Nurse Stucco Inc.

Injury and Illness Prevention Program
[High Hazard]

Prepared by:
Nurse Stucco Inc.
in association with:
U.S. Compliance Systems, Inc.

This Injury and Illness Prevention Program is current as of: 07/01/2019
Disclaimer: This Injury and Illness Prevention Program has been prepared exclusively for:

**Nurse Stucco Inc.**
12030 Short Street
Lakeside, CA 92040
619-561-7429

To the best of our knowledge, the information contained herein is accurate.

U.S. Compliance Systems, Inc. accepts no responsibility for errors or omissions.
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Nurse Stucco Inc.

Policy Statements
Injury and Illness Prevention Program Policy Statement

We have developed a comprehensive Injury and Illness Prevention Program (IIPP) that addresses our specific safety concerns and provides guidance for the performance of our individual job tasks within the framework of appropriate Cal/OSHA standards.

This IIP Program contains the eight essential elements identified in Title 8 of the California Code of Regulations, Section 3203.

These elements are:

1. Responsibility
2. Compliance
3. Communication
4. Hazard Assessment
5. Accident/Exposure Investigation
6. Hazard Correction
7. Training and Instruction
8. Recordkeeping

Safety takes a commitment from all personnel within our organization. Training will be interactive with an opportunity for all to actively participate, ask questions, make suggestions, and refer to our written policies and procedures.

It is our policy to provide a work environment that is inherently safe. The safety and health of our employees is of primary importance as they are our most important resource.

Safety training needs will be identified by continual reassessment of our work methods, equipment and job sites as well as employee and management input. Observation of unsafe acts will be addressed immediately.

Safety requires not only that employees understand and perform individual tasks in a safe manner, but also that they are aware of their surroundings and are actively involved in the safety of others. Employees are encouraged to contact their Supervisor should a safety or health risk exist so that corrective action may be taken immediately.

This Policy Statement will be conspicuously posted.

__________________________________________________
Blaine L. Nurse
Safety Director
New Hire Safety Orientation Policy Statement

Blaine L. Nurse, our safety director, or a designated competent person, will ensure that all new hires are aware of the accessibility of our safety program and, through interactive discussion or practical demonstration, be assured that the new hire understands the safety policies and procedures that pertain to the actual work the new hire will perform.

Further, each new hire will read (or have explained) the contents of our employee handbook and sign the Employee Acknowledge form which states:

| I have read and understand the contents of this Employee Handbook. |
| I will, to the best of my ability, work in a safe manner and follow established work rules and procedures. |
| I will ask for clarification of safety procedures of which I am not sure prior to performing a task. |
| I will report to Darren L. Nurse, our Injury and Illness Prevention Program Administrator, any unsafe acts or procedures and will ensure they are addressed and resolved before continuing work. |
| I understand that the complete safety program is located at: |
| 12030 Short Street |
| Lakeside, CA 92040 |
| 619-561-7429 |
| and is available for my review. |

It will be explained to all new hires that safety training and safety performance is an on-going process. Depending on circumstances, training will take the form of some or all of the following: safety meetings, on-the-job instruction, formal and informal training.

Finally, all new hires will be informed of the importance of our inspection and enforcement policies and procedures.

__________________________________________________
Blaine L. Nurse
Safety Director
Nurse Stucco Inc.

Section I
General Policies & Procedures

Standards:

Division of Occupational Safety and Health - Title 8 regulations
California Recordkeeping Standard, Section 14300
Code of Safe Practices

Below are core safety rules that apply in all situations:

1. Never do anything that is unsafe for any reason. If an unsafe condition is found, report it to your supervisor.

2. Do not remove or disable any safety device. Keep all guards in place at all time on operating machinery, equipment, and power tools.

3. Do not perform any work task unless trained prior to initial assignment.

4. Never operate a piece of equipment unless trained and authorized.

5. Use your personal protective equipment whenever it is required.

6. Obey all safety warning signs.

7. Working under the influence of alcohol or illegal drugs or using them at work is prohibited.

8. Do not bring firearms or explosives on to company property or on to any job site.

9. Horseplay, running, and fighting is prohibited.

10. Clean up spills immediately.

11. Replace all tools and supplies after use.

12. Do not allow debris to accumulate. Practice good housekeeping.

13. Walk-around safety inspections will be conducted at the beginning of each job and at least weekly thereafter.

Copies of our Code of Safe Practices will be posted on job sites.
Accident/Injury Prevention

Our safety program is designed so that our employees do not work in conditions that are unsanitary, hazardous, or dangerous to their health or safety.

One lax moment in terms of safety may result in a lifetime of needless pain and suffering. Disregarding safety standards may even be fatal. While an accident may happen in an instant, the consequences may last for years.

Accident prevention requires a commitment from all personnel within our company to actively participate in our safety program. All personnel should be aware of job site hazards and follow procedures to eliminate these hazards by proper work methods, use of personal protective equipment, and proper use of tools and equipment. All persons are encouraged to ask questions and make positive suggestions for safety improvement.

Competent persons will be designated to provide job site expertise as well as regular inspections of equipment, materials, and procedures. Competent persons will have the authority to stop work if a safety hazard is identified and it cannot be corrected immediately.

All machinery, tools, materials and equipment deemed unsafe will be taken out of service by physically removing, tagging, or locking controls to render them inoperable.

Only persons qualified by training or experience will be allowed to operate equipment or machinery.

All tools and items of equipment will be used for the purpose for which they were designed. For example, a wrench is not a hammer; a ladder is not a horizontal plank; a fire extinguisher is not a cooler!

Never take chances or attempt any job without being aware of the proper procedures, the potential safety hazards, and the methods to reduce or eliminate risk.
Safety Director

The safety director at Nurse Stucco Inc. is Blaine L. Nurse and has overall responsibility for the implementation of our program. Blaine L. Nurse will ensure each employee has appropriate safety training for the tasks to be performed.

Additionally, Blaine L. Nurse will perform hazard assessments of job sites to determine if hazards are present, or are likely to be present, which will necessitate the use of personal protective equipment (PPE).

Identified hazards which cannot be eliminated through engineering controls or changes in procedures will be addressed by the use of selected PPE.

While the responsibilities of cannot be further delegated, most of the duties can be assigned to those who are competent persons by virtue of training or experience.
Injury and Illness Prevention Program Administrator

Darren L. Nurse, the Injury and Illness Prevention Program administrator, has deemed competent by Blaine L. Nurse and may perform the below duties:

a. The actual training of personnel.

b. Maintenance of training records.

c. Random inspections to verify adherence to safety rules and policies.

d. Completion of specific tasks identified within our OSHA compliance programs.

e. Hazard assessments.

Note: The safety director and the Injury and Illness Prevention Program administrator may or may not be the same person.
Training

All employees, prior to assignment to perform any work, will demonstrate to Blaine L. Nurse, our Safety Director, or other competent person, the ability to perform the tasks safely. Additionally, all employees will be provided employee handbooks and indicate with their signature that they understand our general safety and health work practices.

To the extent possible, training will be interactive, and will include, as appropriate, formal instruction, scheduled safety meetings, on-line training, on-the job training, and written instructions. Safety information will also be posted on our job site bulletin board. All personnel will have ready access to our safety program as well as employee handbooks.

All training will be documented using our Training Certification Form and our Retraining Certification Form. These records will be maintained by Blaine L. Nurse and include the employee’s name, date of training, types of training, and the name of the competent training provider.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
Hazard Assessment

Prior to work on any project, as well as the introduction of new substances, procedures or processes, a hazard assessment will be made by Blaine L. Nurse, our Safety Director, or authorized representative, to identify and evaluate these possible workplace hazards. Employees will be informed, before performing work, of any special precautions or changes in procedures that must be taken to negate these hazards.

Daily job site inspections will be conducted using our job site inspections forms to identify not only lack of safety compliance, but the introduction of new safety hazards that must be addressed. Copies of these job site inspection forms will be maintained in the office of Blaine L. Nurse.

Additionally, Blaine L. Nurse, or a designated competent person, will make routine and random job site inspections to both identify new hazards and to monitor the effectiveness of our safety & health program.

While all hazards identified by inspection (or other means) will be corrected in the order of their severity [the most serious corrected first], all hazards will be eliminated before work proceeds.
Employee Evaluation

Our safety program establishes policies and procedures for our employees to enable them to work in a safe manner. Our goal is to provide a workplace that is free from recognized hazards and have a workforce that is capable of performing their individual job tasks safely.

The primary tool used to evaluate employee safety performance is regular and frequent – documented - job site inspections using our job site checklists as a guide.

The second tool is our regularly scheduled – documented - safety meetings which, by design, are interactive allowing the instructor to ask and answer questions and get a solid feel for employee interest and knowledge of the safety topic being discussed.

The third tool is our enforcement program. Not only are all lapses of safety compliance documented on our job site checklists, they are also documented on our enforcement forms.
Employee Involvement

All employees are encouraged to participate actively in our safety & health program. Do not hesitate to point out perceived safety deficiencies to your supervisor or the competent person -- you may prevent an injury to yourself or a fellow worker. With the goal of providing a safer worksite for all of us, employee suggestions for improving safety management are welcomed and encouraged. Never perform any task on which you are not confident in your understanding of the safety procedures. If in doubt, ask your immediate supervisor for guidance.

It is expected that all employees will abide by our safety rules and guidelines [as well as applicable local, state, and federal standards] not only to protect themselves, but also to protect their fellow workers from harm. Should a safety violation occur, the violation will be documented by the employee’s immediate supervisor and the provisions of our enforcement program will be implemented.

Employees are reminded that they are encouraged, without fear of reprisal, to anonymously report safety hazards or concerns. This may be done by telephone to Blaine L. Nurse, our Safety Director, or by leaving a sealed envelope containing the concern on their desk.
Housekeeping

Housekeeping? What’s that all about? It’s about safety!

Employees are to maintain a neat and orderly work area as far as practical. Housekeeping and general cleanliness have a direct effect on safety and health. Proper housekeeping can prevent slips and falls, allow easy egress in the event of an emergency, prevent falling object injuries, and enhance fire safety.

Below are listed general housekeeping rules:

a. Walking/working surfaces shall be kept clean and dry.

b. Do not allow construction debris to accumulate.

c. Stored materials will be neatly stacked.

d. Containers, when not in use, will be sealed.

e. No objects will be left unattended on stairways.

f. Entrances and exits will be properly marked and not blocked.

g. Tools shall be properly cleaned and put away after use.
Safe Office Practices

When employees are working in areas such as offices, warehouses, storage areas, garages, etc., compliance with the below safety practices/procedures is mandatory. Supervisors will insist that the safety practices and procedures are observed and are expected to take disciplinary action against employees for non-compliance.

Employees must:

1. Report all unsafe conditions and equipment to their supervisor or Darren L. Nurse, our Injury and Illness Prevention Program Administrator.
2. Report all incidents, injuries and illnesses to their supervisor or Darren L. Nurse immediately.
3. Keep means of egress unblocked, well-lit, and unlocked during work hours.
4. Sound the alarm and evacuate in the event of fire.
5. Upon hearing fire alarm, stop work and proceed to the nearest clear exit and then gather at the designated muster location.
6. Not attempt to respond to a fire or other emergency unless trained to do so.
7. Keep stairways clear of items that can be tripped over.
8. Not store combustibles under stairways that are egress routes.
9. Not store materials and equipment against doors or exits, fire ladders or fire extinguisher stations.
10. Keep aisles clear at all times.
11. Maintain work areas in a neat, orderly manner. Place trash and refuse into proper waste containers.
12. Wipe up all spills promptly.
13. Store files and supplies in such a manner as to preclude damage to the supplies or injury to personnel when they are moved. Heaviest items should be stored closest to the floor and lightweight items stored above.
14. Ensure all cords running into walk areas are taped down or inserted through rubber protectors to preclude them from becoming tripping hazards.
15. Never stack material precariously on top of lockers, file cabinets or other high places.
16. Never leave desk or cabinet drawers open that present a tripping hazard. Use care when opening and closing drawers to avoid pinching fingers.

17. Not open more than one upper drawer at a time, particularly the top two drawers on tall file cabinets.

18. Always use the proper lifting techniques. Never attempt to lift or push an object which is too heavy. Contact your supervisor when help is needed to move a heavy object.

19. Exercise caution when carrying material to ensure firm footing and clear line of sight.

20. Plug all electrical equipment into appropriate wall receptacles or into an extension of only one cord of similar size and capacity. Three-pronged plugs should be used to ensure continuity of ground.

21. Keep individual heaters at work areas clear of combustible materials such as drapes or waste from waste baskets. Heaters which are equipped with tip over switches should be used.

22. Keep appliances such as coffee pots and microwaves in working order and inspected for signs of wear, heat, or fraying of cords.

23. Ensure fans used in work areas are guarded. Guards must not allow fingers to be inserted through the mesh. All fans must be equipped with proper guards which have openings of ½ inch or less.

24. Use equipment such as scissors, staplers, etc. for their intended purposes only. They are not be used as hammers, pry bars, screwdrivers, etc. Misuse can cause damage to the equipment and possible injury to the user.

25. Store cleaning supplies away from edible items on kitchen shelves.

26. Store cleaning solvents and flammable liquids in appropriate containers.

27. Keep solutions that may be poisonous or not intended for consumption in well-labeled containers.

28. Not remove or deface equipment or product ANSI or other warning signs/symbols and they must heed their warnings.

29. Ensure owner’s manuals for office equipment are readily available.

30. Ensure a list of hazardous chemicals, and if applicable, SDS are readily available.

The above list is not all inclusive. Employees are encouraged to suggest additional safety ideas and/or procedures to Blaine L. Nurse, our Safety Director, for inclusion in weekly safety meetings.
Emergency Action Plan

Note: When working at another contractor’s workplace, our company would fall under the provisions of their emergency action plan and a copy of their plan would be posted at our job site.

Events may occur which dictate the evacuation of the workplace such as fire, severe inclement weather, power failure, etc. Additionally events may occur which dictate the need for emergency medical responders. These sets of events fall under our Emergency Action Plan and a multitude of objectives must be met.

The first and foremost objective is the safety of all our personnel. To achieve this level of safety, our plan is designed to get personnel away from danger, treat injury, and provide for a thorough and accurate accounting of all employees.

There may well be situations where certain employees, trained in first aid and/or fire fighting procedures, may prevent a small emergency situation from becoming a major disaster. In these types of situations, these employees, identified in this plan, will remain on the job site to perform the function for which they are trained provided they may perform these duties, in their judgment, in a safe manner. At no time will any employee put himself/herself at risk.

All personnel will receive training on our emergency action plan during initial safety training as well as when our plan changes or the employee’s responsibilities change.

A copy of this plan will be posted at the job site and, like all safety materials, is readily available for review. Because all personnel have received training in this plan and because it is posted on the job site, it will not be communicated orally regardless of the number of employee present.

If appropriate, on a job site, this emergency action plan will posted with our emergency escape route diagram and emergency telephone numbers.

When working at a client’s facility, our personnel will fall under the provisions of their emergency action plan.

All exits will be identified with a sign having the word "EXIT" plainly legible. Exit signs will be suitably illuminated. Doors, passageways, stairs, etc., which appear to be an exit but are not shall be identified by a sign that reads, for example: "Not an Exit".

Aisles and passageways shall be kept clear to provide a direct, easy egress from our facility.
It is important that the actual implementation of this plan be simple, direct, and carried out without confusion. Each employee must know how to alert others, how to call for assistance, the location of fire extinguishers, the escape route, the rendezvous point (being accounted for so that others do not put themselves at risk looking for a person who has already reached safety), and specific tasks that may be required of specific personnel during emergency procedures.

Additionally, any employee who needs or wants more information on our Emergency Action Plan or their specific duties may contact the below person:

Program Administrator: Darren L. Nurse
Phone Number: 619-561-7429

The following are standard operating procedures:

**CALLING FOR EMERGENCY MEDICAL RESPONSE:**

Should an injury occur that requires an emergency medical responder, the below listed actions will be taken in order given:

1. Call the emergency response number posted adjacent to this plan.
2. Call the Administrative Office at: 619-561-7429
   a. Help will immediately be sent and a person will be designated to direct the emergency responders to the injured person.
   b. If appropriate, Safety Data Sheets will be provided the emergency responders.
3. Provide any medical assistance you are trained and certified to do. Do not provide any medical assistance you are not trained to do.
4. The communication system to be used to ensure proper equipment for transportation of the injured person to a physician or hospital is calling on a cell phone posted emergency phone numbers.
5. If an employee must go to a medical facility for treatment, a member of management will accompany him/her.

**ASSIGNED FIRST AID PROVIDERS:**

**NAME**

__________________________________________
__________________________________________
__________________________________________

[Note: If none, enter "None".]
REPORTING A FIRE OR OTHER EMERGENCY:
The phone number of the local fire department shall be posted with other emergency numbers.

If a fire should occur, all personnel and the local fire department will be notified. As in all emergency situations, per the American Trauma Society, people calling the fire department should:

a. Remain calm.
b. Speak clearly and slowly.
c. Give the exact location.
d. Describe the situation.
e. Give the phone number from where you are calling.
f. Do not hang up until told to do so.

FACILITY EVACUATION PLAN:
(FIRE/EXPLOSION/SEVERE WEATHER/MECHANICAL FAILURE, ETC.)
THE ORDER TO EVACUATE IS GIVEN BY:

_______________________________________________________
(Example: Fire Bell; Three (3) Blasts of an Air Horn; Public Announcement, etc.)

(Note: A distinctive signal will be identified for each type of emergency notification)

TO ALERT OTHERS:

_______________________________________________________
(Example: Activate alarm; notify main office, Ext No.; etc.)

LOCATION OF FIRE EXTINGUISHERS, NEAREST LISTED FIRST:

________________  ____________________________
(Type)                   (Location)

________________  ____________________________
(Type)                   (Location)

________________  ____________________________
(Type)                   (Location)

RENDEZVOUS POINT:

_______________________________________________________
(Example: Parking lot; by dumpster, etc.)

SPECIFIC HAZARDS TO BE AWARE OF:

_______________________________________________________
(Example: List nearby hazardous chemicals. If none, enter "none")

EVACUATION ROUTE:

Map or schematic drawing of route will be posted.
ROSTER OF PERSONNEL WITH SPECIFIC DUTIES DURING AN EVACUATION

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE</th>
<th>DUTIES</th>
</tr>
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<tbody>
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</tbody>
</table>

NOTE: Examples of specific duties: Deenergizing certain equipment or machinery; accounting for personnel at rendezvous point; manning fire extinguishers; directing emergency responders; on alert for First Aid delivery; rescue team member; etc. If none, enter: "None".

EMERGENCY RESCUE/MEDICAL DUTIES

Our employees are not to perform emergency rescue or emergency medical duties. These duties will be performed by personnel with expertise in these areas.

TRAINING:

Training and/or review of our emergency action plan will be accomplished upon initial assignment to a job, when an employee’s responsibilities under the plan change, and when the plan, itself, is changed.

Additionally, certain persons will be given additional training in the safe and orderly evacuations of other employees. These persons will be essentially “competent persons” as their duties relate to the emergency action plan.

All employees must know how to safely get away from danger and to be properly accounted for.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
Fire Prevention Plan

Fire Prevention deals not with handling a fire emergency, but rather preventing a fire in the first place.

To reduce the likelihood of a fire, personnel are to adhere to the following rules:

1. Smoking is allowed only in designated areas and smoking materials will be totally extinguished and placed in the appropriate receptacles.

2. All chemical products will be handled and stored in accordance with the procedures noted on their individual SDS.

3. Heat producing equipment will be properly maintained and operated per the manufacturer’s instructions to prevent accidental ignition of combustible materials.

4. Precautions will be taken when working with an open flame (such as welding) and those areas will be made fire safe by removing or protecting combustibles from ignition.

5. Combustible liquids must be stored in approved containers.

6. Chemical spills must be cleaned up immediately. This is particularly important for combustible and reactive liquids. Damaged chemical containers and cleanup materials must be properly disposed.

   Note: Information on appropriate personal protective equipment, proper disposal, proper cleanup procedures, required ventilation, etc. is found on the product’s SDS.

7. Combustible liquids and trash must be segregated and kept from ignition sources.

8. Keep clear access to fire hydrants as well as portable fire extinguishers.

9. Personnel will be notified by their Supervisor or the competent person of any unusual fire hazard conditions existing on a job site.

10. Good housekeeping, good housekeeping!
Portable Fire Extinguishers

All personnel will receive instruction on the proper use of fire extinguishers.

a. Fire extinguishers will be inspected monthly for general conditions and adequate charge. They will be serviced and certified by qualified personnel at least annually.

b. Portable fire extinguisher locations will be clearly identified and easily accessible.

Portable fire extinguishers will be distributed as indicated below:

<table>
<thead>
<tr>
<th>Class</th>
<th>Distribution</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>75 feet or less travel distance between the employee and the extinguisher</td>
<td>For use on wood, paper, trash, etc.</td>
</tr>
<tr>
<td>„A“ on a green triangle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>50 feet or less travel distance between hazard area and the extinguisher</td>
<td>For use on flammable liquid, gas, etc.</td>
</tr>
<tr>
<td>„B“ on a red square</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Based on the appropriate pattern for the existing Class A or Class B hazards</td>
<td>For use on electrical fires</td>
</tr>
<tr>
<td>„C“ on a blue circle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>75 feet or less travel distance between the combustible metal working area and the extinguisher or other containers or Class D extinguishing agent</td>
<td>For use on combustible metals</td>
</tr>
<tr>
<td>„D“ on a yellow star</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appropriate portable fire extinguishers will be used, as noted above. Supervisors will ensure that at least one extinguisher is on each floor of a project near the stairway.

