conducted for all employees that will work with hoisting activities.

37.6.1 Initial

Initial training will be done prior to employees working with any type of sling assemblies.

37.6.2 Refresher

Refresher training will be done if employees show a lack of safety knowledge in regard to use of sling assemblies.

37.7 Reference

OSHA Standard 29 CFR 1926.251
Chapter 38 Hazard Communication Program

38.1 Purpose, Scope & Policy

38.1.1 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.

38.1.2 Scope
This program applies when employees are exposed to hazardous chemicals during handling or work processes involving such substances.

38.1.3 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.

38.2 Roles & Responsibilities

38.2.1 Employer Responsibilities
- Management shall ensure the inventory of hazardous substances is maintained up to date;
- Management shall ensure that all workers are properly trained;
- Management shall ensure that data sheets are available, in legible format and accessible for review by all workers.
- Supervisors will routinely discuss the hazard communication plan with workers.

38.2.2 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.
38.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. xxiii

38.4 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.

38.5 Hazard Control Measures

38.5.1 Safety Data Sheets

- For each item on the “List of Hazardous Chemicals” there shall be a current and updated Safety Data Sheet, with a corresponding product identifier.
- Safety Data Sheets (SDS) are stored in/at SDSLOCATION. The Safety Coordinator is responsible for compiling a current “List of Hazardous Substances” and updating the SDS as needed.
- All employees will have free access to SDS.

38.5.1.1 What are Safety Data Sheets Why are They Needed?

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 16 specific section headings in a specified sequence and must be in English. The 16 standardized sections are as follows:

**Section 1** Identification

**Section 2** Hazard(s) identification

**Section 3** Composition/information on ingredients

**Section 4** First-aid measures

**Section 5** Fire-fighting measures

**Section 6** Accidental release measures

**Section 7** Handling and storage

**Section 8** Exposure controls /personal protection

**Section 9** Physical and chemical properties

**Section 10** Stability and reactivity

**Section 11** Toxicological information

**Section 12** Ecological information

**Section 13** Disposal considerations

**Section 14** Transport information

**Section 15** Regulatory information

**Section 16** Other information, including date of preparation or last revision

- 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.
- Copies of the SDS for hazardous chemicals in a given worksite are to be readily accessible to employees in that area. As a source of detailed information on hazards, they must be readily available to workers during each work shift.
- 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.
38.5.2 Workplace Labels

- Labels must not ever be removed or defaced on incoming containers of hazardous chemicals.
- Our company requires that each container (primary or secondary) of hazardous chemicals must be labeled, tagged, or marked with:
  - The product identifier, signal word, hazard statement(s), pictogram(s), and precautionary statement(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.

38.5.2.1 Exemptions

Exemptions to the requirement for 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.

38.6 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.
38.6.1 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.

38.6.2 Refresher
Employees will receive refresher training:
- Annually
- When a new chemical or work process involving chemicals in 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

38.7 Reference

38.8 Appendix
- Chemical Inventory List Form
- Sample Label
- GHS Trained Cards
- OSHA Pictogram Cards
- Quiz
- Quiz Answer Key
### Chemical Inventory List Form

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HazCom Label Example

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
Workers must be trained to understand these pictograms and the hazards they represent. To learn more about training, labeling, and safety data sheet requirements, scan the QR code.

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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

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

Match the hazards to the correct pictogram
Chapter 39 Hazard Material Program

39.1 Purpose, Scope & Policy

39.1.1 Purpose
«Q1» 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.

39.1.2 Scope
This program applies when employees are exposed to hazardous materials during work processes involving such substances.

39.1.3 Policy
It is the policy that no employee performs work of any kind related to lead, any type of asbestos or other hazardous materials. «Q1» prevents employee exposure other material hazards by defining the scope of the project and coordination of work on the site.

39.2 Roles & Responsibilities

39.2.1 Employer Responsibilities
Provide scope of work based on project documents and project meetings.

39.2.2 Supervisor Responsibilities
Monitor daily activities to identify any hazard exposures that maybe discovered or created by «Q1» or others.

39.2.3 Employee Responsibilities
Inform supervisor immediately of any unanticipated exposure to hazardous materials or activities.