Using the wrong fire extinguisher on some fires can actually spread the fire. Using a Type A extinguisher on an electrical fire, for example, could cause serious injury. When a fire occurs, it is imperative to use the proper extinguisher.
First Aid and First Aid Kits

Should a medical emergency occur, other than minor scrapes and bruises, and it is serious enough to call for professional medical assistance, the job site supervisor will ensure the Emergency Response Numbers [physicians/hospital/ambulance] are posted on the job site bulletin board and ensure the injured employee is safely and promptly, transported to professional medical care. The office will be notified as soon as the medical crises is resolved. The job site supervisor will ensure that in areas where 911 is not available, the telephone numbers of physicians, hospitals, or ambulances are conspicuously posted.

Before the first aid providers arrive, to the extent possible, clear the way so they can reach the injured employee in the most direct way possible.

If our employees are working at a location that is more than 3 or 4 minutes from medical assistance, we will utilize designated first aid providers who are trained and licensed in CPR/first aid and have completed training as required by our bloodborne pathogen program. A Red Cross trained first aid provider will be on all job sites. Other employees will not expose themselves to blood or other bodily fluids of other employees at any time.

Per California Standard Section 14300.7 (b)(5)(B), first aid is limited to:

1. Using a nonprescription 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);

2. Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);

3. Cleaning, flushing or soaking wounds on the surface of the skin;

4. 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);

5. Using hot or cold therapy;
6. 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);

7. Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, backboards, etc.);

8. Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;

9. Using eye patches;

10. Removing foreign bodies from the eye using only irrigation or a cotton swab;

11. Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;

12. Using finger guards;

13. Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or


If an employee is injured and emergency responders have been called, stay calm and reassure the injured employee that help is coming.
Below is basic first aid for various common job site injuries. Mostly, it is what not to do.

MINOR BURNS

(Redness or blisters over a small area)
Flush with cold water; apply a sterile dressing.
**Do not** use butter on any burn.
**Do not** break open blisters.

MAJOR BURNS

(White or charred skin; blisters and redness over a large area; burns on face, hands, or genital area)
Cover with sterile dressing and seek medical attention promptly.
**Do not** apply salves, ointments or anything else.
**Do not** break blisters.

CHEMICAL BURNS

(Spilled liquid or dry chemical on skin)
Liquid - Flush with large amounts of water immediately. (Keep water flow gentle).
Dry Brush as much off as possible before flushing with water. After flushing at least 5 minutes, cover with sterile dressing.
Seek medical attention promptly.
**Do not** use anything but water on burned area.
**Do not** break open blisters.

EYE - FOREIGN OBJECT

(Object visible; feeling of something in the eye)
Have patient pull upper eyelid over lower eyelid.
Run plain water over eye.
If object does not wash out, cover **both** eyes with a gauze dressing.
Seek medical attention promptly.
**Do not** rub the eye.
EYE - WOUNDS
(Wound on eyelid or eyeball; pain; history of blow to eye area; discoloration)

Apply loose sterile dressing over both eyes.
Seek medical help immediately.
For bruising, cold compress or ice pack may relieve pain and reduce swelling.
Do not try to remove any embedded object.
Do not apply pressure to eye.

EYE - CHEMICAL BURN
(Chemical splashed or spilled in eye)

Flush immediately with water over open eye for at least 10 minutes (20 minutes if alkali). It may be necessary to hold patient's eyelid open.
Note: In work situations where a possibility of eye (or body) exposure to corrosive materials exists, suitable facilities for quick-drenching or flushing will be provided in the immediate work area.

Cover both eyes with sterile dressing.
Seek medical help immediately.
Do not put anything but water in eye.

HEAT EXHAUSTION
(Fatigue; weakness; profuse sweating; normal temperature; pale clammy skin; headache; cramps; vomiting; fainting)

Remove from hot area.
Have victim lay down and raise feet. Apply cool wet cloths.
Loosen or remove clothing.
Allow small sips of water if victim is not vomiting.

HEAT STROKE
(Dizziness; nausea; severe headache; hot dry skin; confusion; collapse; delirium; coma and death)

Call for immediate medical assistance.
Remove victim from hot area.
Remove clothing. Have victim lay down.
Cool the body (shower, cool wet cloths)
Do not give stimulants.

When dealing with any injury, stay calm and never do anything unless you know what you are doing.
**First Aid Kits:**

The first aid kit containers will be weather proof. Their contents will be checked before being sent to a job site and at least weekly thereafter by the job site assigned first aid provider.

First aid kits are worthless if not readily accessible. Therefore, they will not be locked up on job sites. They will be kept with the job site assigned first aid provider.

First aid kits will be replenished as items are used. Sterile items will be individually wrapped and sealed and used only once. Other items such as tape or scissors can be reused and should be kept clean. In the absence of plentiful amounts of clean water, eye flush will be available.

The number of first aid kits to be found on the job site should be:

<table>
<thead>
<tr>
<th>Number of Persons Assigned to Job Site</th>
<th>Minimum First Aid Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 5</td>
<td>10 Package Kit</td>
</tr>
<tr>
<td>6 - 15</td>
<td>16 Package Kit</td>
</tr>
<tr>
<td>16 - 30</td>
<td>24 Package Kit</td>
</tr>
</tbody>
</table>

Basic minimum contents of a first aid, which will be checked by the job site supervisor before being sent out to a job and at least weekly, are individually sealed:

- 1 ea Absorbent compress, 32 sq. in.
- 16 ea Adhesive bandages, 1” X 3”
- 1 ea Adhesive tape, 5 yds.
- 10 ea Antiseptic, 0.14 fl. oz.
- 6 ea Burn treatment, 0.14 fl. oz.
- 2 pr Medical exam gloves
- 4 ea Sterile pads, 3” X 3”
- 1 ea Triangular bandage, 40” X 40 “ X 56”
Depending on the job site, first aid supplies will generally include: adhesive bandages, bandage compresses, scissors and tweezers, triangular bandages, antiseptic soap or pads, eye dressing, and other items that a consulting physician may recommend. The main purpose of a bandage, the most commonly used item in a first aid kit, is not really to stop the bleeding, but to keep the wound clean.

The three most important things dealing with first aid kits are:

1. They must be readily accessible.
2. They must be appropriate for the job site work involved.
3. Personnel must know how to use the contents of the first aid kits.

Individual items within the kit that must be sterile must be wrapped and sealed until their one-time use. Other items such as tape or scissors can be reused and should be kept clean.

The supplies consumed in first aid kits can actually be used as a safety tool. For example, if a kit constantly needs replacement of bandages which have been used for minor cuts, there is an obvious problem that the cuts are happening in the first place. Actual trends can be established and corrective procedures initiated such as protective gloves or handling practices.

**Improper medical treatment can be more dangerous than no treatment at all.**
Job Hazard Analysis

OSHA Booklet 3071 Job Hazard Analysis

All employees will read the above OSHA Booklet 3071, Job Hazard Analysis and use the information contained therein to complete our Job Task Safety Analysis Forms which are located with our job site forms within our project manuals.

Using the above referenced booklet and other training materials, employees will be trained in the hazard identification process.

The formal process to identify potential hazards is as follows:

1. A Certificate of Workplace Hazard Assessment will be prepared, signed and dated, by Darren L. Nurse, our PPE Program Administrator, indicating that a hazard assessment of our job sites and methods of operations has been accomplished. This hazard assessment will focus on the need for PPE which cannot be eliminated through engineering or administrative controls.

2. Because they have insight to the hazards involved, employees who actually perform job tasks will be included in job hazard analysis.

3. A review will be made of previous accidents and injuries as well as “near-misses” to determine if existing hazard controls are adequate or need improvement.

4. In discussion with employees, ideas to eliminate hazards will be discussed and formalized for inclusion on our job task safety analysis form which follows this page.

5. Hazards associated with various tasks will be ranked and prioritized with the jobs that possess hazards that present unacceptable risks, based on those most likely to occur and with the most severe consequences identified for first priority for analysis.

6. The job task safety analysis form will be completed for each task and, as a matter of course, hazard identification will be performed on all job tasks, both routine and non-routine, before actual work is performed. Hazard identification would be prepared for new processes, changes in operation, products or services, as applicable.

Through frequent and routine job site inspection, review of incidents [or lack thereof], and employee feedback, the above will insure that the identified hazards are mitigated. Should problems occur or a potential risk/hazard be discovered, work will stop until the job task hazard analysis form is adjusted to correct any deficiencies found.

The above review process will take place on all job tasks to ensure that new hazards were not created while eliminated others.
Sanitation

§1524. Water Supply.
§1526. Toilets at Construction Jobsites.
§1527. Washing Facilities, Food Handling, and Temporary Sleeping Quarters.

**Potable Water:**
From a safety standpoint, you must not neglect your need for potable (drinkable) fluids. Water is not only the most abundant of all compounds found on the earth, it is the most abundant part of you -- actually about 65% of you is water.

On construction sites, exertion and heat dictate the need for plenty of water.

Potable water will be available on job sites. If portable containers are used, they will be clearly marked [Potable Water]; capable of being tightly closed; and equipped with a tap. These containers will be used for no other purpose than supplying drinking water. Non-reusable (single service) cups in a sanitary container will be provided drinking as well as a receptacle for disposing of used cups.

Additionally, sealed one-time use water bottles may be supplied. If these items are used, they are for individual use only and will be marked to identify the user. These bottles may not be shared. Where sealed one-time use water containers are supplied, a receptacle for disposing of the used containers shall be provided.

Employees are reminded of their need for adequate amounts of water.

**Non-Potable Water:**
Outlets of non-potable water should be clearly identified as such, through appropriate signage, and non-potable water may never be used for drinking, washing, or cooking.
Toilets:
A minimum of one separate toilet facility shall be provided for each 20 employees or fraction thereof of each sex. Such facilities may include both toilets and urinals provided that the number of toilets shall not be less than one half of the minimum required number of facilities.

Exception: Where there are less than 5 employees, separate toilet facilities for each sex are not required provided the toilet facilities can be locked from the inside and contain at least one toilet.

Under temporary field conditions, not less than one toilet shall be available.

(Where the provision of water closets is not feasible due to the absence of a sanitary sewer or the lack of an adequate water supply, non-water carriage disposal facilities will be provided. Unless prohibited by applicable local regulations, these facilities may include privies (where their use will not contaminate either surface or underground waters), chemical toilets, recirculating toilets, or combustion toilets.

Toilet facilities shall be kept clean, maintained in good working order, designed and maintained in a manner which will assure privacy and provided with an adequate supply of toilet paper.

Washing Facilities:
Adequate washing facilities will be provided in near proximity to the worksite if employees are working with contaminants that may be harmful to their health such as paint, coatings, or other chemical products. Paper towels and cleansing agents will be provided.

Showers and change rooms will be dictated by specific standards dealing with specific toxic materials (i.e., lead; asbestos).

Eating and Drinking Areas:
No employee will be allowed to consume food or beverages in any area exposed to toxic material.
Manual Lifting Procedures

Prior to manual lifting, a hazard assessment will be performed using our hazard identification & risk assessment procedures.

This entails the supervisor, working with employees who actually will perform the lifting using a worksheet and listing all components of the task. Working together, they will list all things that could go wrong resulting in an accident or injury. Specific steps will be developed to eliminate the probability of an accident or injury. These steps will be transferred to our task analysis form which will be kept on the job site.

Things that could go wrong manually lifting an item could include, but not be limited to:

1. Item is too heavy.
2. Item is too bulky.
3. Item blocks line of sight.
4. Item can cut hands.
5. Surface is slippery.

The order of precedence and effectiveness of hazard control for manual lifting is as follows:

1. Engineering controls.
2. Administrative controls.
3. Personal protective equipment.

Supervisors will inspect and enforce the use of the above controls.

Engineering controls include the following use of mechanical devices such as:

1. Dollies.
2. Hand trucks.
3. Lift assist devices.
5. Carts.
7. Lift tables.
8. Increasing the heat – muscles are less likely to cramp in warmer temperatures.
Administrative controls include the following use of mechanical devices such as:

1. Using two (2) persons to perform the lift.
2. Increasing the time between lifts.
3. Lifting training.

Personal Protective Equipment would include, but not be limited to:

1. Using gloves to address cuts, firm grip and warmth.
2. Appropriate steel toed footwear to address slips and items falling on feet.
3. Eye protection to prevent items hitting eyes.

**Ergonomics & Manual Lifting:**

Correct Neutral Postures

Postures where the body is aligned and balanced, while sitting or standing. The head is kept upright and is not turned to either side more than about 30 degrees or tilted forward or backward more than about 15 degrees. When the worker is standing, the torso is not bent more than 10 to 20 degrees from the vertical position and the natural curves of the spine are maintained. The pelvis and shoulders should face straight ahead to avoid twisting the torso. The shoulders are relaxed and knees slightly bent. The arms hang normally at the side, with elbows close to the body. The elbows are not bent more than about 90 degrees and the palms face in toward each other and the center line of the body. The wrists are in line with the forearms and are not bent sideways, forward (towards the palm), or backward (towards the back of the hand.)

When lifting, every attempt should be made to not put stress on the body which is beyond the correct neutral posture.
Proper Lifting Techniques:
Musculoskeletal Injuries are often caused by the obvious -- putting excessive strain on the lower back by lifting an object that is too heavy or awkward, or by bending and/or twisting while lifting.

However, lifting injuries are also caused by less obvious reasons:
   a. poor physical condition
   b. poor posture
   c. poor judgment (lifting, pulling, pushing an object that is obviously too heavy or awkward without seeking assistance or a mechanical lifting device.)

NOTE: Where the use of lifting equipment is impractical, two man lifts must be performed.
   d. lack of exercise
   e. excessive body weight

Training will be given in proper lifting techniques. Below are lifting techniques that will reduce the likelihood of injury:
   a. lift objects comfortably, not necessarily the quickest or easiest way.
   b. lift, push, and pull with your legs, not your arms or back.
   c. when changing direction while moving an object, turn with your feet, not by twisting at the waist.
   d. avoid lifting higher than your shoulder height.
   e. when standing while working, stand straight.
   f. when walking, maintain an erect posture; wear slip-resistant, supportive shoes.
   g. when carrying heavy objects, carry them close to the body and avoid carrying them in one hand.
   h. when heavy or bulky objects need to be moved, obtain help or use a mechanical aid such as a dolly, hand truck, forklift, etc..
   i. when stepping down from a height of more than eight inches, step down backwards, not forward.
   j. Lift heavy objects close to the body -- avoid reaching out. The power zone for lifting is close to the body, between mid-thigh and mid-chest height. Comparable to the strike zone in baseball, this zone is where arms and back can lift the most with the least amount of effort.
   k. lift gradually and smoothly. Avoid jerky motions.
   l. maintain a clear line of vision.
Investigation of Injuries:
Blaine L. Nurse, our Safety Director, will investigate all injuries caused by improper lifting and, as part of that investigation, incorporate those findings into work procedures to preclude a reoccurrence.

Injuries will be recorded and reported in compliance with the *California Recordkeeping Standard, Section 14300*.

A concentrated effort will be made to ensure that the corrective measures do not create hazards in and of themselves.

To prevent injuries in the first place, supervisors will periodically evaluate our manual lifting techniques to assess the potential for and prevention of injuries.

As part of our risk assessment process, new operations will be evaluated to engineer our hazards before manual lifting is begun.
Slips, Trips, and Falls

Slips, trips, and falls are among the most common job site accidents and they are easily preventable. Below are some of the causes of slips, trips, and falls:

a. running on the job site.
b. engaging in horseplay.
c. working off a ladder that is not firmly positioned.
d. carrying an object that blocks line of vision.
e. work boots not laced or buckled.
f. working off a scaffold without safety rails.
g. using ladders that have oil and grease on the rungs.
h. not using a handrail on steps.
i. messy work areas with debris strewn about.
j. not paying attention to what one is doing.

This list can go on and on, but all the above are easily preventable by adherence to common safety procedures, common sense, and awareness of potential hazards on the job site.
Drug, Alcohol, and Smoking

With the exception of over the counter drugs such as aspirin or drugs prescribed by a physician, there shall be no drugs or alcohol on any job site. Alcohol and drug abuse cause an unacceptable level of safety hazard not only for the offending employee, but for others in the vicinity. Those found to be under the influence of drugs and/or alcohol will be immediately removed from the job site by the competent person and further disciplinary action will be taken by Blaine L. Nurse, our Safety Director.

Employees taking prescription medication that reduces motor skills should report this to their supervisor for appropriate work assignment.

Chemical dependency is a devastating problem for not only the employee, but also the employee's family and co-workers. For obvious safety reasons, it cannot be tolerated in the workplace. Those with such a problem should seek professional help. Blaine L. Nurse will assist any employee in finding appropriate treatment should they voluntarily come forward.

There shall be no smoking except in designated smoking areas. Under no circumstances will there be smoking during refueling of vehicles or within 50 feet of flammable materials.
Incident Investigation and Reporting

Apparently simple accidents may actually be caused by many complex reasons. Example: a worker is using a claw hammer on a scaffold plank more than six feet above the ground. The hammer head breaks off, slides off the scaffold surface, and strikes a worker standing below who is not wearing a hard hat. Why did this accident happen? How can it be prevented? With just the facts presented, the fault would seem to rest with the worker who was struck by the falling object. Accident investigation may reveal other contributing factors by answering questions like:

a. Were hard hats required on the project, were they available, and was this policy enforced by the supervisors?

b. Were precautions taken to prevent objects from falling from above, such toeboards?

c. Did the worker inspect his hammer before use? Was he driving nails -- the job for which a claw hammer is designed -- or pounding metal beams?

d. Why was the worker directly under the scaffold? Was he authorized to be there? Had a control zone been established? What was he doing when he was hit?

After determining the cause of the above accident, steps can be taken to prevent a reoccurrence. Near-miss mishaps, events which result in no injury or damage, should be investigated because even though the outcomes are different, the causes are the same.

The main purpose of incident investigation is to prevent the same type of incident from reoccurring. An incident investigation will begin immediately after the medical crisis is resolved. The competent person/supervisor on the job site will complete an Incident Investigation Form as soon as feasible. The five questions that must be answered are: Who? What? When? Where? and most importantly, Why did the accident happen?
If the accident is severe, all personnel are authorized to call 911 and/or access a first responder per our posted job site emergency phone lists.

All accidents, incidents, and near-miss incidents will be reported immediately to the supervisor who, in turn, will report this information to Blaine L. Nurse, our Safety Director.

Blaine L. Nurse will ensure that the company for whom we are working is informed of the accident, incident, or near-miss incident as soon as feasible, but no later than 24 hours. Incidents would include, but not be limited to:

- injuries
- spills
- property damage
- fires
- explosions
- vehicle damage

Immediately after medical concerns are addressed, all accidents, incidents and near-miss incidents will be investigated.

**Catastrophic Reporting Requirements:**

Within eight (8) hours after the death of any employee from a work-related incident or the in-patient hospitalization of three (3) or more employees as a result of a work-related incident, either in person or by telephone, the OSHA Area Office nearest to the site of the incident will be notified. Phone Numbers of nearest Cal/OSHA District Offices, [CLICK HERE](#).

**Incident Investigation:**

Blaine L. Nurse is responsible for investigating all incidents. An investigating team will be established and individual members will be given training in their individual responsibilities and incident investigation techniques prior to the occurrence of an incident.
Initial training will be given when assigned to the team and refresher training will be given as needed, but at least bi-annually.

Training will include:

   • As appropriate, a listing of people, equipment, and materials involved and a recording of environmental factors such as weather, illumination, temperature, noise, ventilation, etc. will be gathered.

b. Collection, preservation, and security of evidence.
   • Using notes, photographs, witness statements, flagging, and impounding of documents and equipment, evidence will be collected, preserved, and secured.

c. Collection of witness interviews and statements.
   • The importance of gathering unbiased statements and the possible need for follow-up interviews will be emphasized.

d. Preparation, and preservation, of the written incident report.
   • The written incident report will be prepared using the incident report form which would include a detailed narrative statement of the events leading to the incident. The format of the narrative report may include an introduction, methodology and summary of the incident; the investigation board members names, narrative of the event, findings and recommendations. Photographs, witness statements, drawing, etc. would also be included.

e. Using investigative skills to identify corrective actions, assigning responsibilities for corrective actions, and tracking corrective actions to closure.

An investigative kit will be prepared that contains:

1. Incident Investigation Forms
2. Witness Statement Forms
3. Pens, paper, rulers
4. Barricade tape
5. Camera
6. Small hand tools
7. Marking devices such as flags
8. Tape Recorder
9. Equipment Manuals and Standards
Per our Bloodborne Pathogen Program, all first aid responders will be qualified and certified in First Aid and CPR.

Per our Emergency Action Plan, persons will be identified, in the event of a major emergency to perform certain tasks to ensure the safety of our personnel as well as the integrity of equipment, facilities, and materials to prevent further loss after immediate rescue has occurred. For example, maintenance personnel should be summoned to assess integrity of buildings and equipment, engineering personnel to evaluate the need for bracing of structures, and special requirements such as safe rendering of hazardous materials or explosives will be employed.

At the conclusion of any accident investigation, a meeting will be held with all team members to review the process and entertain suggestions for improvement. Training will include, but not be limited to, investigation procedures, preserving of evidence, taking appropriate photos of accident scenes, first responder actions and results, witness statements, and use of investigative supplies.

While all accidents must be investigated, the degree to which they are investigated must be commensurate with the level of severity of the incident using a root cause analysis process.