39.3 Definitions
See Definitions Chapter at the end of the Safety and Health Manual.

39.4 Hazards
- Ionizing Radiation
- Non-ionizing Radiation
- Gases, vapors, fumes, dusts, and mists
- Lead (See Lead Program)
- Asbestos and other substances
- Highly Hazardous Chemicals

39.5 Hazard Control Measures

39.5.1 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

39.5.2 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.

39.5.3 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.

39.5.4 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.

39.5.5 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.
39.6  Training

39.6.1 Initial
Employees will be trained based on their project assignments

39.6.2 Refresher
Employees will be trained based on observation of improper work practices

39.7  Reference
OSHA Standard 29 CFR 1926 Subpart D
Chapter 40 Respirable Crystalline Silica Exposure Program

40.1 Purpose, Scope, and Policy

40.1.1 Purpose

«Q1» 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.

40.1.2 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.

40.1.3 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 µg/m³), 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.

40.2 Roles & Responsibilities

40.2.1 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.

40.2.1.1 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.

40.2.1.2 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.

40.2.2 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.

40.3 Definitions
See Definitions Chapter at the end of the Safety and Health Manual. xxv

40.4 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

40.5 Hazard Control Measures

40.5.1 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.

40.5.1.1 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.

40.5.1.2 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.

### 40.5.1.2.1 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.

### 40.5.1.2.2 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 µg/m³), 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 µg/m³), 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.

**40.5.2 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:

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Propylene Glycol % by Weight</th>
<th>Freeze Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEAK® -50 F RV &amp; Marine Antifreeze</td>
<td>25-30</td>
<td>No Data Available</td>
</tr>
<tr>
<td>SIERRA® Concentrate Antifreeze &amp; Coolant</td>
<td>94-96</td>
<td>No Data Available</td>
</tr>
<tr>
<td>SIERRA® Concentrate Antifreeze &amp; Coolant</td>
<td>50</td>
<td>-26° F</td>
</tr>
<tr>
<td>SIERRA® Concentrate Antifreeze &amp; Coolant</td>
<td>60</td>
<td>-54° F</td>
</tr>
<tr>
<td>SIERRA® Concentrate Antifreeze &amp; Coolant</td>
<td>66</td>
<td>-76° F</td>
</tr>
</tbody>
</table>

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 
avtomotive 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.

**40.5.2.1 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.

**40.5.2.2 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.

40.5.3 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.

«Q1» 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.

«Q1» 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).

40.5.4 Recordkeeping

40.5.4.1 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.

40.5.4.2 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.

40.5.4.3 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.

40.6 Training

40.6.1 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.

40.6.2 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.

40.7 Reference


40.8 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 – Respirable Crystalline Silica

<table>
<thead>
<tr>
<th>Equipment/Task</th>
<th>Engineering &amp; Work Practice Control Methods</th>
<th>Required Respiratory Protection &amp; Minimum Assigned Protection Factor (APF)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>≤4 hours/shift</td>
</tr>
<tr>
<td>i. Stationary Masonry Saws</td>
<td>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.</td>
<td>None</td>
</tr>
<tr>
<td>ii. Handheld Power Saws (any blade diameter)</td>
<td>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:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 When used outdoors.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>2 When used indoors or in an enclosed area.</td>
<td>APF 10</td>
</tr>
<tr>
<td>iii. Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)</td>
<td>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.</td>
<td>None</td>
</tr>
<tr>
<td>iv. Walk-Behind Saws</td>
<td>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:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- When used outdoors.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>- When used indoors or in an enclosed area.</td>
<td>APF 10</td>
</tr>
<tr>
<td>v. Drivable Saws</td>
<td>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.</td>
<td>None</td>
</tr>
<tr>
<td>vi. Rig-Mounted Core Saw or Drills</td>
<td>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.</td>
<td>None</td>
</tr>
<tr>
<td>vii. Handheld &amp; Stand-Mounted Drills (including impact &amp; rotary hammer drills)</td>
<td>Use drill equipped with commercially available shroud or cowling 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.</td>
<td>None</td>
</tr>
<tr>
<td>Equipment/Task</td>
<td>Engineering &amp; Work Practice Control Methods</td>
<td>Required Respiratory Protection &amp; Minimum Assigned Protection Factor (APF)</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>viii. Dowel Drilling Rigs for Concrete</td>
<td>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.</td>
<td>APF 10  APF 10</td>
</tr>
<tr>
<td>ix. Vehicle-Mounted Drilling Rigs for Rock &amp; Concrete</td>
<td>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. OR Operate from within an enclosed cab and use water for dust suppression on drill bit.</td>
<td>None  None</td>
</tr>
<tr>
<td>x. Jackhammers &amp; Handheld Powered Chipping Tools</td>
<td>Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact: -When used outdoors</td>
<td>None  APF 10</td>
</tr>
<tr>
<td></td>
<td>-When used indoors or in an enclosed area</td>
<td>APF 10  APF 10</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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</td>
<td>None  APF 10</td>
</tr>
<tr>
<td></td>
<td>-When used indoors or in an enclosed area</td>
<td>APF 10  APF 10</td>
</tr>
<tr>
<td>xi. Handheld Grinders for Mortar Removal (Tuckpointing)</td>
<td>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.</td>
<td>APF 10  APF 25</td>
</tr>
<tr>
<td>Equipment/Task</td>
<td>Engineering &amp; Work Practice Control Methods</td>
<td>Required Respiratory Protection &amp; Minimum Assigned Protection Factor (APF)</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **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                                                                                                                                       | ≤4 hours/shift: None  >4 hours/shift: 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  -When used indoors or in an enclosed area: None APF 10                                                                 | ≤4 hours/shift: None  >4 hours/shift: None                                                                                  |
| **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.                                                                                                                                   | ≤4 hours/shift: None  >4 hours/shift: 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 airflow 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.                                                                 | ≤4 hours/shift: None  >4 hours/shift: None                                                                                  |
| **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.                                                                                                                               | ≤4 hours/shift: None  >4 hours/shift: None                                                                                  |
<table>
<thead>
<tr>
<th>Equipment/Task</th>
<th>Engineering &amp; Work Practice Control Methods</th>
<th>Required Respiratory Protection &amp; Minimum Assigned Protection Factor (APF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>xv. Large Drivable Milling Machines (1/2 lane &amp; larger)</td>
<td>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.</td>
<td>≤4 hours/shift: None</td>
</tr>
<tr>
<td></td>
<td>For cuts of four inches in depth or less on any substrate: 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.</td>
<td>&gt;4 hours/shift: None</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td>≤4 hours/shift: None</td>
</tr>
<tr>
<td>xvi. Crushing Machines</td>
<td>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.</td>
<td>&gt;4 hours/shift: None</td>
</tr>
<tr>
<td>xvii. Heavy Equipment and Utility Vehicles used to Abrade or Fracture Silica-Containing Materials or used during Demolition Activities Involving Silica-Containing Materials</td>
<td>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</td>
<td>≤4 hours/shift: None</td>
</tr>
<tr>
<td>xviii. Heavy Equipment and Utility Vehicles for tasks such as Grading and Excavating but not including: Demolishing, Abrading, or Fracturing Silica-Containing Materials</td>
<td>Apply water and/or dust suppressants as necessary to minimize dust emissions.</td>
<td>&gt;4 hours/shift: None</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.</td>
<td>≤4 hours/shift: None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;4 hours/shift: None</td>
</tr>
</tbody>
</table>
### Written Exposure Control Plan

<table>
<thead>
<tr>
<th>Developed by:</th>
<th>Date:</th>
</tr>
</thead>
</table>

**Task:**

<table>
<thead>
<tr>
<th>Engineering Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
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<table>
<thead>
<tr>
<th>Work Practice Controls</th>
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<table>
<thead>
<tr>
<th>Respiratory Protection</th>
</tr>
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<tbody>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Housekeeping Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedures to Restrict Access</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reviewed by:</th>
<th>Date:</th>
</tr>
</thead>
</table>

Version: December 1, 2019
RCS Exposure Assessment Notification Letter

Over the Permissible Exposure Limit

Notice Date: ____________________

Air sampling for respirable crystalline silica was performed on ___________. The task(s) performed during air sampling included:

________________________________________________________________________

________________________________________________________________________

We have received the laboratory results for the recent air sampling indicating a reading of _______ µg/m³. According to OSHA, the Permissible Exposure Limit is 50 µg/m³ 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:

________________________________________________________________________

________________________________________________________________________

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.
RCS Exposure Assessment Notification Letter

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:

We have received the laboratory results for the recent air sampling indicating a reading of _______ µg/m³. According to OSHA, the Permissible Exposure Limit (PEL) is 50 µg/m³ and the Action Level (AL) is 25 µg/m³ 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.
RCS Exposure Assessment Notification Letter

Under the Action Level

Notice Date: ________________

Air sampling for respirable crystalline silica was performed on __________. The task(s) performed during air sampling included:

We have received the laboratory results for the recent air sampling indicating a reading of _______ µg/m³. According to OSHA, the Permissible Exposure Limit (PEL) is 50 µg/m³ and the Action Level (AL) is 25 µg/m³ 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.
Medical Surveillance Documentation

Information to Physician or other Licensed Health Care Professional

Employee Name: ____________________________ Date: __________________________

The above-named employee of «Q1» 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)

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Employee Exposure Levels (include past, current, and anticipated levels related to silica exposure)

________________________________________________________________________

________________________________________________________________________

Description of Personal Protective Equipment (include type, when and duration of use)

________________________________________________________________________

________________________________________________________________________

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.
Medical Surveillance Documentation

Written Medical Report for Employee

Employee Name: ___________________________ Date: _______________________

Type of Examination:

☐ Initial  ☐ Periodic  ☐ Specialist  ☐ Other: ___________________________

Results of Medical Examination:

Physical Examination
☐ Normal  ☐ Abnormal (See Below)  ☐ Not Performed

Chest X-Ray
☐ Normal  ☐ Abnormal (See Below)  ☐ Not Performed

Breathing Test (Spirometry)
☐ Normal  ☐ Abnormal (See Below)  ☐ Not Performed

Test for Tuberculosis
☐ Normal  ☐ Abnormal (See Below)  ☐ Not Performed

Other: ___________________________

☐ Normal  ☐ Abnormal (See Below)  ☐ 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)
Medical Surveillance Documentation

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))
Medical Surveillance Documentation

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 41 Nuisance Dust

41.1 Purpose, Scope & Policy

41.1.1 Purpose
This program is designed to protect employees from dangerous levels of nuisance dust which can lead to cumulative lung damage and lung disease.

41.1.2 Scope
This program covers requirements that must be followed for the safety of employees working around nuisance dust.

41.1.3 Policy
All employees are required to follow the minimum procedures outlined in this program.

41.2 Roles & Responsibilities

41.2.1 Employer Responsibilities

41.2.1.1 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.

41.2.1.2 Supervisors
Supervisors will not allow any employee to wear a respirator who has not received the required training, medical clearance, and fit testing.

41.2.2 Employee Responsibilities
All employees will perform work within accordance to the Nuisance Dust Program, and the Respiratory Protection Program outlined in this manual.

41.3 Definitions

Nuisance Dust - Inert or Nuisance Dusts includes all mineral, inorganic, and organic dusts.

41.4 Hazards
Hazards associated with are health hazards related to cumulative lung damage and lung disease.

41.5 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.
41.5.1 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.

41.5.2 Administrative

- Reduce the amount of time spent in areas with high dust concentrations.

41.5.3 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.

41.5.4 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.

41.6 Training

41.6.1 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.

41.6.2 Refresher

Refresher training will be done as needed or annually. Annual fit test will be required for those required to work with respiratory protection.

41.6.3 Reference

OSHA Standard 29 CFR 1926.55 Appendix A
Chapter 42 Lead Program

42.1 Purpose, Scope, and Policy

42.1.1 Purpose

«Q1» 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.

42.1.2 Scope

This program applies when employees are exposed to lead during work processes involving such substances.

42.1.3 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. «Q1» shall also reduce employee exposure by defining the scope of the project and coordination of work on the site.

42.2 Roles & Responsibilities

42.2.1 Employer Responsibilities

Provide scope of work based on project documents and project meetings.

42.2.2 Supervisor Responsibilities

Monitor daily activities to identify any hazard exposures that maybe discovered or created by «Q1» or others.