Root cause analysis, in the example on page 1, is a methodology for finding and correcting the most important reasons for the accident. Utilizing scaffolding competent persons and other experts, the root cause may turn out to be lack of scaffold training with emphasis on scaffold erection. Had toeboards been installed, the accident would not have happened and, with enhanced training, future accidents could be avoided.

This answer is different than the obvious conclusion that the accident was caused by the hammer head breaking off and hitting the employee.

Accidents with a high degree of severity certainly need more investigative time and effort than, for example, a minor bruise.

After all is said and done, one of the main purposes of incident investigation is to prevent a reoccurrence particularly in the performance of similar type operations. It is important to communicate to all employees the lessons learned from an incident investigation and make sure they understand the existing or improved policies and/or procedures established as a result of the incident investigations.
Postings

On every job site there will be a prominently displayed bulletin board or area for postings. Every employee must be aware of this policy. Certain postings are required as a matter of law in all cases and other postings are required depending on circumstances and types of work being done.

In all cases, the below must be posted on the job site to meet California Labor Code and Title 8, California Code of Regulations, requirements.

b. Safety and Health Protection on the Job.
c. During the period from 1 February through to April 30, Cal/OSHA Form 300A, Annual Summary of Work-Related Injuries and Illnesses, must be posted for work-related injuries and illnesses which have occurred during the previous year.
d. Emergency Phone Numbers.
e. Industrial Welfare Commission Wage Orders.
f. Payday Notice.
g. Notice to Employees – Injuries Caused by Work.
h. Notice of Workers’ Compensation Carrier and Coverage.

Note: Obtained for Insurance Carrier

i. Whistleblower Protections.

1. If employees are working with hazardous/toxic substances, the following must be posted:
   Access to Medical Exposure Records – English.
   Access to Medical Exposure Records – Spanish.

2. If employees are using industrial trucks, the following must be posted:
   Operating Rules for Industrial Trucks – English
   Operating Rules for Industrial Trucks – Spanish

Additional postings required by other California agencies may be obtained at the following link: Additional Postings

If appropriate, the following must be posted:

c. Names and location of assigned first aid providers.
d. Air or wipe sampling results.
e. Emergency action plan.
Recordkeeping: Injuries & Illnesses

California Recordkeeping Standard, Section 14300

As a matter of law, all employers with 11 or more employees at any one time in the previous year must maintain Cal/OSHA Form 300, Log of Work-Related Injuries and Illnesses, Cal/OSHA Form 301, Injury and Illness Incident Report, and OSHA Form 300A, Summary of Work-Related Injuries and Illnesses.

Cal/OSHA Forms 300 and 301 are used to record and classify occupational injuries and illnesses. The information on the Cal/OSHA Form 300 related to employee health and must be used in a manner that protects the confidentiality of the employees to the extent possible. Recordable injuries and illnesses must be entered on Cal/OSHA Forms 300 and 301 within seven (7) days of receiving information that a recordable injury or illness has occurred.

**Retention of Forms:**

Old Cal/OSHA Forms 101 and 200 as well as Cal/OSHA Forms 300 and 301 will be retained for five years following the year to which they relate.

**Items to be recorded on Cal/OSHA Forms 300, 300A and 301:**

Work related injuries and illnesses and fatalities are to be recorded using the criteria found in Recording Criteria, 14300.4.

Injuries and illnesses must be recorded if they result in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or if the injury or illness involves a significant injury diagnosed by a physician or licensed health care professional even if it does not meet the forgoing conditions.

**Note:** First aid (which is not reportable) is defined in General Recording Criteria, 14300.7.

**Employee Involvement:**

As a matter of policy, all work-related accidents and injuries are to be immediately reported to the competent person/supervisor on a job site who will complete an accident investigation form. This will be forwarded to Blaine L. Nurse, our Safety Director, who will extrapolate appropriate information for completion of the OSHA Form 300.
**Catastrophic Reporting Requirements:**

Any serious injury, illness, or death of an employee [occurring in a place of employment or in connection with any employment] will be reported immediately by telephone or telegraph to the nearest District Office of the Division of Occupational Safety and Health.

Definition of immediately: as soon as practically possible but not longer than 8 hours after the employer knows or with diligent inquiry would have known of the death or serious injury or illness.

**Location of Cal/OSHA Forms 300 and 301:**

As a general rule, the Cal/OSHA Forms 300 and 301 will be maintained in our main office. However, in the event that a project is to last more than one year, that job site will be considered a fixed establishment and maintain its own Cal/OSHA Forms 300 and 301.

**Information To Be Reported:**

When reporting a fatality, in-patient hospitalization, amputation or loss of an eye to OSHA, following information must be reported:

1. Establishment name
2. Location of the work-related incident
3. Time of the work-related incident
4. Type of reportable event (i.e., fatality, in-patient hospitalization, amputation or loss of an eye)
5. Number of employees who suffered the event
6. Names of the employees who suffered the event
7. Contact person and his or her phone number
8. Brief description of the work-related incident

**Note:** An event does not have to be reported if it:

1. 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.
2. Occurred on a commercial or public transportation system (airplane, subway, bus, ferry, street car, light rail, train).
3. Occurred more than 30 days after the work-related incident in the case of a fatality or more than 24 hours after the work-related incident in the case of an in-patient hospitalization, amputation, or loss of an eye.

**Note:** We must report an in-patient hospitalization due to a heart attack, if the heart attack resulted from a work-related incident.

**Location of OSHA Forms 300 and 301:**

As a general rule, the OSHA Forms 300 and 301 will be maintained in our main office.
Safety Meetings

Scheduled, at least weekly, safety meetings provide an opportunity for reinforcing the importance of general safety as well as specific work related procedures applicable to the work at hand.

Properly prepared safety meetings will focus on one or two topics and be direct and to the point. All safety questions will be addressed and interactive participation is encouraged. All employees are required to attend these documented safety meetings.
Access to Employee Medical Records & Exposure Records

All employee exposure records and medical records are under the control of Darren L. Nurse, our Injury and Illness Prevention Program Administrator.

**Exposure records** must be retained for 30 years.

**Medical records** must be retained for the duration of employment plus 30 years.

An employee’s medical record means “a record concerning the health status of an employee which is made or maintained by a physician, nurse, or other health care personnel, or technician”.

This would include:

- a. medical and employment questionnaires or histories (including job description and occupational exposures),
- b. the results of medical examinations (pre-employment, pre-assignment, periodic, or episodic) and laboratory tests (including chest and other X-ray examinations taken for the purpose of establishing a base-line or detecting occupational illnesses and all biological monitoring not defined as an "employee exposure record").
- c. medical opinions, diagnoses, progress notes, and recommendations.
- d. First aid records.
- e. descriptions of treatments and prescriptions.
- f. employee medical complaints.

**Note:** An employee’s medical record does not include:

- a. physical specimens (e.g., blood or urine samples) which are routinely discarded as a part of normal medical practice, or
- b. records concerning health insurance claims if maintained separately from the employer’s medical program and its records, and not accessible to the employer by employee name or other direct personal identifier (e.g., social security number, payroll number, etc.).
- c. records created solely in preparation for litigation which are privileged from discovery under the applicable rules of procedure or evidence.
- d. records concerning voluntary employee assistance programs (alcohol, drug abuse, or personal counseling programs) if maintained separately from the employer’s medical program and its records.
An employee’s employee exposure record means a record containing any of the following kinds of information:

a. environmental (workplace) monitoring or measuring of a toxic substance or harmful physical agent, including personal, area, grab, wipe, or other form of sampling, as well as related collection and analytical methodologies, calculations, and other background data relevant to interpretation of the results obtained.

b. biological monitoring results which directly assess the absorption of a toxic substance or harmful physical agent by body systems (e.g., the level of a chemical in the blood, urine, breath, hair, fingernails, etc.) but not including results which assess the biological effect of a substance or agent or which assess an employee's use of alcohol or drugs.

c. safety data sheets indicating that the material may pose a hazard to human health.

d. in the absence of the above, a chemical inventory or any other record which reveals where and when used and the identity (e.g., chemical, common, or trade name) of a toxic substance or harmful physical agent.

e. Objective Data for Exemption from Requirement for Initial Monitoring.

**Employee Information**

Upon first entering into employment, and at least annually thereafter, each employee will be informed of the following:

a. The existence, location, and availability of any records covered by 8 CCR Sec. 3204.

b. The person responsible for maintaining and providing access to records (Blaine L. Nurse).

c. the employee's rights of access to his/her records.

Informational materials concerning access to medical records received from or provided by the Assistant Secretary of Labor for Occupational Safety and Health will be distributed to all current employees.
Access to Records

Employees or their designated representatives will have access to their medical or exposure records within 15 working days of their request or, if this is not possible, Blaine L. Nurse will provide, within 15 working days, the reason for the delay and provide a best estimate of when the records will be available.

Copies of employee medical or exposure records will be provided in a reasonable time, place, and manner and at no cost to the employee.

Upon request, Blaine L. Nurse will provide access to representatives of the Assistant Secretary of Labor for Occupational Safety and Health employee exposure and medical records and to analyses using exposure or medical records.

Analysis Using Medical or Exposure Records

"Analysis using exposure or medical records" means any compilation of data or any statistical study based at least in part on information collected from individual employee exposure or medical records or information collected from health insurance claims records, provided that either the analysis has been reported to the employer or no further work is currently being done by the person responsible for preparing the analysis.

Before access is granted to an analysis using medical or exposure records, all personal identifiers must be removed that could reasonably directly identify the employee. Identifiers would include: name, SSN, address, etc.

Identifiers that could indirectly identify the employee will also be removed. These would include date of hire, sex, job title, etc.
Confidentiality

Nothing in the OSHA standards is intended to affect existing legal and ethical obligations concerning the maintenance and confidentiality of employee medical information, the duty to disclose information to a patient/employee or any other aspect of the medical-care relationship, or affect existing legal obligations concerning the protection of trade secret information.

Transfer of records

Should we cease to do business, the successor employer shall receive and retain all the above medical and exposure records.

Should we cease to do business and there is no successor employer to receive and retain the above medical and exposure records, they shall be transmitted to the Director of the National Institute or Occupational Safety and Health.

At the expiration of the retention period for the above medical records, we will notify the Director at least 3 months prior to the disposal of such records and shall transmit those records to the Director if he requests them within that period.
Enforcement

It is expected that all employees will abide by our safety rules and guidelines not only to protect themselves, but also to protect their fellow workers from harm. Should a safety violation occur, the following steps will be taken by the employee’s immediate supervisor:

Note: Examples of what constitutes a safety violation includes, but is not limited to, failure to follow verbal or written safety procedures/guidelines/rules, failure to wear selected PPE, horse play, abuse of equipment, etc.

a. **Minor Safety Violations**: Violations which would not reasonably be expected to result in serious injury.

1. The hazardous situation will be corrected.
2. The employee will be informed of the correct procedures to follow and the supervisor will ensure that these procedures are understood.
3. The supervisor will make a written report of the occurrence using our Enforcement Documentation Form and inform the employee that this documentation will be forwarded to Blaine L. Nurse, our Safety Director, for a retention period of one year.
4. A repeat occurrence of the same minor safety violation is considered substantially more serious than the first.

b. **Major Safety Violations**: Violations which would reasonably be expected to result in serious injury or death.

1. The hazardous situation will be corrected.
2. The employee will be informed of the correct procedures to follow and will impress upon the individual the severity of the violation and the likely consequences should this type of violation be repeated. The supervisor will ensure that the individual understands the correct procedures and will be cautioned that a reoccurrence could result in disciplinary action up to and including discharge.
3. The supervisor will make a written report of the occurrence using our Enforcement Documentation Form and inform the employee that this documentation will be forwarded to Blaine L. Nurse for a retention period of one year.
c. **Willful Major Safety Violations:** Intentional violation of a safety rule which would reasonably be expected to result in serious injury to the employee or a fellow worker.

1. The hazardous situation will be corrected.
2. The employee will be removed from the job site, the event will be documented and forwarded to Blaine L. Nurse, and the employee will be discharged.

Employees are to understand that the primary purpose of documenting safety violations is to ensure that the important business of employee safety is taken seriously and that the potential for injury is reduced to the lowest possible level.

As part of our supervisory commitment to safety, management personnel will conduct frequent and random physical job site inspections using our inspection checklists found in Section IV of this program. Violations showing an overall lack of commitment to company safety goals will result in enforcement actions listed below.

**Schedule of Enforcement Actions**

**Violations occurring within a 1 Year Period**

**Minor Violation**

<table>
<thead>
<tr>
<th>Offense</th>
<th>Action</th>
<th>Repeat of Same Offense</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Written Notice</td>
<td>1st</td>
<td>1 Day Off</td>
</tr>
<tr>
<td>2nd</td>
<td>Written Notice</td>
<td>2nd</td>
<td>3 Days Off</td>
</tr>
<tr>
<td>3rd</td>
<td>1 Day Off</td>
<td>3rd</td>
<td>Dismissal</td>
</tr>
<tr>
<td>4th</td>
<td>2 Days Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>3 Days Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td>Dismissal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Major Violation**

<table>
<thead>
<tr>
<th>Offense</th>
<th>Action</th>
<th>Repeat of Same Offense</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Written Notice</td>
<td>1st</td>
<td>4 Days Off</td>
</tr>
<tr>
<td>2nd</td>
<td>2 Days Off</td>
<td>2nd</td>
<td>Dismissal</td>
</tr>
<tr>
<td>3rd</td>
<td>4 Days Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>Dismissal</td>
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Nurse Stucco Inc.

Section II
Site/Job Specific Policies and Procedures
**Abrasive Wheels**

**Use, Care, and Protection of Abrasive Wheels**

An abrasive wheel is defined as a cutting tool consisting of abrasive grains held together by organic (resin, rubber, shellac or similar bonding agent) or inorganic bonds. Hazards that present themselves during abrasive wheel operations include physical contact with the rotating wheel; destruction of the wheel, itself; inhalation of the bonding particles; being struck by flying fragments. All these hazards can be eliminated through adherence to appropriate machine guarding principles, appropriate PPE, and/or respiratory protection.

Immediately before mounting, wheels must be inspected and sounded (ring test) to ensure they have not been damaged. Ensure the spindle speed does not exceed the maximum operating speed noted on the wheel.

**Ring Test:** Wheel to be tested must be dry and free from sawdust. Wheels should be tapped gently with a light nonmetallic implement, such as the handle of a screwdriver, or a wooden mallet for heavier wheels. If they sound cracked (dead), they may not be used. It should be noted that organic bonded wheels do not emit the same clear metallic ring as do vitrified and silicate wheels. Tap the wheels about 45° each side of the vertical centerline and about one or two inches from the periphery. Rotate the wheel about 45° and repeat the test. A sound, undamaged, wheel will give a clear metallic tone.

**Guarding: Abrasive Blades in Portable Circular Saws:**

It is important to distinguish between a saw and an abrasive blade because they have different guarding requirements. An abrasive wheel is defined by the American National Standards Institute (ANSI) B7.1-1970, as "a cutting tool consisting of abrasive grains held together by organic or inorganic bonds."

ANSI B7.1-1970 requires the upper half (180°) of the abrasive blade to be guarded when abrasive wheels are installed on portable power driven circular saws.

Guards should never be removed or altered when operating abrasive wheels.

Eye protection and hand protection should be used.

If a wheel is constructed with bonded, steel fragments arranged in intermittent clusters around the periphery of a steel disc and the steel fragments are too large and sharp to be considered abrasive grains and these fragments remove material primarily by severing rather than by abrasion, then this would be considered a saw blade.
Combustible & Flammable Liquid Handling

Flammable and combustible liquids

Only approved containers and portable tanks will be used for storage and handling of flammable and combustible liquids. Approved safety cans or Department of Transportation approved containers will be used for handling and use of flammable liquids in quantities of 5 gallons or less.

Note: The above does not apply to flammable liquid materials which are highly viscid (extremely hard to pour) which may be used and handled in their original shipping containers.

Note: For quantities of one gallon or less, the original container may be used for storage, use and handling.

Flammable or combustible liquids may not be stored in areas used for exits, stairways, or normally used for the safe passage of people.

Inside a facility, no more than 25 gallons of flammable or combustible liquids may be stored in a room outside of an approved storage cabinet.

Gasoline

General Information

Because most persons use or indirectly handle gasoline on a regular basis - from filling up automobiles to lawn mowers - the hazards presented by this product may have become obscure. Just because you are familiar with gasoline, never lose sight of the lethal hazards that it may contain.

Gasoline is a flammable liquid which means it has a flash point of less than 100°F. The actual flash point - lowest temperature at which a liquid gives off enough vapor to form a flammable mixture with air - of gasoline is -45°F. The autoignition temperature - the temperature at which, with sufficient oxygen, gasoline will ignite on its own and burn - is 536°F.
Gasoline has a specific gravity - the weight of the gasoline compared to the weight of an equal volume of water - of 0.73. Further, gasoline has a negligible solubility in water. Basically, what the above means is that if water is used to extinguish a gasoline fire, it will only spread it because the gasoline will float on the water and continue to give off a vapor and form a flammable mixture with air. Gasoline fires must be fought with an extinguisher that is rated for Class B Fires such as carbon dioxide, dry chemical, or foam. It should be noted that water spray may be used to cool containers that may be exposed to the heat of the fire to prevent an explosion.

Conditions to avoid: heat, flame, & sources of ignition. Materials to avoid: strong oxidizers.

Health hazard information: routes of entry: inhalation, skin, ingestion.

Signs & symptoms of overexposure: headache, nausea, drowsiness, breathlessness, fatigue, convulsions, loss of conscience, dermatitis.

If there is a spill, notify emergency response personnel, evacuate area, remove ignition sources, build a dike to contain flow, do not flush to sewer or open water. Pick up with inert absorbent and place in closed container for disposal.

Gasoline is a carcinogen - a cancer causing agent.

General rules: Post “No Smoking” signs around gasoline storage and ensure that it is enforced. Use only approved plastic or metal containers for portable gasoline carriers. They must not contain more than 5 gallons.

Double check with local ordinances for storage requirements.
Combustible Gas Indicators

The below information is extracted from OSHA Hazard Information Bulletin, dated, January 18, 1990, subject: *The Use of Combination Oxygen and Combustible Gas Detectors.*

In tank removal operations, it is common practice to purge a tank containing flammable vapors with either carbon dioxide or an inert gas, such as nitrogen. When the oxygen content falls to about 10% or below, a false combustible gas indicator reading can occur.

The combination oxygen and combustible gas meter is used to test atmospheres for sufficient oxygen content for life support and/or the presence of combustible gases or vapors posing a potential flammability/explosion hazard. Common examples of locations where this instrument is used include storage tanks, confined spaces, manholes, tank cars, ships and shipyards, tunneling, pumping stations and hazardous waste sites.

The combustible gas indicator is designed to measure combustible gas or vapor content in air. This instrument is capable of detecting the presence of any gas or vapor which, when combined with oxygen in free air, presents a potential hazard due to flammability/explosion. The combustible gas indicator will not indicate the combustible gas content in atmospheres containing less than 10% oxygen.
Each instrument has its own set of operating procedures and instructions, however:

a. The instrument should not be used where the oxygen concentration exceeds that of fresh air (oxygen enriched atmosphere) when sampling for gases like acetylene and hydrogen.

b. Certain materials such as silicon, silicates (such as in certain hydraulic fluids) and organic lead (such as in leaded gasoline) will poison the combustible gas sensor thereby giving erroneously low readings.

c. Combustible gas readings, either negative or greater than 100% LEL, may indicate an explosive concentration of gas beyond the accurate response range of the combustible gas sensor.

d. Pressurized or low pressure samples will give erroneous oxygen percent readings.

e. Acid gases, such as carbon dioxide, will shorten the service life of the oxygen sensor.

f. The instrument will not indicate the presence of combustible airborne mists or dusts such as lubricating oils, coal dust or grain dust.

The safe and effective performance of any oxygen/combustible gas detector requires that the operator know the correct use of the instrument to detect explosive concentrations of combustibles. It is important that the instrument response be appraised in light of the limitations and guidelines given in the instrument manual. The instrument should be operated only after the instructions, labels, cautions and warnings, and all other literature accompanying the instrument are carefully read and understood.
Company Vehicles

Only authorized employees may operate, in the course of their work, any company-owned motor vehicle.

Prior to authorization, the employee must possess a valid and current license to operate the vehicle. Blaine L. Nurse, our Safety Director, or authorized representative, will ensure that the employee has demonstrated his/her ability to operate the motor vehicle in a safe and competent manner.

Under no circumstances may any motor vehicle be operated under the influence of alcohol, illegal drugs, or prescription or over-the-counter drugs medications that may impair their driving skills.

When driving over the road vehicles, employees will ensure that the vehicle registration and proof of insurance is within the vehicle. In the event of an accident, Blaine L. Nurse will be notified immediately after all potential injuries are addressed and a police report is filled out.

Employees must report all traffic violations to Blaine L. Nurse and they are responsible for paying all penalties imposed by law.

Loads in vans and trucks will be properly secured [strapped or blocked] to preclude any shift or movement and care will be taken to not exceed the vehicles weight limits.

All company motor vehicles will be maintained in safe operating condition and in accordance with the manufacturer’s recommended maintenance schedule. A log book will be maintained for each vehicle and receipts will be kept for all maintenance and repairs performed.
Before use, a walk around inspection will be performed by the operator checking tires (tread depth and pressure), glass (chips and cracks), horn and lights, and general vehicle condition. Discrepancies will be noted in the log book. No vehicle will be operated that is not in safe mechanical condition.

It is expected that the below safe vehicle operation/driving procedures will be followed at all times:

1. Seat belts will be worn by all occupants at all times while the vehicle is in motion.
2. Safe distance [one vehicle length per 10 MPH] will be maintained.
3. Posted speed limits will not be exceeded.
4. During fuel stops, all fluids will be checked and the windows, headlights and taillights will be cleaned.
5. Constant attention will be maintained by always being aware of road conditions and surrounding vehicles. Unnecessary distractions will not be permitted such as using hands to dial or receive cell phone calls or changing radio stations while the vehicle is in motion. Hands free cell phone use is allowed.
6. Before backing up any vehicle, check behind and blow horn for the safety of others.
Compressed Gas Cylinders

Storage, Handling, and Use of Cylinders

Compressed gas cylinders are used on many job sites -- the most common being oxygen and acetylene for welding and propane for heat and forklifts. Failure to follow basic safety procedures could result in serious injuries such as:

a. flash burn - due to explosion.
b. fragment impalement - due to explosion.
c. compression of the foot - due to mishandling of tanks.
d. inhalation of hazardous gases - due to leakage. Compressed Gas Cylinders Use:

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a. flash burn - due to explosion.
b. fragment impalement - due to explosion.
c. compression of the foot - due to mishandling of tanks.
d. inhalation of hazardous gases - due to leakage.

All employees who use compressed gas cylinders will be trained in their proper storage, handling, and use.
Specific requirements for compressed gas cylinders use include:

1. Compressed gas cylinders will be clearly marked to identify the gas contained therein. Gas identification must be stamped or stenciled on the gas cylinder or a label affixed. No gas cylinder will be accepted for use that does not legibly indentify its content by name.

2. Visual or other inspections will be performed by the competent person on site to ensure the compressed gas cylinders are in a safe condition.

3. Compressed gas cylinders will be inspected to ensure they are equipped with the correct regulator. Before use, regulators and cylinder valves will be inspected to ensure they are free from oil, dirt, and solvents.

4. Compressed gas cylinders will have valve protectors in place when not in use or connected for use.
   
   a. When a cylinder cap cannot be removed by hand, the cylinder will be tagged “Do Not Use” and returned to the designated storage area for return to the vendor.

5. The user of the compressed gas cylinders will use only the tools supplied by the provider to open and close cylinder valves.

6. Valves will be closed before the cylinder is moved, when the cylinder is empty, and at the completion of each job.

7. Leaking cylinders will be moved to an isolated, well ventilated area, away from ignitions sources.

   Note: Soapy water will be used to detect the exact location of the leak. If the leak is at the junction of the cylinder valve and cylinder, do not attempt to repair it. The supplier will be contacted and asked for proper response instructions.

8. Gasses may never be mixed in a cylinder. Only professionals may refill gas cylinders.

9. Hoses and connections will be inspected regularly for damage. Hoses should be stored in cool areas and protected from damage.
Compressed Gas Cylinders Storage

1. Cylinders must be secured at all times in such a way as to avoid them being knocked over or damaged. They by be stored in a vertical position. They must be segregated based on contents. 20 feet should be maintained between oxidizers and flammables or firewalls erected at least 5 feet high with a fire rating of 30 minutes.

2. Cylinders must be protected from damage, corrosion, sunlight.

3. Cylinders must be stored in well protected, well ventilated, dry locations away from sunlight. Cylinders will never be kept in unventilated enclosures such as lockers or cupboards.

4. Cylinders must be stored away from stairs, elevators, and gangways.

5. Clearly designated and labeled separate storage area will be provided for full and empty cylinders.

6. Empty cylinders that are no longer needed must be marked as “MT” and dated when empty. Empty cylinders must be handled as carefully as full cylinders.

7. Cylinders will be capped when they are not being used

Transportation of Compressed Gas Cylinders

1. Compressed gas cylinders must be transported in a vertical secured position using a cylinder basket or cart.

2. Regulators should be removed and cylinders capped before movement.

3. Cylinders may never be rolled. Cylinders should not be dropped or permitted to strike violently.

4. Protective caps are not to be used to lift cylinders.
Concrete and Masonry Construction

29 CFR 1926.701 - General requirements
29 CFR 1926.702 - Requirements for equipment and tools
29 CFR 1926.703 - Requirements for cast-in-place Concrete
29 CFR 1926.704 - Requirements for precast concrete
29 CFR 1926.705 - Requirements for lift-slab operations
29 CFR 1926.705 App - Lift Slab Operations
29 CFR 1926.706 - Requirements for masonry construction

Concrete and masonry construction, more so than most trades, are highly skilled activities that require numerous specialized abilities including, but not limited to, an understanding of chemistry, building techniques, specialized tools, and a unique language. The definitions below are extracted from OSHA standards; however they barely scratch the surface. Words and phrases such as: Adiabatic Curing, Hand Float, and Water-Cement Ratio are peculiar to these trades.

Definitions

Listed below are terms, with accompanying OSHA notes, which must be understood when dealing with concrete and masonry construction:

Bull float: A tool used to spread out and smooth concrete.
Note: Bull float handles that might contact energized electrical conductors must be constructed of nonconductive materials or insulated with a nonconductive sheath.

Formwork: The total system of support for freshly placed or partially cured concrete, including the mold or sheeting (form) that is in contact with the concrete as well as all supporting members including shores, re-shores, hardware, braces, and related hardware.
Note: Formwork must be designed, fabricated, supported, braced and maintained so that it will be capable of supporting without failure all vertical and lateral loads that may reasonably anticipated to be applied to the formwork.
Note: Drawings with all revisions for the jack layout, formwork (including shoring equipment), working decks, and scaffolds must be available at the job site.

Lift slab: A method of concrete construction in which floor and roof slabs are cast on or at ground level and, using jacks, lifted into position.

Limited access zone: An area alongside a masonry wall, which is under construction, and which is clearly demarcated to limit access by employees.

Precast concrete: Concrete members (such as walls, panels, slabs, columns, and beams) which have been formed, cast, and cured prior to final placement in a structure.
Re-shoring: The construction operation in which shoring equipment (also called re-shores or re-shoring equipment) is placed, as the original forms and shores are removed, in order to support partially cured concrete and construction loads.

Note1: All Shoring equipment must be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.

Note2: Shoring equipment found to be damaged such that it is not capable of supporting without failure all vertical and lateral loads that may reasonably anticipated to be applied to them must not be used.

Note3: Erected shoring equipment shall be inspected immediately prior to, during, and immediately after concrete placement.

Note4: Shoring equipment that is found to be damaged or weakened after erection, such that its strength is reduced to the point where it is not capable of supporting without failure all vertical and lateral loads that may reasonably anticipated to be applied to them will be immediately reinforced.

Note5: The sills for shoring must be sound, rigid, and capable of carrying the maximum intended load.

Note6: All base plates, shore heads, extension devices, and adjustment screws must be in firm contact, and secured when necessary, with the foundation and the form.

Note7: Eccentric loads on shore heads and similar members shall be prohibited unless these members have been designed for such loading.

Note8: Whenever single post shores are used one on top of another (tiered), the below will apply:
   a. The design of the shoring shall be prepared by a qualified designer and the erected shoring shall be inspected by an engineer qualified in structural design.
   b. The single post shores shall be vertically aligned.
   c. The single post shores shall be spliced to prevent misalignment.
   d. The single post shores shall be an adequately braced in two mutually perpendicular directions at the splice level. Each tier shall also be diagonally braced in the same two directions.

Note9: Adjustment of single post shores to raise form work will not be made after the placement of concrete.

Note10: Re-shoring shall be erected, as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.
Shore: A supporting member that resists a compressive force imposed by a load

Tremie: A pipe through which concrete may be deposited under water

Note: Sections of tremies and similar concrete conveyances must be secured with wire rope (or equivalent materials) in addition to the regular couplings or connections.

Vertical slip forms: Forms which are jacked vertically during the placement of concrete

Jacking operation: The task of lifting a slab (or group of slabs) vertically from one location to another (e.g., from the casting location to a temporary location, or to its final location in the structure), during the construction of a building/structure where the lift-slab process is being used

**Rebar Protection**

All protruding reinforcing steel bars which employees could fall onto or into, will be guarded to eliminate the hazard of impalement. Protection from impalement on protruding rebar is primarily a function of fall protection when employees are working above rebar or other impalement hazards.

When working at the same grade as rebar protruding 4 to 6 feet, there is not, for all practical purposes, an impalement hazard. In these instances, acceptable rebar caps are appropriate to prevent cuts, abrasions or other minor injuries.

At grade, the lower the rebar sticks up, the greater the impalement hazard due to tripping. If there is any chance for impalement, acceptable rebar caps are mandatory.
Major Hazards

Both concrete and masonry construction require skilled, trained personnel to produce quality work performed in a safe manner. Serious accidents, including wall collapse, can happen in an instant due to premature removal or actual failure of the formwork. Additionally, failure to brace masonry walls, failure to support precast panels, overloading, etc., can cause serious mishaps.

No construction loads will be placed on a concrete structure unless our competent person determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.

Prior to construction of a masonry wall, a limited access zone will be established as follows:

a. It must be equal to the height of the wall to be constructed plus 4 feet and it must run the entire length of the wall

b. On the side of the wall that will not have scaffolding, the limited access zone must be:
   1. Restricted to entry only by employees actively engaged in constructing the wall
   2. If the wall is 8 feet or less, the limited access zone will be kept in place until the wall is adequately supported to prevent overturning and collapse
   3. If the height of the wall is more than 8 feet and unsupported, the wall must be braced and the bracing must remain in place until permanent supporting elements of the structure are in place

Concrete and masonry work are performed in such a variety of circumstances and conditions – underground, over ground, on sides of structures, on top of structures, inside confined spaces, precast and cast in-place concrete, etc. Each circumstance presents specific hazards which must be addressed. The competent person on site will point out unusual, specific hazards and means to deal with them.
Safety Procedures

The competent person will ensure that all equipment is inspected as required and defective equipment is removed from service.

The competent person will ensure the drawings or plans, with revisions, for all equipment and procedures to be used in concrete or masonry construction are available at the job site.

For the safety of all employees, the following safety rules are established:

a. Limited or controlled access zones will be restricted to employees who have actual job responsibilities within the established zones.

b. Employees will not work under concrete buckets while they are being elevated or lowered into position.

c. Employees, except those required for the job, are not allowed under precast concrete members while they are being lifted or tilted into position.

d. Personal protective equipment, determined by the competent person on the job site, will be used without exception. It should be noted that when cement is mixed with water, a highly alkaline solution is produced by the dissolution of calcium, sodium, and potassium hydroxides. Gloves should be worn to protect the skin. Hands should be washed after contact. OSHA requires head and face equipment for employees applying a mixture of cement, sand, and water through a pneumatic hose.

e. Employees will not be allowed to perform maintenance on any equipment where the unexpected activation of that equipment could cause harm without following the procedures in our Control of Hazardous Energy Program.

f. When fastening other materials to a concrete surface (such as a wooden 2" X 4"), only a fastener of 7/32-inch shank diameter or less will be driven in and it may be no closer than 2 inches from the unsupported edge or corner of the work surface.

g. Fasteners will not be driven directly into brick or concrete closer than 3" from the unsupported edge of corner unless a special guard, fixture, or jig is used.

Note: Exception to the above: Low-velocity tools may drive no closer than 2" from an edge in concrete.

h. Concrete mixers with one cubic yard or larger loading skips will be equipped with a:

   a. Mechanical device to clear the skip of materials
   b. Guardrail installed on each side of the skip

Note: Regardless of the size of the skip, point of operation guarding must be utilized.
Concrete Cutting

Only trained and authorized personnel will operate concrete cutting equipment. The following guidelines will be used during all concrete cutting operations.

a. Follow the manufacturer’s recommendations for the safe use of the equipment.

b. Use the correct blade (size, type, speed) for the job, properly tightened. Inspect the blade and all equipment before use.

c. Ensure all safety guards are functioning properly.

d. Never operated a hand held saw above shoulder height.

e. Wear proper safety equipment including eye, hand and skin protection. Depending on the job, respiratory protection or dust masks may be required.

f. Establish a control zone and keep others out who are not directly involved with the work at hand.

g. Ensure there is adequate coolant/water when appropriate.

h. Never operate an internal combustion saw in a confined space.
Concrete Pumps and Placing Booms

OSHA has little to say about concrete pumping systems. Essentially, OSHA says that pumping systems using discharge pipes will be provided with pipe supports designed for 100% overload and compressed air hoses used on concrete pumping systems will be provided with positive fail-safe joint connectors to prevent separation of sections when pressurized.

Concrete pumping systems have the potential for serious mishaps due to the machinery, the weight, the set-up, and the operation. Coordination is required between all persons involved in concrete pumping operations.

Only qualified, authorized, employees may operate concrete pumps and place booms. The equipment owner/operator manual must be on site and readily available.

Prior to use, the equipment will be inspected per the manufacturer’s instructions and defective equipment will be taken out of service.

Appropriate PPE must be worn including hard hats, face protection, and steel toed work boots.

Extreme care must be exercised in keeping the boom clear of electrical power lines. Safety distances from various electrical currents are found in Power Line Safety, located at 29 CFR 1926.1408.

If maintenance is required, and there is potential stored energy within the system, it will be performed under the provisions of The Control of Hazardous Energy (Lockout/Tagout), located at 29 CFR 1910.147.
Delivery Crane Trucks

Note: The below information is applicable to the following crane types and operations:

1. Articulating/knuckle-boom truck cranes that deliver material to a construction site when used to transfer materials from the truck crane to the ground, without arranging the materials in a particular sequence for hoisting.

2. Articulating/knuckle-boom truck cranes that deliver material to a construction site when the crane is used to transfer building supply sheet goods or building supply packaged materials from the truck crane onto a structure, using a fork/cradle at the end of the boom, but only when the truck crane is equipped with a properly functioning automatic overload prevention device. Such sheet goods or packaged materials include, but are not limited to: sheets of sheet rock, sheets of plywood, bags of cement, sheets or packages of roofing shingles, and rolls of roofing felt.

Note: The above articulating/knuckle-boom crane exclusion does not apply when it is used to 1) hold, support or stabilize the material to facilitate a construction activity, such as holding material in place while it is attached to the structure; 2) when the material being handled is a prefabricated component such as precast concrete members or panels, roof trusses, prefabricated building sections such as, but not limited to: floor panels, wall panels, roof panels, roof structures, or similar items; and, 3) when the material being handled by the crane is a structural steel member (for example, steel joists, beams, columns, steel decking (bundled or unbundled) or a component of a systems-engineered metal building.

All other crane operations fall under Subpart CC—Cranes and Derricks in Construction, located here 29 CFR 1926.1400

Cranes, like all pieces of heavy equipment, if not properly operated, inspected and maintained, have a potential for causing major bodily injury or property damage. Care must be taken in all facets of crane operation.

Not only do cranes require a thorough annual inspection (a record of the dates and results of these inspections must be maintained) they require inspection prior to each use and even during use by a competent person.

All rated load capacities, recommended operating speeds, and special hazard warnings or instructions must be readily visible to the operator of the crane.

While cranes easily have the lifting ability to hoist employees on a personnel platform, this is absolutely prohibited except in cases when the erection, use, and dismantling of conventional means of reaching the worksite would be more hazardous or is not possible because of structural design or worksite conditions. A conventional means would include: a personnel hoist, ladder, stairway, aerial lift, and elevating work platform or scaffold.
It is absolutely imperative that the possibility of electrocution be totally eliminated. This can be accomplished by adhering to the safe distances from various currents noted in *The Control of Hazardous Energy (Lockout/Tagout)*, located at 29 CFR 1910.147.

Dangers associated with cranes include numerous moving parts. These dangers can be minimized or eliminated by ensuring that all guards are in place and not tampered with.

Care must be taken to ensure that areas within the swing radius, of the rear of the rotating superstructure of the crane, are barricaded to prevent a person from being struck or crushed.

All employees must keep clear of loads that are about to be lifted as well as suspended loads.

When using slings made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope (conventional three strand construction), and synthetic web (nylon, polyester, and polypropylene), the following safe operating practices will be observed:

a. Slings shall not be shortened with knots or bolts or other makeshift devices.

b. Sling legs shall not be kinked.

c. Slings used in a basket hitch shall have the loads balanced to prevent slippage.

d. Slings shall be padded or protected from the sharp edges of their loads.

e. Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.

Hand signals used to guide the crane operator will be consistent with the ANSI standard for the type of crane in use and an illustration of the signals must be posted at the job site.

Care must be taken while actually operating the crane in hoisting applications as well as when relocating the crane superstructure.

The competent person on site will ensure that the flooring on which equipment may be placed is substantial enough to safely hold the weight of the load. If the strength of the floor is unknown and/or cannot be determined, a professional engineer will determine the pounds per square foot required and, if necessary, the appropriate shoring to be installed to sustain the weight.
Demolition

29 CFR 1926.850 - Preparatory operations
29 CFR 1926.851 - Stairs, passageways, and ladders
29 CFR 1926.852 - Chutes
29 CFR 1926.853 - Removal of materials through floor openings
29 CFR 1926.854 - Removal of walls, masonry sections, and chimneys
29 CFR 1926.856 - Removal of walls, floors, and material with equipment
29 CFR 1926.857 - Storage
29 CFR 1926.858 - Removal of steel construction
29 CFR 1926.859 - Mechanical demolition
29 CFR 1926.860 - Selective demolition by explosives

General Requirements:

1. Proper Permits shall be obtained prior to the commencement of any demolition activities.

2. Demolition Permits are to be readily available on site for review.

3. Protection of adjacent structures, property, and sidewalks is to be accomplished prior to commencement of demolition activities.

4. Proper personal protective equipment is to be worn throughout demolition process including but not limited to hard hats, work boots, glasses, and fall protection.

5. Dust control should be implemented to eliminate hazards where dust presents a health hazard, environmental hazard, damage to property.

6. Any entry point or gate openings are to be closed and secured during all demolition activities.

7. Demolition debris is not to remain on any portion of a roof top or sidewalk bridge structure. These areas are to be cleaned daily.
**Preparatory Operations:**

1. Prior to permitting employees to start demolition operations, an engineering survey shall be made by a competent person, of the structure to determine the condition of the framing, floor, and walls, and possibility of unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked. Written evidence that such a survey has been performed should be available on the job site.

2. When employees are required to work within a structure to be demolished which has been damaged by fire, flood, explosion or other cause, the walls or floor shall be shored or braced.

3. All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled, outside the building line before demolition work is started. In each case, any utility company, which is involved, shall be notified in advance.
   
   a. If it is necessary to maintain any power, water or other utilities during demolition, such lines shall be temporarily relocated, as necessary, and protected.

   b. It shall also be determined if any type of hazardous chemicals, gases, explosive, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated before demolition is started.

4. Where a hazard exists from fragmentation of glass, such hazards shall be removed.

5. Where a hazard exists to employees falling through wall openings, the opening shall be protected to a height of approximately 42 inches.

6. When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs, warning of the hazard of falling materials, shall be posted at each level. Removal shall not be permitted in this lower area until debris handling ceases above.
7. All floor openings, not used as material drops, shall be covered over with material substantial enough to support the weight of any load, which may be imposed. Such material shall be properly secured to prevent its accidental movement. ALL COVERS SHALL BE MARKED “FLOOR HOLE DO NOT REMOVE COVER.”

8. Except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work, the demolition of exterior walls and floor construction shall begin at the top of the structure and proceed downward. Each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing the removal of exterior walls and floors in the story next below.

9. Employee entrances to multi-story structures being demolished shall be completely protected by a sidewalk sheds or canopies, or both, providing protection from the face of the building for a minimum of 8 feet. All such canopies shall be at least 2 feet wider than the building entrances or openings (1 foot wider on each side thereof) and shall be capable of sustaining a load of 150 pounds per square foot.

**Stairs, Passageways and Ladders:**

1. Only those stairways, passageways and ladders, designated as means of access to the structure of a building, shall be used. Other access ways shall be entirely closed at all times.

2. All stairs, passageways, ladders and incidental equipment thereto, which are covered by this section, shall be periodically inspected and maintained in a clean, safe condition.

3. In a multistory building, when a stairwell is being used, it shall be properly illuminated by either natural or artificial means, and completely and substantially covered over at a point not less than two floors below the floor on which work is being performed, and access to the floor where the work is in progress shall be through a properly lighted, protected and separate passageway.
Chutes:

1. No material shall be dropped to any point lying outside the exterior walls of the structure.

2. All materials chutes or sections thereof, at an angle of more than 45 degrees from the horizontal, shall be entirely enclosed except for the openings equipped with closures at or about floor level for the insertion of materials. The openings shall not exceed 48 inches in height measured along the wall of the chute. At all stories below the top floor, such openings shall be kept closed when not in use.

3. A substantial gate shall be installed in each chute at or near the discharge end. A competent employee shall be assigned to control the operation of the gate, and the backing and loading of trucks.

4. When operations are not in progress, the area surrounding the discharge end of a chute shall be securely closed off.

5. Any chute opening, into which workmen dump debris shall be protected by a substantial guardrail approximately 42 inches above the floor or other surface on which the men stand to dump the material. Any space between the chute and the edge of openings in the floors through which it passes shall be solidly covered over.

6. Where the material is dumped from mechanical equipment or wheel barrows, a securely attached toeboard or bumper, not less than four inches (4”) thick and six inches (6”) high, shall be provided at each chute opening.

7. Chutes shall be designed and constructed of such strength as to eliminate failure due to impact of materials or debris loaded therein.

8. Every chute used to convey material from a building shall be rigidly supported at its top and braced midway in its height.

9. All chutes constructed of combustible material shall be covered on the exterior with corrugate steel sheeting having a minimum thickness of 24 gauge through the entire height. Alternatively, chutes shall be constructed of non-combustible material.