42.2.3 Employee Responsibilities

Inform supervisor immediately of any unanticipated exposure to hazardous materials or activities.

42.3 Definitions

Action Level — employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 µg/m³ 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.
42.4 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.

42.5 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.

42.5.1 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).

42.5.2 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.

42.5.3 Action Level

The action level (AL) at which the lead standard must be implemented is 30 micrograms per cubic meter ($\mu g/m^3$), (8-hour TWA).

42.5.3.1 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)
42.5.4 Permissible Exposure Limit

The Permissible Exposure Limits (PEL) for exposure to lead are as follows:

- PEL = 50 µg/m³ (8-hour TWA)
- For work exceeding 8 hours, PEL = 400 µg/m³.

42.5.5 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.

42.5.6 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.
- >= AL but < PEL: At least every six (6) months
- > PEL: At least every three (3) months

42.5.7 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.

42.5.8 Employee Protection

When performing work where lead is present, the following exposures will be assumed:

- Task exposures assumed to be > PEL & <= 10x 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 > 10x PEL.
  - Using lead containing mortar, lead burning.
  - Rivet busting, power tool cleaning without dust collection systems, cleanup actives where dry expendable abrasives are used, abrasive blasting enclosure movement and removal.
  - Abrasive blasting.
  - Welding.
  - Cutting.
  - Torch-burning.
42.5.9 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.

42.5.10 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

42.5.10.1 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 >=40 µg/dL, then a medical exam is required.

42.5.10.2 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 µg/m³).

42.5.11 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 µg/dl
- Annually for each worker who had a blood lead level of 40 µg/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.
42.5.11.1 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.

42.5.12 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/m³ 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.

42.5.13 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.

42.5.14 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.

42.5.15 Signs

Required where exposures exceed PEL, sign should state:

**WARNING**
LEAD WORK AREA
POISON
NO SMOKING OR EATING

42.5.16 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.
42.6 Training

42.6.1 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.)

42.6.2 Refresher

Employees will be trained based on observation of improper work practices.

42.7 Reference

OSHA Standard 29 CFR 1926 Subpart D

42.8 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
Worker Lead Protection Compliance Program

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):

________________________________________________________________________

________________________________________________________________________

Week ______ through ______: (description of tasks):

________________________________________________________________________

4. Lead Exposure Activities which may result in lead exposures:
   Signs are posted around work areas where exposures exceed the PEL

________________________________________________________________________

5. Equipment:
   A list of equipment and materials (paint removal, containment, personal protective, etc.) to be used during this project includes:

________________________________________________________________________

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: ___________________________
   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:

________________________________________________________________________

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:

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:

- ☐ Hot water, soap and towels will be provided. Hands and face will be washed before all breaks and at the end of each day.

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.
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).

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):

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):

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.
Worker Lead Protection Compliance Program - Form 2
Worker Blood Lead Level (BLL) and Zinc Protoporphyrin (ZPP) Test Results

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) __________________________________________________
Worker Lead Protection Compliance Program - Form 3
Worker Lead Training Record

Employee (name or ID): _______________________________ Date: _______________________________

The lead protection compliance program training was conducted by:

__________________________________________  ______________________________________
(Instructor Name)  (Signature)

At: _______________________________
Address: ________________________________________________________________

On: _______________________________ (Date of training)
Chapter 43 Roadway Traffic Control Safety Program

43.1 Purpose, Scope & Policy

43.1.1 Purpose

The purpose of this program is designed to prevent injury to Flaggers, Workers, and Pedestrians as well as to prevent property damage.

43.1.2 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.

43.1.3 Policy

«Q1» 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.

43.2 Roles & Responsibilities

43.2.1 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.

43.2.2 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.

43.3 Definitions

See Definitions Chapter at the end of the Safety and Health Manual. xxvi

43.4 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.

43.5 Hazard Control Measures

43.5.1 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.
43.5.2 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.

43.5.3 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.

43.5.4 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/IFEA 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.

43.5.5 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.

43.5.6 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.

43.5.7 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.

43.5.8 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.

43.5.9 **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.

43.5.10 **Training**

43.5.10.1 **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.

43.5.10.2 **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.

43.5.10.3 **Recertification**

Employees involved in flagging operations will be recertified every three years.