10. All structural supports of material chutes shall be of noncombustible material.
Removal of Debris through Floor Openings:
Any openings cut in a floor for the disposal of materials shall be no larger in size than 25 percent of the aggregate of the total floor area. Floors weakened or otherwise made unsafe by demolition operations shall be shored or braced to carry safely the intended imposed load from demolition operations.

Removal of Walls, Masonry Section and Chimneys:

1. Masonry walls, or other sections of masonry, shall not be permitted to fall upon the floors of the building in such masses as to exceed the safe carrying capacities of the floors.

2. No wall section, which is more than one story in height shall be permitted to stand alone without lateral bracing, unless such wall was originally designed and constructed to stand without such lateral support, and is in a condition safe enough to be self-supporting. All walls shall be left in a stable condition at the end of each shift.

3. Employees shall not be permitted to work on the top of a wall when weather conditions constitute a hazard.

4. Structural or load supporting members on any floor shall not be cut or removed until all stories above such a floor have been demolished and removed. This provision shall not prohibit the cutting of floor beams for the disposal of materials or for the installation of equipment provided the terms addressed under manual removal of floors [Manual removal of floors. - 1926.855 ] is followed.

5. Floor openings within 10 feet of any wall being demolished shall be planked solid, except when employees are kept out of the area below.

6. In building of “skeleton-steel” construction, the steel framing may be left in place during the demolition of masonry. Where this is done, all steel beams, girders, and similar structural supports shall be cleared of all loose material as the masonry demolition progresses downward.

7. Walkways or ladders shall be provided to enable employees to safely reach or leave any scaffold or wall.

8. Walls, which serve, as retaining walls to support earth or adjoining structures, shall not be demolished until such earth has been properly braced or adjoining structures have been properly underpinned.
**Manual Removal of Floors:**

1. Openings cut in a floor shall extend the full span of the arch between supports.

2. Before demolishing any floor arch, debris and other material shall be removed from such arch and other adjacent floor area. Planks not less than two inches (2") by ten inches (10") in cross section, full size undressed, shall be provided for, and shall be used by employees to stand on while breaking down floor arches between beams. Such planks shall be so located as to provide a safe support for the workmen should the arch between the beams collapse. The open space between planks shall not exceed sixteen inches (16").

3. Safe walkways, not less than eighteen inches (18") wide, formed of planks not less than two inches (2") thick if wood or of equivalent strength if metal, shall be provided and used by workmen when necessary to enable them to reach any point without walking upon exposed beams.

4. Stringer of ample strength shall be installed to support the flooring planks and the ends of such stringers shall be supported by floor beams or girders, and not by floor arches alone.

5. Planks shall be laid together over solid bearings with the ends overlapping at least one foot (1’).

6. When floor arches are being removed, employees shall not be allowed in the area directly underneath, and such an area shall be barricaded to prevent access to it.

7. Demolition of floor arches shall not be started until the, and the surrounding floor area for a distance of twenty feet (20’), have been cleared of debris and any other unnecessary materials.
Removal of Walls, Floor and Material with Equipment:

1. Mechanical equipment shall not be used on floors or working surfaces unless such floors or surfaces are of sufficient strength to support the imposed load.

2. Floor openings shall have curbs or stop logs to prevent equipment from running over the edge.

Storage:

1. The storage of waste material and debris on any floor shall not exceed the allowable floor loads.

2. In buildings having wooden floor construction, the flooring boards may be removed from not more than one floor above grade to provide storage space for debris, provided falling material is not permitted to endanger the stability of the structure.

3. When wood floor beams serve to brace interior walls or free standing exterior walls, such beams shall be left in place until other equivalent support can be installed to replace them.

4. Floor arches, with an elevation of not more than twenty five feet (25') above grade, may be removed to provide storage area for debris; provided, that such removal does not endanger the stability of the structure.

5. Storage space into which material is dumped shall be locked off; except for openings necessary for the removal of material. Such openings shall be kept closed at all times when material is not being removed.

6. Storage spaces shall not interfere with access to any stairway or passageway.
Disposable Respirators

Appendix D to Section 5144
Cal/OSHA requires that employees who voluntarily use disposable respirators in situations where respiratory protection is not specifically required by OSHA standard (in atmospheres where exposures are below the permissible exposure limit) essentially for personal comfort or additional, though not required, respiratory protection be informed of Appendix D to Section 5144, printed below.

All disposable respirators, such as Moldex, 3M, Wilson, North Safety, etc. must be marked with the manufacturer’s name, the part number, the protection provided by the filter, and “NIOSH”.

Disposable filters are particulate respirators. They are also known as “air-purifying respirators” because they protect by filtering particles out of the air you breathe.

Though disposable filters cannot be fit-tested in the traditional sense, they must be fit-tested in accordance with the manufacturer’s instructions. Under no circumstances may any respirator other than the above disposable respirators be used without compliance with a respiratory protection program.
Appendix D to Section 5144: (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

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 respirators 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 designated 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.
Earth Moving Equipment

29 CFR 1926.600 - Equipment

All heavy equipment must be inspected prior to use and operated only by authorized personnel.

Bi-directional machines such as front-end loaders and bulldozers will have an audible alarm, distinguishable from the surrounding noise level, which will be used if the operator does not have a clear, unobstructed view, or a ground guide indicating that the line of travel is safe.

Scissor points on all front-end loaders which may harm the operator will be guarded, as well as all parts exposed to employees; such as belts, gears, pulleys, sprockets, spindles, drums, flywheels, chains, and other moving parts.

Equipment that is operated from the seated position and has roll over protection will have seat belts and their use is required. If there is no roll over protection, seat belts will not be used.

All trucks, into which earth is dumped, will have protection for the driver of that vehicle or the driver must exit the vehicle before loading.

Vehicle operators will not operate heavy equipment on any access roadway or grade that is not suitable for the vehicle.

Bulldozer blades, loader buckets, dump bodies and similar equipment will be fully lowered or blocked to prevent movement during maintenance or when not in use.

When equipment is parked, the parking brake will be set. Additionally, on inclines, wheeled vehicles will be chocked. Equipment left unattended at night, adjacent to either a highway or construction area in use, will be clearly visible with reflectors, lights, or illuminated barricades (with reflectors or lights).
Electric & Distribution Lines

29 CFR 1926.950 - General requirements
29 CFR 1926.951 - Tools and protective equipment
29 CFR 1926.952 - Mechanical equipment
29 CFR 1926.953 - Material handling
29 CFR 1926.954 - Grounding for protection of employees
29 CFR 1926.955 - Overhead lines
29 CFR 1926.956 - Underground lines
29 CFR 1926.957 - Construction in energized substations
29 CFR 1926.958 - External load helicopters
29 CFR 1926.959 - Lineman’s body belts, safety straps, and lanyards
29 CFR 1926.960 - Definitions applicable to this subpart

When erecting new electric and distribution lines, as well as when altering, converting, or improving them, we will follow the guidelines contained in 29 CFR 1926, subpart V, which contains the standards list above. All persons are encouraged to read this standard and resolve any questions regarding safety with Darren L. Nurse, our Injury and Illness Prevention Program Administrator.

The competent person will ensure that all persons are aware of the major hazards that present themselves on any job site. The two most common hazards involve:

a. Electrical shock/electrocution
b. Falls

Below are guidelines to eliminate the above hazards. No person is to perform any task involving electric and distribution lines unless they are absolutely sure of the safety procedures to follow. If in doubt, get clarification from the competent person. All employees are encouraged to review the safety standards that apply to electric & distribution lines.

**ELECTRICAL SHOCK/ELECTROCUTION**

Electrical equipment and lines must be assumed to be energized until proven to be de-energized. Operating voltages of equipment and lines must be determined before working on or near energized parts.

One can avoid the hazards of electricity by:

Determining, prior to starting work, the voltages one will be working with, the condition of equipment, de-energizing the line or equipment, wearing the appropriate PPE, maintaining the prescribed distance, and using the appropriate tools.
No employee is permitted to approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown below unless:

a. The employee is insulated or guarded from the energized part (gloves or gloves with sleeves rated for the voltage involved shall be considered insulation of the employee from the energized part), or

b. The energized part is insulated or guarded from the employee and any other conductive object at a different potential, or

c. The employee is isolated, insulated, or guarded from any other conductive object(s), as during live-line bare-hand work.

### Alternating Current -- Minimum Distances

<table>
<thead>
<tr>
<th>Voltage range (phase to phase) (kilovolt)</th>
<th>Minimum working and clear hot stick distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 to 15</td>
<td>2 ft. 0 in.</td>
</tr>
<tr>
<td>15.1 to 35</td>
<td>2 ft. 4 in.</td>
</tr>
<tr>
<td>35.1 to 46</td>
<td>2 ft. 6 in.</td>
</tr>
<tr>
<td>46.1 to 72.5</td>
<td>3 ft. 0 in.</td>
</tr>
<tr>
<td>72.6 to 121</td>
<td>3 ft. 4 in.</td>
</tr>
<tr>
<td>138 to 145</td>
<td>3 ft. 6 in.</td>
</tr>
<tr>
<td>161 to 169</td>
<td>3 ft. 8 in.</td>
</tr>
<tr>
<td>230 to 242</td>
<td>5 ft. 0 in.</td>
</tr>
<tr>
<td>345 to 362</td>
<td>7 ft. 0 in.</td>
</tr>
<tr>
<td>500 to 552</td>
<td>11 ft. 0 in.</td>
</tr>
<tr>
<td>700 to 765</td>
<td>15 ft. 0 in.</td>
</tr>
</tbody>
</table>

Footnote¹: The minimum clear hot stick distance is that for the use of live-line tools held by linemen when performing live-line work.

Footnote²: For 345-362 kv, 500-552 kv, and 700-765 kv, minimum clear hot stick distance may be reduced provided that such distances are not less than the shortest distance between the energized part and the grounded surface.
When de-energizing lines and equipment operated in excess of 600 volts, and the means of disconnecting from electric energy is not visibly open or visibly locked out, a control of hazardous energy program will be implemented which, at the minimum, includes:

a. Clearly identifying and isolating all sources of voltage (hazardous energy).

b. Notification and assurance from the designated employee will be obtained assuring that:

1. All switches and disconnectors through which electric energy may be supplied to the particular section of line or equipment to be worked have been de-energized.

2. All switches and disconnectors are plainly tagged indicating that men are at work and, if design allows, they are rendered inoperable.

3. After all designated switches and disconnectors have been opened, rendered inoperable, and tagged, visual inspection or tests shall be conducted to insure that equipment or lines have been de-energized.

4. Protective grounds shall be applied on the disconnected lines or equipment to be worked on.

5. Guards or barriers will be erected as necessary to adjacent energized lines.

6. When more than one independent crew requires the same line or equipment to be de-energized, a prominent tag for each such independent crew shall be placed on the line or equipment by the designated employee in charge.

7. Upon completion of work on de-energized lines or equipment, each designated employee in charge shall determine that all employees in his crew are clear, that protective grounds installed by his crew have been removed, and he shall report to the designated authority that all tags protecting his crew may be removed.
When a crew working on a line or equipment can clearly see that the means of disconnecting from electric energy are visibly open or visibly locked-out, then:

a. Guards or barriers will be erected as necessary to adjacent energized lines.

b. Upon completion of work on de-energized lines or equipment, each designated employee in charge of a crew will determine that all employees in the crew are clear, the protective grounds installed by the crew have been removed, and he/she will report to the designated authority that all tags protecting his crew may be removed.

All live-line tools shall be visually inspected before use each day. Prior to use, tools must be wiped clean. Tools with apparent hazardous defects must be tagged and removed from service until tested with portable or laboratory testing equipment.

All rubber insulating equipment will be visually inspected prior to use and an “air test” will be performed on rubber gloves prior to use.

Hard hats for those who have possible exposure to electrical shock or burns must be manufactured in accordance with the provisions of ANSI Z89.2-1971, Industrial Protective Helmets for Electrical Workers, Class B.

Tools, tape, straps, life lines, belts, hoses, and ladders must be non-conductive.

Only live-line tool poles having a manufacturer's certification to withstand the following minimum tests shall be used:

a. 100,000 volts per foot of length for 5 minutes when the tool is made of fiberglass

b. 75,000 volts per foot of length for 3 minutes when the tool is made of wood

When working on energized lines with live-line tools, insulating high voltage gloves must be worn (and other insulating protective equipment, as required) during the operation of switching, fusing, or disconnecting devices and energizing or de-energizing oil filled electrical equipment that is being worked on. Proper cross-arm extensions or ropes will be used to hold an energized conductor clear.
When ropes or blocks and ropes are used under strain, they must be securely tied off. When tied off to a vehicle, the vehicle must be chocked with the brakes set.

Portable electric hand tools will be:

- a. Equipped with a three-wire cord having the ground wire permanently connected to the tool frame and means for grounding the other end, or
- b. Of the double insulated type and permanently labeled as "Double Insulated", or
- c. Connected to the power supply by means of an isolating transformer, or other isolated power supply

Pneumatic tools which are used on or around energized lines or equipment will have an accumulator on the compressor to collect moisture.

Provided the “on-off” switch may be activated by a single motion of the finger that turned it on, as hydraulic tools may, as drills and similar equipment, have a switch that has a lock-on control.

Chain saws, circular saws, and similar equipment will have switches that turn off when released.

Aerial lift trucks, when working near energized lines or equipment, must be grounded or barricaded and be considered as energized equipment, or the aerial lift truck must be insulated for the work being performed.

Equipment or material shall not be passed between a pole or structure and an aerial lift while an employee working from the basket is within reaching distance of energized conductors or equipment that are not covered with insulating protective equipment.
Mechanical equipment, including derrick trucks, cranes, and other lifting equipment, unless certified for work on the proper voltage, must not operate any closer to energized line or equipment as stated in the “Alternating Current - Minimum Distances” chart unless:

a. An insulated barrier is installed between the energized part and the mechanical equipment, or
b. The mechanical equipment is grounded, or
c. The mechanical equipment is insulated, or
d. The mechanical equipment is considered as energized

In all cases, conductors and equipment shall be treated as energized until tested, or otherwise determined to be de-energized, or until grounded. Ensure there is no possibility of induce voltages or contact with energized lines.

When attaching grounds, the ground end shall be attached first, and the other end shall be attached and removed by means of insulated tools or other suitable devices. When removing grounds, the grounding device shall first be removed from the line or equipment using insulating tools or other suitable devices. Grounds shall be placed between the work location and all sources of energy and as close as practicable to the work location. Grounds may be temporarily removed only when necessary for test purposes and extreme caution shall be exercised during the test procedures.

When grounding electrodes are utilized, such electrodes shall have a resistance to ground low enough to remove the danger of harm to personnel or permit prompt operation of protective devices.

Grounding to tower shall be made with a tower clamp capable of conducting the anticipated fault current.

A ground lead, to be attached to either a tower ground or driven ground, shall be capable of conducting the anticipated fault current and shall have a minimum conductance of No. 2 AWG copper.
**Falls**

Body belts with straps or lanyards used for working on poles, towers or other structures will be inspected daily before use.

Prior to climbing poles, ladders, scaffolds, or other elevated structures, an inspection shall be made to determine that the structures are capable of sustaining the additional or unbalanced stresses to which they will be subjected.

Where poles or structures may be unsafe for climbing, they shall not be climbed until made safe by guying, bracing, or other adequate means.

Before installing or removing wire or cable, strains to which poles and structures will be subjected shall be considered and necessary action taken to prevent failure of supporting structures.

Gaffs on climbers must be kept within safe length limits (1¼”, minimum), properly shaped, and sharp.

Safety straps must be secured to both D-rings on the body belt before weight is placed. Never attach one safety snap to the D-ring and the other to another object for support.

When two or more employees are to work on the same pole, the first must reach a secure position before the second climbs. They must descend the pole one at a time.
Electrical – High Voltage

Cal/OSHA T8 CCR 2940
Cal/OSHA T8 CCR 2940.2
Cal/OSHA T8 CCR 2940.4
Cal/OSHA T8 CCR 2940.6
Cal/OSHA T8 CCR 2946
Cal/OSHA T8 CCR 2947

Per Cal/OSHA T8 CCR 2946, Provisions for Preventing Accidents Due to Proximity to Overhead Lines, no person, firm, or corporation, or agent of same, shall require or permit any employee to perform any function in proximity to energized high-voltage lines; to enter upon any land, building, or other premises and there engage in any excavation, demolition, construction, repair, or other operation; or to erect, install, operate, or store in or upon such premises any tools, machinery, equipment, materials, or structures (including scaffolding, house moving, well drilling, pile driving, or hoisting equipment) unless and until danger from accidental contact with said high-voltage lines has been effectively guarded against.

Per Cal/OSHA T8 CCR 2947, Warning Signs Required, the owner, agent, or employer responsible for the operations of equipment shall post and maintain in plain view of the operator and driver on each crane, derrick, power shovel, drilling rig, hay loader, hay stacker, pile driver, or similar apparatus, a durable warning sign legible at 12 feet reading:

"UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN 10 FEET OF HIGH-VOLTAGE LINES OF 50,000 VOLTS OR LESS."

In addition to the above wording, the following statement in small lettering shall be provided on the warning sign:

"FOR MINIMUM CLEARANCES OF HIGH-VOLTAGE LINES IN EXCESS OF 50,000 VOLTS, SEE CALIFORNIA CODE OF REGULATIONS, TITLE 8, ARTICLE 37, HIGH-VOLTAGE ELECTRICAL SAFETY ORDERS."
When working with high voltage, the following work procedures and operating procedures will be followed:

1. All work locations shall be **safely accessible** whenever work is to be performed.

2. Employees shall be instructed to inspect each safety device, tool or piece of equipment, each time it is used and to use only those in good condition. The employer shall require the use of safety devices and safeguards where applicable.

3. **Only qualified electrical workers** shall work on energized conductors or equipment connected to energized high-voltage systems. Except for replacing fuses, operating switches, or other operations that do not require the employee to contact energized high-voltage conductors or energized parts of equipment, clearing "trouble" or in emergencies involving hazard to life or property, no such employee shall be assigned to work alone. Employees in training, who are qualified by experience and training, shall be permitted to work on energized conductors or equipment connected to high-voltage systems while under the supervision or instruction of a qualified electrical worker.

4. During the time work is being done on any exposed conductors or exposed parts of equipment connected to high-voltage systems, a qualified electrical worker, or an employee in training, shall be in close proximity at each work location to:
   a. **act primarily as an observer** for the purpose of preventing an accident, and
   b. render immediate assistance in the event of an accident. Such observer will not be required in connection with work on overhead trolley distribution circuits not exceeding 1,500 volts D.C. where there is no conductor of opposite polarity less than 4 feet there from, or where such work is performed from suitable tower platforms or other similar structures.

5. **Illumination** shall be provided as needed to perform the work safely.
6. **Insulating equipment** designed for the voltage levels to be
   encountered shall be provided and employees will be instructed to
   use the equipment.

7. Insulated gloves, sleeves and blankets must be visually inspected
   and electrically re-tested periodically at prescribed intervals or when
   found to be damaged or defected.

8. We are responsible for the periodic visual and electrical re-testing of
   all insulating gloves, sleeves and blankets. The following maximum
   re-testing intervals for the items covered by the listed ASTM
   standards shall apply:

   **Testing Intervals:**
   
   In Service Sleeves and Blankets 12 Months
   In Service Gloves 6 Months

   Gloves, Sleeves and Blankets will be marked to indicate compliance
   with the re-test schedule and will be marked with either the date
   tested or the date the next test is due.

   **Note:** Gloves, sleeves, and blankets that have been electrically tested but not issued for service
   shall not be placed into service unless they have been electrically tested within the
   previous twelve months.

   **Note:** Gloves, sleeves and blankets shall be marked to indicate compliance with the re-test
   schedule and shall be marked with either the date tested, or the date the next test is due.

   Insulating equipment found to be defective or damaged will be immediately
   removed from service.

   **Clearances:**

   No employee shall be permitted to approach or take any conductive
   object without an approved insulating handle closer to exposed
   energized parts than shown in Table 2940.2 unless:

   1. The employee is insulated or guarded from the energized part
      (gloves or gloves with sleeves rated for the voltage involved shall be
      considered insulation of the employee from the energized part), or

   2. The energized part is insulated or guarded from the employee and
      any other conductive object at a different potential.
When performing work with live line tools, minimum clear distances in Table 2940.2 shall be maintained. Conductor support tools, such as link sticks, strain carriers, and insulator cradles, shall be permitted to be used provided that the clear insulation is at least as long as the insulator string or the minimum distance specified in Table 2940.2 for the operating voltage.

**TABLE 2940.2**

**ALTERNATING CURRENT – Minimum Approach Distance**

<table>
<thead>
<tr>
<th>Nominal Voltage Range (Phase to Phase)</th>
<th>Minimum Approach Distance (Kilovolt Phase to Ground Exposure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 0.6 to 15.0</td>
<td>2 ft. 1 in.</td>
</tr>
<tr>
<td>Above 15 to 36.0</td>
<td>2 ft. 4 in.</td>
</tr>
<tr>
<td>Above 36 to 46.0</td>
<td>2 ft. 7 in.</td>
</tr>
<tr>
<td>Above 46 to 72.5</td>
<td>3 ft. 0 in.</td>
</tr>
<tr>
<td>Above 72.5 to 121.0</td>
<td>3 ft. 4 in.</td>
</tr>
<tr>
<td>Above 121 to 145.0</td>
<td>3 ft. 7 in.</td>
</tr>
<tr>
<td>Above 145 to 169.0</td>
<td>4 ft. 0 in.</td>
</tr>
<tr>
<td>Above 169 to 242.0</td>
<td>5 ft. 3 in.</td>
</tr>
<tr>
<td>Above 242 to 362.0</td>
<td>8 ft. 6 in.</td>
</tr>
<tr>
<td>Above 362 to 552.0</td>
<td>11 ft. 3 in.</td>
</tr>
<tr>
<td>Above 552 to 765.0</td>
<td>15 ft. 0 in.</td>
</tr>
</tbody>
</table>

**Note:** Above 242 KV the minimum working distance and the minimum approach distance shall be permitted to be reduced provided that such distances are not less than the shortest distance between the energized part and a grounded surface.
Clearances or Safeguards:

Except where overhead electrical distribution and transmission lines have been de-energized and visibly grounded, the following provisions shall be met:

1. The operation, erection, or handling of tools, machinery, apparatus, supplies, or materials, or any part thereof, over energized overhead high-voltage lines shall be prohibited.

   Exception: Tower cranes (Hammerhead) installed not closer than the minimum clearances set forth in Table 2, whereon the trolley or boom travel is controlled by limit switches which will prevent carrying a load over energized overhead high-voltage lines or within a horizontal distance closer than the minimum clearances set forth in Table 2.

2. The operation, erection, handling, or transportation of tools, machinery, materials, structures, scaffolds, or the moving of any house or other building, or any other activity where any parts of the above or any part of an employee's body will come closer than the minimum clearances from energized overhead lines as set forth in Table 1 shall be prohibited.

3. The erection, operation or dismantling of any boom-type lifting or hoisting equipment, or any part thereof, closer than the minimum clearances from energized overhead high-voltage lines set forth in Table 2 shall be prohibited.

The storage of tools, machinery, equipment, supplies, materials, or apparatus under, by, or near energized overhead high-voltage lines is hereby expressly prohibited if at any time during such handling or other manipulation it is possible to bring such tools, machinery, equipment, supplies, materials, or apparatus, or any part thereof, closer than the minimum clearances from such lines as set forth in Table 1. The operation of boom-type equipment shall conform to the minimum clearances set forth in Table 2, except in transit where the boom is lowered and there is no load attached, in which case the distances specified in Table 1 shall apply.

| TABLE 1 - General Clearances Required from Energized Overhead High-Voltage Conductors |
|---------------------------------|--------------------------------|
| Nominal voltage (Phase to Phase) | Minimum Required Clearance (Feet) |
| 600.to 50,000                    | 6                               |
| over 50,000 to 345,000           | 10                              |
| over 345,000.to 750,000          | 16                              |
| over 750,000 to 1,000,000        | 20                              |
The specified clearance shall not be reduced by movement due to any strains impressed (by attachments or otherwise) upon the structures supporting the overhead high-voltage line or upon any equipment, fixtures, or attachments thereon.

Any overhead conductor shall be considered to be energized unless and until the person owning or operating such line verifies that the line is not energized, and the line is visibly grounded at the work site.

TABLE 2

**Boom-type lifting or hoisting equipment clearances required from energized overhead high-voltage lines**

<table>
<thead>
<tr>
<th>Nominal voltage (Phase to Phase)</th>
<th>Minimum Required Clearance (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 to 50,000</td>
<td>10</td>
</tr>
<tr>
<td>over 50,000 to 75,000</td>
<td>11</td>
</tr>
<tr>
<td>over to 75,000 to 125,000</td>
<td>13</td>
</tr>
<tr>
<td>over 125,000 to 175,000</td>
<td>15</td>
</tr>
<tr>
<td>over 175,000 to 250,000</td>
<td>17</td>
</tr>
<tr>
<td>over 250,000 to 370,000</td>
<td>21</td>
</tr>
<tr>
<td>over 370,000 to 550,000</td>
<td>27</td>
</tr>
<tr>
<td>over 550,000 to 1,000,000</td>
<td>42</td>
</tr>
</tbody>
</table>
Electrical – Low Voltage

Cal/OSHA T8 CCR 2320.1
Cal/OSHA T8 CCR 2320.2
Cal/OSHA T8 CCR 2320.3
Cal/OSHA T8 CCR 2320.4
Cal/OSHA T8 CCR 2320.7

Energized Equipment or Systems:
All electrical equipment and systems shall be treated as energized until tested or otherwise proven to be de-energized.

Only qualified persons shall work on electrical equipment or systems.

Work shall not be performed on exposed energized parts of equipment or systems until the following conditions are met:

1. Responsible supervision has determined that the work is to be performed while the equipment or systems are energized.
2. Involved personnel have received instructions on the work techniques and hazards involved in working on energized equipment.
3. Suitable personal protective equipment and safeguards (i.e., approved insulated gloves or insulated tools) are provided and used.

Note: The use of approved insulating gloves or insulated tools or other protective measures are not required when working on exposed parts of equipment or systems energized at less than 50 volts provided a conclusive determination has been made prior to the start of work by a qualified person that there will be no employee exposure to electrical shock, electrical burns, explosion or hazards due to electric arcs.

After the required work on an energized system or equipment has been completed, an authorized person shall be responsible for:

1. Removing from the work area any temporary personnel protective equipment, and
2. Reinstalling all permanent barriers or covers.

While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts will be locked out or tagged out or both. See are Control of Hazardous Energy Procedures found in Section III of our Safety Program.
**Safety Precautions:**

Suitable temporary barriers, or barricades, shall be installed when access to opened enclosures containing exposed energized electrical equipment is not under the control of an authorized person.

Conductive measuring tapes, ropes or similar measuring devices shall not be used when working on or near exposed energized conductors or parts of equipment.

Conductive fish tapes shall not be used in raceways entering enclosures containing exposed energized parts unless such parts are isolated by suitable barriers.
Electrical Work - Workplace Safety

29 CFR 1910.305 - Wiring methods, components, and equipment for general use
29 CFR 1910.332 - Training
29 CFR 1910.333 - Selection and use of work practices
29 CFR 1910.334 - Use of equipment

No electrical work shall be performed on electric distribution circuits or equipment, except by a qualified person or by a person trained to perform electrical work and to maintain electrical equipment under the direct supervision of a qualified person. Disconnecting devices shall be locked out and suitably tagged by the persons who perform such work, except that in cases where locking out is not possible, such devices shall be opened and suitably tagged by such persons. Locks or tags shall be removed only by the persons who installed them or, if such persons are unavailable, by persons authorized by the operator or his agent.

Only qualified or trained personnel may perform electrical work.

All electrical work will be done according to the latest adopted National Electrical Code as well as established local codes.

Only qualified persons may work on electric circuit parts or equipment that has not been de-energized. These persons must be made familiar with the use of special precautionary techniques, PPE, insulating & shielding materials and insulated tools.

Note: When dealing with safety related work practices to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, a Qualified Person is defined as one who: "is permitted to work on or near exposed energized parts" and who, at a minimum, has been trained in and is familiar with:

a. The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment, and

b. The skills and techniques necessary to determine the nominal voltage of exposed live parts, and

c. The clearance distances specified in 29 CFR 1910.333(c) and the corresponding voltages to which the qualified person will be exposed
### APPROACH DISTANCES FOR QUALIFIED EMPLOYEES - ALTERNATING CURRENT

<table>
<thead>
<tr>
<th>Voltage range (phase to phase)</th>
<th>Minimum approach distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>300V and less</td>
<td>Avoid Contact</td>
</tr>
<tr>
<td>Over 300V, not over 750V</td>
<td>1 ft. 0 in. (30.5 cm).</td>
</tr>
<tr>
<td>Over 750V, not over 2kV</td>
<td>1 ft. 6 in. (46 cm).</td>
</tr>
<tr>
<td>Over 2kV, not over 15kV</td>
<td>2 ft. 0 in. (61 cm).</td>
</tr>
<tr>
<td>Over 15kV, not over 37kV</td>
<td>3 ft. 0 in. (91 cm).</td>
</tr>
<tr>
<td>Over 37kV, not over 87.5kV</td>
<td>3 ft. 6 in. (107 cm).</td>
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<tr>
<td>Over 87.5kV, not over 121kV</td>
<td>4 ft. 0 in. (122 cm).</td>
</tr>
<tr>
<td>Over 121kV, not over 140kV</td>
<td>4 ft. 6 in. (137 cm).</td>
</tr>
</tbody>
</table>

**Note:** When an unqualified person is working overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:

- For voltages to ground 50kV or below: 10 feet
- For voltages to ground over 50kV: 10 feet plus 4 inches for every 10kV over 50kV.

**Note:** When an unqualified person is working on the ground in the vicinity of overhead lines, the person may not bring any conductive object closer to unguarded, energized overhead lines than the distances given above.

### Electrical Safety Measures:

a. Daily, prior to use, all electrical equipment – including extension cords – will be inspected and defective items will be tagged out of service and not used.

b. With the exception of double insulated tools (with UL approval), all electrical tools and equipment will be grounded.

c. Tools will not be hoisted by their flexible electrical cords.

d. Except in an emergency, load rated switches and circuit breakers will be used for the opening and closing of circuits under load conditions as opposed to fuses and splice connections.

e. While working on electrical equipment, unauthorized persons will be kept clear by barriers or other means of guarding.
f. Temporary wiring and extension cords will be kept off of walking working surfaces and vehicle traffic areas or covered to prevent tripping and vehicle damage.

1. Electrical cords will not be suspended with staples, hung from nails, or suspended by wire.

2. Worn or frayed electric cords or cables will not be used.

g. Hands will be dry when working on electrical equipment including plugging in extension cords.

h. When working around any electrical power circuit, employees will:

1. Protect themselves by de-energizing the circuit and grounding it or by establishing insulation between themselves and the current.

2. Ensure that any conductive materials and equipment that are in contact with any part of their body will be handled in a manner that will preclude contact with exposed energized conductors or circuit parts.

3. Use portable ladders that have non-conductive siderails.

4. Remove or insulate conductive articles of jewelry and clothing that might contact exposed energized parts.

i. Only qualified persons may perform testing work on electric circuits or equipment.

j. Sufficient access and working space must be maintained about all electric equipment to permit ready and safe operation and maintenance. This space must be kept clear, i.e., it cannot be used for storage.

k. Portable ladders must have non-conductive side rails.

l. Conductive items of jewelry or clothing must not be worn around electricity unless rendered non-conductive by covering, wrapping, or other insulating means.
Ground Fault Circuit Interrupters

A ground fault circuit interrupter (GFCI) provides protection for all 120-volt, 15-, 20-, and 30-ampere receptacle outlets that are not a part of the permanent wiring by detecting lost current resulting from a short, overheating, and/or ground fault. It should be noted that an extension cord into which electrical devices are plugged are not part of the permanent wiring; therefore, GFCI's are required.

A GFCI will "trip" when the amount of current amperes going to an electrical device in the hot conductor and the amount of current returning from an electrical device differs by approximately 5 milliamps. The GFCI can interrupt the current within as little as 1/40th of a second.

The current that is missing is being lost through a ground fault, whether it is in the actual grounding, a short in the equipment, or electricity going through the employee to the ground.

A GFCI will not protect an employee who comes in contact with two hot wires or a hot wire and a neutral wire. A GFCI will provide protection against fires, overheating, damage to insulation, and, the most common form of electrical shock hazard -- the ground fault. GFCI’s must be tested before use.
Extension Cords

Extension cords (temporary wiring), temporary electrical power, and lighting installations of 600 volts, nominal, or less may be used only as follows:

a. during and for remodeling, maintenance, or repair of buildings, structures, or equipment, and similar activities.

b. for a period not to exceed 90 days for Christmas decorative lighting and similar purposes.

c. during emergencies.

Temporary wiring shall be removed immediately upon completion of the project or purpose for which the wiring was installed.

Extension cords shall not replace permanent wiring and the following safety precautions will be adhered to:

a. Extension cords will be kept off of walking working surfaces or be covered to prevent tripping. Cords will not be placed in vehicle traffic lanes.

b. Electrical cords will not be suspended with staples, hung from nails, or suspended by wire.

c. Worn or frayed electric cords or cables will not be used.

Prior to using an extension cord, an employee must:

a. Inspect the cord for cracks and cuts and a defective cord will be tagged and removed from service.

b. Ensure the cord has a three prong plug for grounding.

c. Use the shortest continuous length of cord possible. Cords may not be spliced together.

d. Make certain the cord does not lay in water.

e. Ensure cord is properly rated for the job.
Electrical Work - Workplace Safety

29 CFR 1910.332 - Training
29 CFR 1910.333 - Selection and use of work practices
29 CFR 1926.402 - Applicability
29 CFR 1926.403 - General requirements
29 CFR 1926.404 - Wiring design and protection
29 CFR 1926.408 - Special systems
29 CFR 1926.416 - General requirements
29 CFR 1926.449 - Definitions applicable to this subpart

NFPA 70E - Standard for Electrical Safety in the Workplace

No electrical work shall be performed on electric distribution circuits or equipment, except by a qualified person or by a person trained to perform electrical work and to maintain electrical equipment under the direct supervision of a qualified person. Disconnecting devices shall be locked out and suitably tagged by the persons who perform such work, except that in cases where locking out is not possible, such devices shall be opened and suitably tagged by such persons. Locks or tags shall be removed only by the persons who installed them or, if such persons are unavailable, by persons authorized by the operator or his agent.

Only qualified or trained personnel may perform electrical work.

All electrical work will be done according to the latest adopted National Electrical Code as well as established local codes.

Only qualified persons may work on electric circuit parts or equipment that has not been de-energized. These persons must be made familiar with the use of special precautionary techniques, PPE, insulating & shielding materials and insulated tools.

Note: When dealing with safety related work practices to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, a Qualified Person is defined as one who: "is permitted to work on or near exposed energized parts" and who, at a minimum, has been trained in and is familiar with:

a. The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment, and

b. The skills and techniques necessary to determine the nominal voltage of exposed live parts, and

c. The clearance distances specified in 29 CFR 1910.333(c) and the corresponding voltages to which the qualified person will be exposed
**Electrical Safety Measures**

a. Daily, prior to use, all electrical equipment – including extension cords – will be inspected and defective items will be tagged out of service and not used.

b. With the exception of double insulated tools (with UL approval), all electrical tools and equipment will be grounded.

c. Tools will not be hoisted by their flexible electrical cords.

d. Except in an emergency, load rated switches and circuit breakers will be used for the opening and closing of circuits under load conditions as opposed to fuses and splice connections.

e. While working on electrical equipment, unauthorized persons will be kept clear by barriers or other means of guarding.

f. Temporary wiring and extension cords will be kept off of walking working surfaces and vehicle traffic areas or covered to prevent tripping and vehicle damage.
   1. Electrical cords will not be suspended with staples, hung from nails, or suspended by wire.
   2. Worn or frayed electric cords or cables will not be used.

g. Hands will be dry when working on electrical equipment including plugging in extension cords.

h. Areas in which electrical work is to be done must be adequately illuminated and temporary lighting must:
   1. Have guards in place.
   2. Not be suspended by its cords unless specifically designed for such installation.

i. A competent person, before work commences, will inform all employees in the work area of both exposed and concealed electrical hazards. If appropriate, warning tags will be used to prevent accidental contact with electrical energy.
j. When working around any electrical power circuit, employees will:
   1. Protect themselves by de-energizing the circuit and grounding it or
      by establishing insulation between themselves and the current.
   2. Ensure that any conductive materials and equipment that are in
      contact with any part of their body will be handled in a manner that
      will preclude contact with exposed energized conductors or circuit
      parts.
   3. Use portable ladders that have non-conductive siderails.
   4. Remove or insulate conductive articles of jewelry and clothing that
      might contact exposed energized parts.

k. All 15, 20, or 30 amp receptacle outlets that are not part of the
   permanent wiring of the building or structure and that are used by
   personnel shall have ground-fault circuit interrupter protection for
   personnel. GFCI pigtails may be used to meet this requirement if
   properly sized. Remember, extension cords are considered
   temporary wiring.
   1. Ground fault circuit interrupters will be tested before use.

l. Only qualified persons may perform testing work on electric circuits
   or equipment.

m. Sufficient access and working space must be maintained about all
   electric equipment to permit ready and safe operation and
   maintenance. This space must be kept clear, i.e., it cannot be used
   for storage.

n. If any work is to take place under overhead lines, the lines must be
   de-energized and grounded or other protective measures taken such
   as physically preventing approach such as using a barrier.

o. Portable ladders must have non-conductive side rails.

p. Conductive items of jewelry or clothing must not be worn around
   electricity unless rendered non-conductive by covering, wrapping, or
   other insulating means.
q. The dimension of the working space in the direction of access to live parts likely to required examination, adjustment, service, or maintenance must not be less that noted below:

### Working Clearances

Minumum clear distance for conditions¹

<table>
<thead>
<tr>
<th>Nominal voltage to ground</th>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-150 Feet²</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>151-600 Feet²</td>
<td>3</td>
<td>3 ½</td>
<td>4</td>
</tr>
</tbody>
</table>

Footnote¹ Conditions (a), (b), and (c) are as follows:

(a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating material. Insulated wire or insulated busbars operating at not over 300 volts are not considered live parts.

(b) Exposed live parts on one side and grounded parts on the other side. Walls constructed of concrete, brick, or tile, are considered to be grounded surfaces.

(c) Exposed live parts on both sides of the workspace [not guarded as provided in Condition (a)] with the operator between.

### Minimum Depth of Clear Working Space in Front of Electric Equipment

Minimum clear distance for conditions¹

<table>
<thead>
<tr>
<th>Nominal voltage to ground</th>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>601 to 2,500 Feet²</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2,501 to 9,000 Feet²</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>9,001 to 25,000 Feet²</td>
<td>5</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>25,001 to 75 kV Feet²</td>
<td>6</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Above 75kV Feet²</td>
<td>8</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

Footnote¹ Conditions (a), (b), and (c) are as follows:

(a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating materials. Insulated wire or insulated busbars operating at not over 300 volts are not considered live parts.

(b) Exposed live parts on one side and grounded parts on the other side. Walls constructed of concrete, brick, or tile, are considered to be grounded surfaces.

(c) Exposed live parts on both sides of the workspace [not guarded as provided in Condition (a)] with the operator between.
The importance of working clearances cannot be overstated. At any time, when working with live electrical systems, there is the possibility of an arcing fault causing an arc flash where the current explosively flows through ionized air at 35,000°F causing incurable burns, hearing loss, collapsed lungs, or even death from the electricity of flying metal shrapnel.

As an electrical contractor working in a facility where the possibility of arc flash exists, check to see if an arc flash assessment has been performed on electrical equipment on which you will be working. If it has, follow that specific guidance. If it has not, perform (or have a qualified vendor perform) the arc flash assessment. Refer to NFPA 70E for specific guidance appropriate to the facility’s specific electrical equipment.

**Note:** NFPA 70E is a National Consensus Standard which is incorporated by reference within the OSHA standards; specifically, Appendix A to Subpart S, 29 CFR 1910. Failure to comply with NFPA 70E is citable under the general duty clause.

### Confined and Enclosed Spaces

When working in confined and/or enclosed spaces containing exposed energized parts, adequate illumination will be provided to ensure that work may be performed safely.

When working in confined and/or enclosed spaces containing exposed energized parts, employees will be protected from inadvertent contact with these parts with company provided protective shields, barriers, or other insulating materials.

### Enclosed Spaces and Working Underground:

“Underground enclosed spaces” refers to **manholes and vaults** that contain operating transmission and distribution equipment.

Employees will enter underground enclosed spaces under the provisions of our Permit Required Confined Space Program found in our Safety Program.

**Training:**

**Training for Unqualified Persons:**

Unqualified persons will be trained in and be familiar with any of the electrical safety related practices that are necessary for their safety.

**NOTE:** Unqualified persons will not be permitted to enter spaces that are required to be accessible to qualified employees only unless the electric conductors and equipment involved are in an electrically safe work condition.

Also see NFPA 70E.
Electrical Work - Workplace Safety

Electrical Requirements for Construction Work
Ground-Fault Circuit Protection-Construction Site
Low-Voltage Electrical Safety Orders

NFPA 70E Standard for Electrical Safety in the Workplace

No electrical work shall be performed on electric distribution circuits or equipment, except by a qualified person or by a person trained to perform electrical work and to maintain electrical equipment under the direct supervision of a qualified person. Disconnecting devices shall be locked out and suitably tagged by the persons who perform such work, except that in cases where locking out is not possible, such devices shall be opened and suitably tagged by such persons. Locks or tags shall be removed only by the persons who installed them or, if such persons are unavailable, by persons authorized by the operator or his agent.

Only qualified or trained personnel may perform electrical work.

All electrical work will be done according to the latest adopted National Electrical Code as well as established local codes.

Only qualified persons may work on electric circuit parts or equipment that have not been de-energized. These persons must be made familiar with the use of special precautionary techniques, PPE, insulating & shielding materials and insulated tools.

NOTE: When dealing with safety related work practices to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, a Qualified Person is defined as one who: "is permitted to work on or near exposed energized parts" and who, at a minimum, has been trained in and is familiar with:

a. the skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment, and

b. the skills and techniques necessary to determine the nominal voltage of exposed live parts, and

c. the clearance distances specified in §1910.333(c) and the corresponding voltages to which the qualified person will be exposed.

APPROACH DISTANCES FOR QUALIFIED EMPLOYEES - ALTERNATING CURRENT

<table>
<thead>
<tr>
<th>Voltage range (phase to phase)</th>
<th>Minimum approach distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>300V and less</td>
<td>Avoid Contact</td>
</tr>
<tr>
<td>Over 300V, not over 750V</td>
<td>1 ft. 0 in. (30.5 cm).</td>
</tr>
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<td>Over 750V, not over 2kV</td>
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<td>Over 121kV, not over 140kV</td>
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</table>
Note: When an unqualified person is working overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:

- For voltages to ground 50kV or below: 10 feet
- For voltages to ground over 50kV: 10 feet plus 4 inches for every 10kV over 50kV.