43.6 **Reference**

OSHA Standard 29 CFR 1926.200(g)

FHWA Standard 23 CFR 655 Subpart F
Chapter 44 Driver Safety Program

44.1 Purpose, Scope & Policy

44.1.1 Purpose

This policy is to serve the following purposes:

- To save lives and to reduce the risk of life-altering injuries within the company’s workforce.
- To protect the health and well-being of the general public operating their vehicles on public roadways used by our workforce.
- To protect the company’s human and financial resources.
- To guard against potential company and personal liabilities associated with crashes involving employees driving on company business.

44.1.2 Scope

This program applies to employees relating to the daily operation of the company’s motor vehicle fleet.

44.1.3 Policy

Management 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.

44.2 Roles & Responsibilities

44.2.1 Employer Responsibilities

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.

44.2.2 Employee Responsibilities

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 diver safety to management.

44.3 Definitions

None

44.4 Hazards

44.4.1 Traffic Crashes

Losses from traffic crashes have both social and personal impacts.

44.4.2 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.
44.4.3 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.

44.4.4 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.

0.1 Hazard Control Measures

44.4.5 Driver Selection Process.
- Care will be taken in the selection of drivers for the company’s fleet.
- 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.
- The motor vehicle record (MVR) of all employees with driving responsibilities shall be reviewed annually.
- Significant moving violations or repetitive patterns of minor violations will result in an employee’s privileges being suspended.
- 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.

44.4.6 Care and Use of Company Vehicles.
- 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.
- 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.

44.4.7 Secure Materials for 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.
- Ensure 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.

44.4.8 Seat Belt Use.
- All employees, when 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.
- 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.

44.4.9 Avoid Distractions.
• Stay alert at all times while operating a vehicle.
• Avoid distractive practices such as eating while driving.
• Illinois State law prohibits the use of hand-held cell phones when operating any vehicle. Hands-free devices such as headsets, speakerphones and Bluetooth must be used. This helps to keep hands available for the safe operation of the vehicle. It also limits blockages in the drivers’ peripheral vision.
• It is also unlawful for all drivers to text message when driving.

44.4.10 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.

44.4.11 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.

44.4.12 Vehicle Selection, Maintenance, and Inspection.
• 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 manufacturers’ recommendations for preventative maintenance will be consulted and utilized to determine the regular maintenance schedule for company vehicles.

44.4.13 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.

44.5 Training

44.5.1 Initial
Driver Safety training will be given to each employee assigned to drive a company vehicle. Only trained and authorized personnel will drive company vehicles regardless of the duration.

44.5.2 Refresher
Refresher training will take place as needed. 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.

44.6 Reference

None

44.7 Appendix

- Driver Agreement Statement
- Vehicle Accident Report
- Witness Statement
Driver Agreement Statement

I have reviewed the above "Driver Safety Policy" and agree that I will maintain compliance with each of these requirements.

Employee: ___________________________ Date: ___________________________
Vehicle Damage Report

Direct supervisor must submit a copy of this report within 24 hours of incident to:

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:
☐ Clear ☐ Snow
☐ Overcast ☐ Fog
☐ Temp: _____ ° F ☐ Sleet
☐ Wind: _____ mph ☐ Rain

Surface:
☐ Dry ☐ Uneven
☐ Wet ☐ Cracked
☐ Snow ☐ Pothole
☐ Ice ☐ Mud
☐ 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 □ NO
Policy 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) (signature)

Were you an eyewitness to the incident? □ YES □ NO
If YES complete Witness Statement Form
Were pictures taken prior to, during, or after the incident? □ YES □ NO
If YES, attach photos
Witness Statement

Direct supervisor must submit a copy of this report within 24 hours of incident to:

«Q1»

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

Indicate locations of all involved vehicles as well as landmarks, signs, pedestrians, etc.

Signature of Witness: ___________________________ Date:
Chapter 45 Reserved for Future Use
Chapter 46 Definitions

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.

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.

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.

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.

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

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

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.

**Isolating 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.

**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.

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.

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

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.

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/cm²).

**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.

**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 a hammer action for drilling masonry. The hammer action may be engaged or disengaged as required.

**Hammer 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 (CO2) 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.

**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.

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.

Electrical Safety

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.

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

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

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 his authorized representatives.

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 assure electrical continuity and the capacity to conduct safely any current likely to be imposed.

Bonding Jumper - A reliable conductor to assure 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 - (600 volts 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.

(Over 600 volts, nominal.) A switching device capable of making, carrying, and
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 III locations include the following:

Class III, Division 1 – Is a location in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.

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 600 volts, nominal.) An assembly of a fuse support with either a fuseholder, fuse carrier, or disconnecting blade. The fuseholder 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 600 volts, 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 600 volts, 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 600 volts, 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.

Grounding Conductor - A system or circuit conductor that is intentionally grounded.

Grounding Conductor, Equipment - The conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode or electrodes.

Grounding Conductor, Equipment - (Over 600 volts, 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 lampholder, a lighting fixture, or a pendant cord terminating in a lampholder.

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.

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 600 volts, nominal.) See "Fuse"

Power Outlet - An enclosed assembly which may include receptacles, circuit breakers, fuseholders, 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: (a) 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; (b) Inspecting the run of such items of equipment and materials at factories for product evaluation to assure compliance with the test standards; (c) 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, liquidtight flexible metal conduit, flexible metallic tubing, flexible metal conduit, electrical metallic tubing, underfloor raceways, cellular concrete 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 overall 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 600 volts, 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.

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, to indicate 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.

**Scaffolding Program**

**Bearer** - Means 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.

**Brace** - Means a rigid connection that holds one scaffold member in a fixed position with respect to another member, or to a building or structure.

**Competent Person** - Means 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 subcontractors, and who has authorization to take prompt corrective measures to eliminate them.

**Fabricated Decking and Planking** - Means manufactured platforms made of wood (including laminated wood, and solid sawn wood planks), metal or other materials.

**Fabricated Frame Scaffold** - (Tubular Welded Frame Scaffold) Means a scaffold consisting of a platform(s) supported on fabricated end frames with integral posts, horizontal bearers, and intermediate members.

**Failure** - Means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

**Guardrail System** - Means a vertical barrier, consisting of, but not limited to, top-rails, mid-rails, and posts, erected to prevent personnel and subcontractors from falling off a scaffold platform or walkway to lower levels.

**Maximum Intended Load** - Means 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** - Means a powered or unpowered, portable,caster or wheel-mounted supported scaffold.

**Open Sides and Ends** - Means the edges of a platform that are more than 14 inches (36cm) 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 18 inches (46 cm).

**Outrigger** - Means 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.

**Personal Fall Arrest System** - Means 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** - Means a work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.

**Qualified** - Means one who, by possession of a recognized degree, certificate, or professional standing, or who 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.

**Rated load** - Means the manufacturer's specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold component.

**Scaffold** - Means any temporary elevated platform (supported or suspended) and its supporting structure (including points of
anchorages, used for supporting personnel and subcontractors or materials both.

**Supported scaffold** - Means one or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support.

**Aerial Work Platform**

**Aerial Device** - Any vehicle-mounted device, telescoping or articulating, or both, which is used to position personnel.

**Aerial Ladder** - An aerial device consisting of a single or multiple section extendible ladder.

**Articulating Boom Platform** - An aerial device with two or more hinged boom sections.

**Extendible Boom Platform** - An aerial device (except ladders) with a telescopic or extendible boom. Telescopic derricks with personnel platform attachments will be considered to be extendible boom platforms when used with a personnel platform.

**Insulated Aerial Device** - An aerial device designed for work on energized lines and apparatus.

**Platform** - Any personnel-carrying device (basket or bucket) which is a component of an aerial device.

**Vehicle** - Any carrier that is not manually propelled.

**Vertical Tower** - An aerial device designed to elevate a platform in a substantially vertical axis.

**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 anchor.

**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.

**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.

**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.

### 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 asphyxiante, 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 a workplace where hazardous chemicals are received from intermediaries, importers, distributors or employers in 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.

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.

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 CRRA 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.

**Respirable Crystalline Silica Exposure Program**

Action Level – a concentration of airborne respirable crystalline silica of 25 micrograms per cubic meter (25 µg/m³), 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 authority 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/m³), 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.

**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.