Note: When an unqualified person is working on the ground in the vicinity of overhead lines, the person may not bring any conductive object closer to unguarded, energized overhead lines than the distances given above.

**ELECTRICAL SAFETY MEASURES**

Daily, prior to use, all electrical equipment -- including extension cords -- will be inspected and defective items will be tagged out of service and not used.

a. With the exception of double insulated tools (with UL approval), all electrical tools and equipment will be grounded.

b. Tools will not be hoisted by their flexible electrical cords.

c. Except in an emergency, load rated switches and circuit breakers will be used for the opening and closing of circuits under load conditions as opposed to fuses and splice connections.

d. While working on electrical equipment, unauthorized persons will be kept clear by barriers or other means of guarding.

e. Temporary wiring and extension cords will be kept off of walking working surfaces and vehicle traffic areas or covered to prevent tripping and vehicle damage.
   1. Electrical cords will not be suspended with staples, hung from nails, or suspended by wire.
   2. Worn or frayed electric cords or cables will not be used.

f. Hands will be dry when working on electrical equipment including plugging in extension cords.

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   1. have guards in place.
   2. not be suspended by its cords unless specifically designed for such installation.

h. A competent person, before work commences, will inform all employees in the work area of both exposed and concealed electrical hazards. If appropriate, warning tags will be used to prevent accidental contact with electrical energy.
i. When working around any electrical power circuit, employees will:
   1. Protect themselves by de-energizing the circuit and grounding it or by establishing insulation between themselves and the current.
   2. Ensure that any conductive materials and equipment that are in contact with any part of their body will be handled in a manner that will preclude contact with exposed energized conductors or circuit parts.
   3. Use portable ladders that have non-conductive siderails.
   4. Remove or insulate conductive articles of jewelry and clothing that might contact exposed energized parts.

j. All 15, 20, or 30 amp receptacle outlets that are not part of the permanent wiring of the building or structure and that are used by personnel shall have ground-fault circuit interrupter protection for personnel. GFCI pigtails may be used to meet this requirement if properly sized. Remember, extension cords are considered temporary wiring.

   1. Ground fault circuit interrupters will be tested before use.

k. Only qualified persons may perform testing work on electric circuits or equipment.

l. Sufficient access and working space must be maintained about all electric equipment to permit ready and safe operation and maintenance. This space must be kept clear, i.e., it cannot be used for storage.

m. If any work is to take place under overhead lines, the lines must be de-energized and grounded or other protective measures taken such as physically preventing approach such as using a barrier.

n. Portable ladders must have non-conductive side rails.

o. Conductive items of jewelry or clothing must not be worn around electricity unless rendered non-conductive by covering, wrapping, or other insulating means.
Elevated Work Platforms and Aerial Devices

Only trained and authorized employees may operate elevated work platforms and aerial devices.

**Training:**

Employees who use elevated work platforms and aerial devices will be instructed by a qualified person in the safe use of the elevated work platforms and aerial devices in accordance with the manufacturer’s operating instructions.

Additionally, training will include, for employees who erect, disassemble, move, operate, use, repair, maintain, or inspect elevating work platforms and aerial devices will include, but not be limited to, training in:

1. The provisions of elevated work platforms and aerial devices section.
2. The correct procedures for performing their assigned duties.
3. The nature of hazards associated with the equipment, including electrical hazards, fall hazards and falling object hazards in the work area and correct procedures for dealing with those hazards.
4. The safe operation and use of elevating work platforms and the proper handling of materials on the work platform.
5. The maximum load capacity of the work platform based upon installed configuration.

**Note:** Aerial lifts may be “field modified” for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in conformity with all applicable provisions of ANSI A92.2-1969 and this section and to be at least as safe as the equipment was before modification.

**Note:** As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
**Elevated work platforms:**
Elevating work platforms include such items as vertical towers, scissor lifts, and mast-climbing work platforms and are used to position employees and materials.

General safety requirements:
1. The platform deck will be equipped with a guardrail or other structure around its upper periphery. Where the guardrail is less than 39 in. high, a personal fall protection system is required.
2. The platform will have toeboards at sides and ends.
3. No employee will ride, nor tools, materials, or equipment be allowed on a traveling elevated platform.
4. Units will not be loaded in excess of the design working load.

The following information must be displayed on the elevated work platform:
1. Manufacturer’s name, model, and serial number
2. Rated capacity at the maximum platform height and maximum platform travel height
3. Operating instructions
4. Cautions and restrictions

Elevated work platforms must be designed to applicable American National Standards Institute (ANSI) standards.

**Aerial devices:**
Aerial devices include such as cherry pickers and boom trucks, may be vehicle-mounted or self-propelled, and are used to position employees.

General safety requirements:
1. Only authorized persons may operate aerial devices
2. Aerial devices must not rest on any structure
3. Controls must be tested before use
4. Workers must stand only on the floor of the basket, no planks, ladders, or other means are allowed to gain greater heights.
5. A fall protection system must be worn and attached to the boom or basket.
6. Brakes must be set when employees are elevated.
7. An aerial lift truck must not be moved when an employee is on the elevated boom platform except when:
   a. The equipment is specifically designed for this type of operation.
   b. All controls and signaling devices are tested and are in good operating condition.
   c. An effective communication system will be maintained at all times between the basket or platform operator and where applicable, the vehicle operator.
   d. The route to be traveled is surveyed immediately prior to the work trip, checking for overhead obstructions, traffic, holes in the pavement, ground or shoulder, ditches, slopes, etc., for areas other than paved, a survey should be made on foot.
   e. The speed of the vehicle does not exceed three (3) miles per hour.
   f. Only one employee is in the basket.
   g. Both the driver and/or the elevated employee have been specifically trained for this type of work (towering) in accordance with the manufacturer’s recommendations.

The following information must be displayed on the aerial device:
   1. Manufacturer’s name, model, and serial number.
   2. Rated capacity at the maximum platform height and maximum platform travel height.
   3. Operating instructions.
   4. Cautions and restrictions.

Aerial devices must be designed to applicable American National Standards Institute (ANSI) standards.

**Additional aerial device operating procedures:**

1. Aerial baskets or platforms will not be supported by adjacent structure(s) when workers are on the platform or in the basket while in an elevated position.

2. Lift controls will be tested in accordance with the manufacturer’s recommendations or instructions prior to use to determine that such controls are in safe working condition.

3. Only authorized persons will operate an aerial device.

4. Belting off to an adjacent pole, structure, or equipment while working from an aerial device will not be permitted.
5. Employees will not sit or climb on the edge of the basket or use planks, ladders or other devices to gain greater working height.

6. Boom and basket and platform load limits specified by the manufacturer will not be exceeded.

7. When elevating personnel with the vehicle stationary, the braking systems will be set.

8. Provided they can be safely installed, wheel chocks will be installed before using an aerial device on an incline.

9. When used, outriggers will be positioned on pads or a solid surface. All outriggers will be equipped with hydraulic holding valves or mechanical locks at the outriggers.

10. Climbers will not be worn while performing work from an aerial device.

11. When an insulated aerial device is required, the aerial device will not be altered in any manner that might reduce its insulating value.
   a. An aerial device truck will not be moved when the boom is elevated in a working position with employees in the basket or platform except when all of the following are complied with:
   b. The equipment is specifically designed for this type of operation in accordance with the provisions of Section 3638.
   c. All controls and signaling devices are tested and are in good operating condition.
   d. An effective communication system will be maintained at all times between the basket or platform operator and where applicable, the vehicle operator.
   e. The route to be traveled is surveyed immediately prior to the work trip, checking for overhead obstructions, traffic, holes in the pavement, ground or shoulder, ditches, slopes, etc., for areas other than paved, a survey should be made on foot.
   f. The speed of the vehicle does not exceed three (3) miles per hour.
   g. Only one employee is in the basket.
   h. Both the driver and/or the elevated employee have been specifically trained for this type of work (towering) in accordance with the manufacturer's recommendations.
12. Lower level controls will not be operated unless permission has been obtained from the employee in the device, except in case of emergency.

13. Before moving an aerial device for travel, the boom(s) will be inspected to see that it is properly cradled and outriggers are in stowed position.

14. An employee, while in an elevated aerial device, will be secured to the boom, basket or tub of the aerial device through the use of a safety belt, body belt or body harness equipped with safety strap or lanyard.
   a. Safety belts/body belts are prohibited for use in personal fall arrest systems, but may be used as part of a fall restraint or positioning device system.
   b. Safety belts/body belts used as part of a positioning device system will be rigged such that an employee cannot free fall more than 2 feet.
   c. A body harness may be used in a personal fall restraint, positioning or fall arrest system. When a body harness is used in a fall arrest system, the lanyard will be rigged with a deceleration device to limit maximum arresting force on an employee to 1,800 pounds and prevent the employee from hitting any levels or objects below the basket or platform, and will limit free fall to a maximum of 7½ feet.

**Additional elevated work platform procedures:**

1. No employee will ride, nor tools, materials, or equipment be allowed on a traveling elevated platform unless the following conditions are met:
   a. The travel speed at Maximum Travel Height does not exceed 3 feet per second.
   b. Self-propelled units will be equipped with electrical or other interlock means which will prevent driving them with the platform height greater than the Maximum Travel Height or at speeds greater than permitted at Maximum Travel Height.
   c. The surface upon which the unit is being operated is level with no hazardous irregularities or accumulation of debris which might cause a moving platform to overturn.

2. Units will be assembled, used, and disassembled in accordance with the manufacturer's instructions.
3. Units will be inspected for damaged and defective parts before use.

4. Units will not be loaded in excess of the design working load and will be taken out of service when damaged or weakened from any cause. They will not be used until repairs are completed.

5. Employees will not sit, stand or climb on the guardrails of an elevating work platform or use planks, ladders, or other devices to gain greater working height or reach.

6. Employees will not work on units when exposed to high winds, storms, or when they are covered with ice or snow (unless provisions have been made to ensure the safety of the employees).

7. Employees climbing or descending vertical ladders will have both hands free for climbing.

   Note: Employees should remove foreign substances, such as mud or grease from their shoes.

8. Where moving vehicles are present, the work area will be marked with warnings such as flags, roped off areas or other effective means of traffic control will be provided.

9. Unstable objects such as barrels, boxes, loose brick, tools, debris, will not be allowed to accumulate on the work level.

10. In operations involving production of small debris, chips, etc., and the use of small tools and materials, and where persons are required to work or pass under the equipment, screens will be required between toeboards and guardrails. The screen will extend along the entire opening and will consist of No. 18 gage U.S. Standard Wire 1/2 inch mesh, or equivalent.

11. Mast-climbing work platforms, will not be used as construction personnel hoists or material hoists.

12. Each unit will have a manual containing instructions for maintenance and operations. If a unit is able to be operated in different configurations, then these will be clearly described, including the rated capacity in each configuration.

   a. The required manual(s) will be maintained in a weather resistant storage location on the elevating work platform or aerial device.
**Fall Protection:**


Fall protection is provided by employees maintaining firm footing on the lift and using guardrails. Under no circumstances are employees to place ladders or other items on the lift to extend their reach. Per ANSI/SIA standards "Use of planks, ladders, or any other device on the aerial platform for achieving additional height or reach shall be prohibited.” Use of these items negates the value of the guardrail system and may possibly exceed the scissor-lift’s design limits for stability.

Further, personnel are not to tie off to items adjacent to the lift – the most obvious reasons are: the anchorage point may not be sufficient and movement of the lift would pull the employee out of and off of the lift.

If, for some reason, guardrails are not being provided for specific operational reasons, then a personal fall protection system may be used which would include an anchorage point, lanyard and safety harness.

However, this option is severely limited because its design would have to be approved by a registered engineer or the scissor-lift manufacturer would have to approve the use of the lift as an anchorage.

The gates of aerial lifts will be properly engaged whenever the lift is in use.

Travel in aerial lifts is prohibited while platform is elevated

Aerial lifts shall not be used as material hoists unless the load is contained within the basket and meets the lift’s rated capacity. The lift shall not be modified for hoisting material unless the manufacturer approves it in writing.

Use proper fall prevention/protection in accordance with manufacturer’s requirements in all boom supported elevating work platforms.

Personal Fall Arrest Systems will consist of a full-body harness, double lanyard with shock absorbing device or retractable lifeline, locking snap hook and anchorage points meeting CalOSHA regulations and ANSI requirements.
Excavating, Trenching, & Shoring

Excavations General Requirements
Requirements for Protective Systems
Requirements for Protective Systems, Appendix A
Requirements for Protective Systems, Appendix B
Requirements for Protective Systems, Appendix C
Requirements for Protective Systems, Appendix D
Requirements for Protective Systems, Appendix E
Requirements for Protective Systems, Appendix F

Note: A DOSH permit is required if employees are required to enter an excavation that is 5 feet or deeper.

Note: Notification of Excavation and Location of Hidden Obstructions:
At least 2 working days before starting excavation, notify all Regional Notification Centers and any non-member subsurface installation owners of the excavations. Only qualified persons shall locate subsurface installations. If excavation is within 10 ft. of a high priority subsurface installation, the owner and the excavator must meet onsite before excavation. All subsurface installations revealed shall be physically supported, protected or removed for employee safety.

Note: Daily Inspection:
A competent person must inspect the trench and protective systems daily before the start of work and throughout the day as conditions change. Competent person is defined as one who must demonstrate:
1. knowledge of the provisions pertaining to excavations, trenches and earthwork
2. knowledge of soil analysis as required in the provisions pertaining to excavations, trenches and earthwork
3. knowledge of the use of protective systems
4. authority to take prompt corrective action on the job as conditions warrant
5. ability to recognize and test for hazardous atmospheres.

Excavating involves any earth removal which creates a cut, cavity, trench, or depression in the earth’s surface. A trench is a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Prior to excavating, obstructions that may create a hazard to employees will be removed or supported and utility companies will be contacted, advised of the proposed work, and asked to establish the location of underground installations.
If the utility company cannot respond to this request within 24 hours and/or the exact location of the underground installations cannot be determined, actual work may begin provided that:

a. extreme caution is observed.
b. detection equipment or other acceptable means are used to locate the approximate location of the utility installation.
c. as the approximate location is approached, the exact location will be determined by safe and acceptable means before proceeding.

In open excavations, underground installations will be protected, supported or removed as necessary to protect employees.

To ensure employee safety, the competent person will ensure that during excavating work in trenches there is:

a. appropriate access and egress for personnel and/or equipment such as stairs, ramps and ladders so as to require no more than 25 feet of lateral travel for employees in trenches four (4) feet or more deep.
b. employee protection for head injury. All employees must wear hard hats.
c. no spoil pile or equipment within two (2) feet of the edge of the excavation.
d. employee protection from vehicular traffic such as barricades, ground guides for operators of equipment with a limited view, away sloping grades, etc..
e. no exposure to falling loads.
f. no danger to employees from water accumulation.
g. no danger from cave-in. Shoring, a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation, will prevent cave-ins.

1. Shoring is not required for trenches less than five (5) feet deep if an examination by a competent person determines the soil has no potential for a cave-in. In this situation, vertical sides are allowed.

2. Once a trench is over 20 feet deep, protective systems, which may include shoring, must be designed by a registered professional engineer.

3. There are other methods of protection from cave-ins such as sloping or benching the adjacent ground according to specific criteria dependent on the soil conditions, weather, and adjacent structures.

4. The total number of cave-in accidents is relatively small, however, the accidents which do occur are generally very serious and are much more likely to be fatal than other types of accidents in the construction industry.

h. a method to prevent mobile equipment from falling into the excavation such as barricades. Ground guides will be used if the equipment operator does not have a clear view of the edge. If possible, the grade should slope away from the excavation.

If the atmosphere is dangerous or likely to be dangerous, testing will be done as often as needed and emergency rescue equipment -- such as breathing apparatus, safety harness and line, or a basket stretcher -- must be available.

When a hazardous atmosphere does exist, appropriate respiratory protection will be used and a rescue plan developed which includes having an attendant outside the hazardous area with appropriate equipment and training.
Protective Systems

Except when an excavation is made entirely in stable rock or it is less than 5 feet in depth and a competent person finds no indication of potential cave-in, employees in an excavation will be protected from cave-in by a protective system.

All employees involved with excavating are to review these standards and understand:

a. The extensive degree of basic data, design, and knowledge that goes into employee protection during excavating projects.

b. The types of soils and how to identify them on the job site.

c. The soil condition -- specifically moisture content -- and how that impacts on stability during excavations.

d. The absolute need for a competent person to be on site at all times during excavating work to visually and manually test soil conditions as work progresses and to maintain a safe site.

Daily Inspections

Prior to work and as needed throughout the shift, a competent person will conduct daily inspections of excavations, adjacent areas and protective systems to find evidence of a developing cave-in situation; failure of protective systems; hazardous atmosphere; or other hazardous conditions.

After every rainstorm or event which would affect the safety of employees within an excavation, an inspection will be made by a competent person.

Fall Protection

Walkways must be provided where employees or equipment are required or permitted to cross over excavations. If these walkways are 6 feet or more above a lower level, guardrails must be used. Specific criteria for guardrails is found in our Fall Protection Program located in Section III of this safety program.

At the end of this Section are specific requirements for excavating, trenching and shoring per the Cal/OSHA Pocket Guide for the Construction Industry which are incorporated into this program.
Extension Cords

Temporary Wiring
Extension cords shall not replace permanent wiring and the following safety precautions will be adhered to:

a. Inspect the cord for cracks and cuts.

b. Cord must have a three prong plug for grounding.

c. Use the shortest continuous length of cord possible. Cords may not be spliced together.

d. Make certain the cord does not lay in water.

e. Ensure cord is properly rated for the job.

f. Secure and route cords out of the traffic flow to prevent tripping.

g. Defective cords will be tagged and removed from service.

h. Most importantly, an extension cord used on a job site MUST be used with a ground fault circuit interrupter (GFCI).
Fall Protection on Communication Towers

Section 8606. Poles, Towers and Ladders

Note: All climbers have received training and are certified in Tower Climbing Safety and Rescue.

The preferred method of accessing towers is by the use of fixed ladders with attached climbing devices. Continuous fall protection is assured using this method. However, because this can be physically demanding over time and this can lead to stress and other physical ailments, OSHA has allowed that employees may ride a hoist line to work stations on towers. As a matter of policy, we do not allow riding of the line, free climbing or repelling practices.

When climbing the tower during construction activities regardless of height, employees must be protected from falls using a fall arrest system meeting the criteria of our fall protection plan or a ladder assist safety device meeting the requirements of 1926.1053(a). Employees must be trained in the recognition of fall hazards and the use of fall protection systems used.

Under current OSHA standards fall protection is **required** at heights of more than 25 feet. **We require** that each employee **six (6) feet** or more above a lower level be protected from falling by a guardrail system, safety net system, ladder safety device, fall arrest system or positioning device system.

In the Job Site Forms Section of this Program are forms for pre-climb meetings and pre-use inspections of fall protection equipment which must be completed before tower access.

Below is Appendix A, CPL 02-001-036, Compliance Guidelines for Fall Protection and Employee Access by Hoist During Communication Tower Construction Activities, which contains the procedures for tower access by hoist.

**Note:** Reference below, Hoist Operator: “Whenever there is any doubt as to safety, the operator shall have the authority to stop and refuse to handle the load until safety has been assured.”

At the base of each tower will be a Rescue Bag which contains: 1 ea rescue hub 300 feet; 3 ea anchor slings; 3 ea carabiners; pulley; edge protector; and rope grab.
APPENDIX A:
Compliance Guidelines for Employee Access by Hoist During Communication Tower Construction Activities

Definitions:
Crew Chief: One who is authorized, designated, deemed competent and qualified by the employer.
Anti-Two Blocking: A positive acting device which prevents contact between the load block or overhaul ball and the top block (two-blocking), or a system which deactivates the hoisting action before damage occurs in the event of a two-block situation.
Maximum Intended Load: The total load of all employees, tools, materials, load lines and other loads reasonably anticipated to be applied to the hoist apparatus when an employee is hoisted.
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 problems.
Authorized Person: A person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or locations at the job site.
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 the ability to solve or resolve problems relating to the subject matter, the work or the project.
Gin Pole: A device attached to the tower used to raise sections of tower steel or equipment into position.

Specific Requirements. Employees may be hoisted on the hoist line to reach work stations only if all of the following conditions are met. The Agency believes that strict adherence to the guidelines set forth in this Appendix will provide employers with the appropriate safety measures for access during tower erection.

Training. Before an employee is allowed to perform any job related to hoisting employees aloft for tower work, the employee shall receive training on safe access pursuant to these guidelines. The operator of the hoist shall have a thorough understanding of these guidelines pertaining to hoisting employees on the hoist line.

Equipment. An anti-two block device shall be used on all hoists, except where an employer can demonstrate that ambient radiation frequency (RF) precludes that use. In such case, a site-specific safety and health program will be established and maintained on site to ensure that two blocking cannot occur and that effective communication between the hoist operator and personnel being hoisted is maintained. This program could include a cable marking system, an employee situated on the tower in a position to observe the top block, or any other system which will adequately ensure communication.

1. The rigging, hoist line and slings shall have a factor of safety of 10 against failure during personnel lift(s). The hoist line used to raise or lower employees shall be equipped with a swivel to prevent any rotation of the employees. The use of spin-resistant wire rope is prohibited when hoisting employees.

2. When hoisting personnel (versus material) the hoist capacity load rating shall be derated by a factor of 2 (reduced by half). All employees shall be provided with and required to use the proper personal protective equipment (including fall protection equipment) which shall be inspected before each lift.
3. Except where the employer can demonstrate that specific circumstances or conditions preclude its use, a guide line (tag line) shall be used to prevent the employees or the platform from contacting the tower during hoisting.

4. The gin pole shall be thoroughly inspected before use by a competent person to determine that it is free from defects, including but not limited to: damaged and/or missing members; corrosive damage; missing fasteners and broken welds at joints; and general deterioration.

5. The gin pole shall be attached to the tower as designed by a registered professional engineer. There shall be a minimum of two attachment locations: at the bottom of the gin pole and near the top of the tower being erected.

6. The personnel load capacity and material capacity of the lifting system in use shall be posted at the site near the location of the hoist operator. If the system is changed (for example, if the gin pole angle is changed), the posted capacity shall be changed accordingly.

**Trial Lift and Proof Testing.** A trial lift of the maximum intended personnel load shall be made from ground level to the location to which personnel are to be hoisted.

1. The trial lift shall be made immediately prior to placing personnel on the hoist line.

2. The hoist operator shall determine that all systems, controls and safety devices are activated and functioning properly.

3. A single trial lift may be performed for all locations that are to be reached from a single set-up position.

4. The hoist operator shall determine that no interference exists and that all configurations necessary to reach those work locations remain under the limit of the hoist’s rated capacity as identified in paragraph 2(e), and additionally maintain a 10:1 factor of safety against failure.

5. The trial lift shall be repeated prior to hoisting employees whenever the hoist is moved and set up in a new location or returned to a previously used position.

6. After the trial lift, employees shall not be lifted unless the following conditions are met:
   1. Hoist wire ropes are determined to be free of damage in accordance with the provisions of 29 CFR 1926.550;
   2. Multiple part lines are not twisted around each other; and,
   3. The proof testing requirements have been satisfied.

7. If the hoist wire rope is slack, the hoisting system shall be inspected to ensure that all wire ropes re properly seated on drums and in sheaves.

8. A visual inspection of the hoist, rigging, base support and foundation shall be made by a competent person immediately after the trial lift to determine whether testing has exposed any defect or adverse effect upon any component of the structure.
   1. Any defects found during the inspection which may create a safety hazard shall be corrected, and another trial lift shall be performed before hoisting personnel.
   2. Prior to hoisting employees and after any repair or modification, the personnel rigging shall be proof tested to 125% of the greatest anticipated load by holding it in a suspended position for five minutes with the test load evenly distributed (this may be done concurrently with the trial lift).
   3. After proof testing, a competent person shall inspect the rigging. Any deficiencies found shall be corrected and another proof test shall be conducted.

**Pre-Lift Meeting.** A pre-lift meeting shall be held prior to the trial lift at each location.

The pre-lift meeting shall:

1. Be attended by the hoist operator, employees to be lifted, and the crew chief;

2. Review the procedures to be followed and all appropriate requirements contained in this guideline; and

3. Be repeated for any employee newly assigned to the operation.

**Documentation.** All trial lifts, inspections and proof tests shall be documented, and the documentation shall remain on site during the entire length of the project. The pre-lift meeting shall be documented, and the documentation shall remain on site during the entire length of the project.

**Hoisting an Employee to the Work Station.** Except where an employer can
demonstrate that specific circumstances or conditions preclude its use, a personnel platform must be used to hoist more than one employee to the work station. That personnel platform must meet the requirements of 29 CFR 1926.550 (g).

1. When a boatswain’s seat-type or full body seat harness is used to hoist employees, the following shall apply:
   1. No more than two employees may be hoisted at a time;
   2. The employee’s harness shall be attached to the hook by a lanyard meeting the strength requirements of 29 CFR 1926.502;
   3. Only locking-type snap hooks shall be used; and
   4. The harness shall be equipped with two side rings and at least one front and one back D ring.
   5. The hoist line hook shall be equipped with a safety latch which can be locked in a closed position to prevent loss of contact.

2. When a personnel platform cannot be used, the following provisions must be followed.
   1. The maximum rate of travel shall not exceed 200 feet per minute when a guide line is used to control personnel hoists. When a guide line cannot be used, the rate of travel of the employee being hoisted shall not exceed 100 feet per minute.
   2. In all personnel hoist situations, the maximum rate shall not exceed 50 feet per minute when personnel being lifted approach to within 50 feet of the top block.
   3. The use of free-spooling (friction lowering) is prohibited. When the hoist line is being used to raise or lower employee(s), there shall be no other load attached to any hoist line, and no other load shall be raised or lowered at the same time on the same hoist.
   4. As-built drawings approved by a registered professional engineer shall provide the lifting capacity of the gin pole and shall be available at the job site.
   5. The gin pole raising line shall not be used to raise or lower employees. Employees must maintain 100% tie-off while moving between the hoist line and the tower.

**Communication Between the Hoist Operator and Hoisted Employees.** Employees being hoisted shall remain in continuous sight of and/or in direct communication with the operator or signal person.

1. In those situations where direct visual contact with the operator is not possible and the use of a signal person would create a greater hazard for the person being hoisted, direct communication alone, such as by radio, shall be used.

2. When radios are used, they shall be non-trunking closed 2-way selective frequency radio systems. When hand signals are used, the employees must use industry standardized hand signals as required by 1926.550(a)(4).

**Weather Conditions.** Employees shall not be hoisted during adverse weather conditions (high winds, electrical storms, snow, ice, sleet), or other impending danger, except in the case of emergency employee rescue. This determination shall be made by the competent person.

**Energized Power Lines.** The hoist system (gin pole and its base hoists) used to raise and lower employees on the hoist line, shall not be used unless the following clearance distances as recommended by ANSI are maintained at all times during the lift:

<table>
<thead>
<tr>
<th>Power line voltage phase to phase (kV)</th>
<th>Minimum safe clearance (feet)</th>
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<tbody>
<tr>
<td>50 or below</td>
<td>10</td>
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<tr>
<td>Above 50 to 200</td>
<td>15</td>
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<tr>
<td>Above 200 to 350</td>
<td>20</td>
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<td>Above 350 to 500</td>
<td>25</td>
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<tr>
<td>Above 500 to 750</td>
<td>35</td>
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<tr>
<td>Above 750 to 1,000</td>
<td>45</td>
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**Hydraulic Hoists (Drum Hoists).** The hoist used for personnel lifting shall meet the
applicable requirements for design, construction, installation, testing, inspection, maintenance, modification, repair and operations as referenced in this Appendix and as prescribed by the manufacturer.

1. Where manufacturers’ specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a registered professional engineer. The hoist shall be positioned so that it is level and the distance between the drum and the foot block at the base of the tower will allow proper spooling of wire rope. The foot block shall be anchored to prevent displacement and be supported to maintain proper alignment.

2. The hoist shall be designed to lift materials and personnel with the same drum or drums. Any hoist that has been modified or repaired must be proof-tested to 125% of its rated capacity.

3. Rated load capacities, recommended operating speeds, and special hazard warnings or instructions shall be conspicuously posted on all hoists.

4. Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains or other rotating parts, where exposed, shall be totally enclosed.

5. Personnel load capacity for the current configuration of the gin pole shall be posted within sight of the hoist operator.
   1. The hoist shall have an hour meter and a line speed limiter. The hoist shall be designed for and must use powered lowering.
   2. The alignment of hoist components shall be maintained within manufacturer’s specified limits that prevent premature deterioration of gear teeth, bearings, splines, bushings, and any other parts of the hoist mechanism.

6. All exhaust pipes shall be guarded where exposed. An accessible fire extinguisher of 5BC rating or higher shall be available at the operator’s station.

7. The hoist shall be serviced and maintained per the manufacturer’s recommendations.
   1. The operating manual developed by the manufacturer for the specific make and model hoist being used shall be maintained at the site at all times.
   2. A hoist log book shall be used to record all hoist inspections, tests, maintenance and repair. The log shall be updated daily as the hoist is being used and shall be signed by the operator and/or crew chief. Service mechanics shall sign the log after conducting maintenance and repair. The log shall be maintained at the site.

**Hoist Mounting.** The hoist shall be installed following the manufacturer’s mounting procedures to prevent excessive distortion of the hoist base as it is attached to the mounting surface.

1. Flatness of the mounting surface shall be held to tolerances specified by the hoist manufacturer.
2. The hoist shall be anchored so as to resist at least two times any reaction induced at the maximum attainable line pull and shall be anchored so that the hoist will not twist or turn.
3. If the hoist is mounted to a truck chassis, it shall be properly aligned and anchored in at least two corners to prevent movement, and the wheels shall be properly chocked.

**Drums.** The hoist drum shall be capable of raising or lowering 125% of the rated load of the hoist.

1. The hoist drum shall have a positive means of attaching the wire rope to the drum.
2. There shall always be at least three full wraps of wire rope on the hoist drum when personnel are being hoisted.
3. During operation, the flange shall be two times the wire rope diameter higher than the top layer of wire rope at all times.

**Brakes and Clutches.** Brakes and clutches shall be capable of arresting any over-speed descent of the load.

1. The hoist shall be provided with a primary brake and at least one independent secondary brake, each capable of stopping and holding 125% of the lifting capacity of the hoist.
   1. The primary brake shall be directly connected to the drive train of the hoisting machine, and shall not be connected through belts, chains, clutches or screw-type devices.
2. The secondary brake shall be an automatic emergency-type brake that, if actuated during each stopping cycle, shall not engage before the hoist is stopped by the primary brake. When a secondary brake is actuated, it shall stop and hold the load within a vertical distance of 24 inches.

2. Brakes and clutches shall be adjusted, where necessary, to compensate for wear and to maintain adequate force on springs where used. Powered lowering must be used.

3. When power brakes having no continuous mechanical linkage between the actuating and braking mechanism are used for controlling loads, an automatic means shall be provided to set the brake to prevent the load from falling in the event of loss of brake actuating power.

4. Static brakes shall be provided to prevent the drum from rotating in the lowering direction and shall be capable of holding the rated load indefinitely without attention from the operator. Brakes shall be automatically applied upon return of the control lever to its center (neutral) position.

5. Brakes applied on stopped hoist drums shall have sufficient impact capacity to hold 1.5 times the rated torque of the hoist.

**Hoist Controls.** Power plant controls shall be within easy reach of the operator and shall include a means to start and stop, control speed of internal combustion engines, stop prime mover under emergency conditions, and shift selective transmissions.

1. All controls used during the normal operation of the hoist shall be located within easy reach of the operator at the operator’s station.

2. Controls shall be clearly marked (or be part of a control arrangement diagram) and easily visible from the operator’s station. Foot-operated pedals where provided, shall be constructed and maintained so the operator’s feet will not readily slip off and the force necessary to move the pedals can be easily applied.

3. The controls shall be self-centering controls (i.e., "deadman" type) that will return the machine to neutral and engage the drum brakes if the control lever is released.

**Wire Rope and Rigging.** All wire rope and rigging shall be inspected daily before use.

1. All eyes in wire rope slings shall be fabricated with thimbles.

2. All eyes in wire rope slings shall:
   1. Be made with swaged-type fittings; and,
   2. Be field fabricated by a qualified person or factory made.

**Hoist Operator.** The hoist operator shall have classroom training, a minimum of 40 hours experience as a hoist operator, not less than 8 hours experience in the operation of the specified hoist or one of the same type, and demonstrated the ability to safely operate the hoist.

1. The employer shall not allow an employee to operate a hoist when that employee is physically or mentally unfit.

2. The hoist operator shall be responsible for those operations under his/her direct control.

3. **Whenever there is any doubt as to safety, the operator shall have the authority to stop and refuse to handle the load until safety has been assured.**

4. The hoist operator shall remain at the controls at all times when personnel are on the hoist line.

5. Before starting the hoist, the operator shall ensure that:
   1. The daily inspection has been conducted; 
   2. All controls are in the "off" position; and, 
   3. All personnel are in the clear.

**Hoist Inspections.** Each day before use all hoists shall be visually inspected by a qualified person.

1. All hoists shall be inspected thoroughly at three-month intervals by a qualified person, as will any hoists that have been idle for more than one month but less than six months. Such inspection will include a hands-on operation of all moving parts to ensure that they are intact and will properly function before being put into service.

2. All hoists shall undergo a tear-down inspection annually unless the following conditions
exist that allow for less frequent tear-down inspections:

1. A hoist that has been idle for a period of over six (6) months shall be given an annual inspection which includes the hoist being completely disassembled, cleaned and inspected. Parts such as pins, bearings, shafts, gears, brake plates, etc. found worn, cracked, corroded, distorted or otherwise non-functional must be replaced before the hoist is used.

2. Hoists with infrequent to moderate usage (hoists that have been used for fifty (50) hours or less per month and normally operate at considerably less than the hoist rated capacity based on the average use over a month) may go up to thirty-six (36) months between tear-down inspections if serviced under a preventive maintenance program (as specified by the manufacturer) that includes annual hydraulic oil sample analysis. An oil sample analysis, meaning a laboratory analysis, is used to evaluate the mechanical integrity of the hoist. Oil in these hoists shall be changed at least on an annual basis, just after the oil analysis is performed. Hoists not subjected to recommended oil sample analysis shall undergo an annual tear-down inspection.

3. Hoists that experience heavy usage (hoists that are used for more than fifty (50) hours per month) may go up to twenty-four (24) months between tear-down inspections if serviced under a preventive maintenance program as in (2) above. Any rebuilt hoist assembly must be line pull tested to the rated load. The hoist drum must be rotated several times in both raising and lowering directions under full-rated load, while checking for smooth operation.
Flagmen - Traffic Control

California Manual on Uniform Traffic Control Devices

The primary function of traffic control procedures is to move vehicles and pedestrians safely and expeditiously through or around temporary traffic control zones while protecting on-site workers and equipment.

Construction areas will be posted with legible traffic signs at points of hazard. All traffic control signs or devices used for protection of construction workers must conform to Part VI of the California Manual on Uniform Traffic Control Devices.

For daytime work, the flagger's vest, shirt, or jacket will be orange, yellow, strong yellow green or fluorescent versions of these colors.

For nighttime work, similar outside garments will be retroreflective. The retroreflective material will be orange, yellow, white, silver, strong yellow-green, or a fluorescent version of one of these colors and will be visible at a minimum distance of 1,000 feet. The retroreflective clothing will be designed to identify clearly the wearer as a person and be visible through the full range of body motions.

Uniformed law enforcement officers may be used as flaggers in some locations, such as an urban intersection, where enforcement of traffic movements is important. Uniformed law enforcement officers may also be used on freeways where traffic is channeled around work sites and it is necessary to assure that advisory and regulatory speeds are being enforced. For nighttime work and in low-visibility situations, a retroreflective garment as described above should be worn.
Hand-signaling devices, such as STOP/SLOW paddles, lights, and red flags are to be used to control traffic through temporary traffic control zones. The STOP/SLOW paddle, which gives drivers more positive guidance than red flags, should be the primary hand-signaling device. The standard STOP/ SLOW sign paddle will be 18 inches square with letters at least 6 inches high. A rigid handle should be provided. This combination sign should be fabricated from light semi-rigid material, and will have an octagonal shape. The background of the STOP face will be red with white letters and border. To be better seen, the STOP/SLOW paddles may be supplemented by one or two symmetrically positioned alternately flashing white high-intensity lamps on each side. The background of the SLOW face will be orange with black letters and border. When used at night, the STOP/ SLOW paddle will be retroreflectorized in the same manner as signs.

Flag use should be limited to emergency situations and at low-speed and/or low-volume locations which can best be controlled by a single flagger. Flags used for signaling will be a minimum of 24 inches square, made of a good grade of red material, and securely fastened to a staff about 3 feet long. The free edge should be weighted so the flag will hang vertically, even in heavy winds. When used at night, flags will be retroreflective red.
Flash Fire Hazards

A flash fire is a fire that spreads rapidly through a diffused fuel, such as dust, gas, or the vapors of an ignitable liquid, without the production of damaging pressure. The intensity of a flash fire depends on the size of the gas or vapor cloud. Hydrocarbon (oil and gas) flash fires generate temperatures of 1,000 to 1,900 degrees Fahrenheit. The duration of a flash fire can last up to five seconds. NFPA 2112 Edition, National Fire Protection Association Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire, 2007 Edition and NFPA 2113, Standard on Selection, Care, Use, and Maintenance of Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire, 2007 applies to gas and oil drilling operations. There is an inherent flash fire hazards associated with oil and gas well drilling.

When engineering and administrative controls fail, there is an increased possibility of a flash fire and, without the use of flame-resistant clothing (FRC), there strong possibility of severe burn injuries and fatalities. Additionally, our industry has a history of burn-related injuries and fatalities due to flash fire hazards when engineering and administrative controls have failed.

Note: FRC includes both “flame-resistant clothing” and “flame retardant clothing”.

Note: The use of FRC greatly improves the chance of a worker surviving and regaining quality of life after a flash fire. FRC can significantly reduce both the extent and severity of burn injuries to the body.

Note: Employees will be trained in the use of FRC and it will be available for use on the job site.

For a flash fire to occur there must be oxygen, an ignition source, and a fuel source such as hydrocarbon or an atmosphere containing combustible, finely divided particles with a concentration greater than the lower explosive limit of the chemical. Ignition sources present in gas and oil drilling include, but not limited to: electrical systems, handheld electrical tools, motors, generators, hot work activities, and static electricity.

There is a lower potential for flash fires during rig-up operations and during drilling operations that have not reached gas and hydrocarbon-producing zones. The potential for flash fires increases when the drilling process hits formations or zones of hydrocarbons and gas. Potential exposures to flash fires occur when drilling accesses an active gas or hydrocarbon zone, because the pressure from underground gas or hydrocarbon could "kick" the well fluids up the hole to the drilling rig floor or platform. If this kick is not contained or controlled by the blowout preventers or rig engineering controls, there is a high potential of flash fire due to the presence of ignition sources on or in the vicinity of the drilling platform.
Engineering and administrative controls reduce, but do not eliminate, the potential for flash fires occurring during drilling. Flammable liquids or gas could be released and migrate to ignition sources because of an inadequacy or failure in the engineering and administrative controls. Examples of failures of engineering controls would include blowout preventer malfunction, hydraulic failure, gauge or indicator equipment error or malfunction, power disruption, and valve failure.

Every effort will be made to prevent engineering control failure due to inadequate design, installation, inspection, testing, and maintenance.

Every effort will be made to prevent administrative control failures by not deviating from standard operating procedures, not failing to close valves, not failing to activate the emergency shutdown system, and not failing to activate the blowout preventer when required. Administrative controls will be adequately developed, implemented, audited, and enforced.

The use of FRC in oil and gas drilling operations OSHA information:

1. FRC is usually not needed during initial rig set-up and normal drilling operations prior to reaching active hydrocarbon zones, unless other activities warrant their use; e.g., fracking a previously drilled well while rigging a well in close proximity.

2. A potential for flash fire exists once active gas or hydrocarbon zones are reached. Appropriate FRC shall be worn by exposed employees working on the well site prior to drilling into identified gas or hydrocarbon zones. Employees are to wear FRC in advance of reaching gas or hydrocarbon zones.

3. Appropriate FRC should also be worn when there is a history of fluid or gas kicks from underground producing zones.
Glass & Glazing

From a safety standpoint, the handling and installation of glass presents potential hazards that are relatively easy to control through proper use of personal protective equipment, the adherence to safe lifting procedures, and the compliance with our ladder, scaffold, aerial and scissor lift safety procedures.

To prevent damage in the first place, glass, particularly on construction sites, should be stored, to the extent possible, in its original packing containers in a clean, dry, secure area away from other activities.

Never allow glass sheets (lites) from sliding against each other or allow tools or equipment to rest on the sheets. Permanent damage may result.

Extreme care must be exercised when moving panes of glass from storage to placement to prevent breakage and injury to others.

Eye protection and gloves designed for glass handling should be used. Additional PPE, such as steel toed work boots and hard hats would be dictated by the job site and the potential hazards present.

Specialized glass installation and carrying tools will be kept in good condition.

Broken glass will be cleaned up immediately.
Ground Fault Circuit Interrupters

§2405.4. Ground-Fault Circuit Protection-Construction Site.
Our company uses ground fault circuit interrupters.

A ground fault circuit interrupter (GFCI) provides protection for all 120-volt, 15-, 20-, and 30-ampere receptacle outlets that are not a part of the permanent wiring by detecting lost current resulting from a short, overheating, and/or ground fault. It should be noted that an extension cord into which electrical devices are plugged are not part of the permanent wiring; therefore, GFCI's are required.

A GFCI will "trip" when the amount of current amperes going to an electrical device in the hot conductor and the amount of current returning from an electrical device differs by approximately 5 milliamps. The GFCI can interrupt the current within as little as 1/40th of a second.

The current that is missing is being lost through a ground fault, whether it is in the actual grounding, a short in the equipment or electricity going through the employee to the ground.

A GFCI will not protect an employee who comes in contact with two hot wires or a hot wire and a neutral wire. A GFCI will provide protection against fires, overheating, damage to insulation, and, the most common form of electrical shock hazard -- the ground fault. GFCI’s must be tested before use.
Hazardous Job Site Chemical Awareness and Exposure

As part of process safety management of highly hazardous chemicals, prior to actual work in the petrochemical industry, our employees will be given training on negating the hazards relating to possible chemical exposures in the areas in which we are working.

These hazards may present themselves in refineries, drilling operations, tank gauging, or maintenance at a petrochemical plant.

The training on the facility operator's emergency/contingency plan would include identification of the various hazardous chemicals, their location, and specific actions to take should there be an inadvertent spill, leak, or release of hazardous chemical gases. Also during this pre-work training, all facility safety rules would be explained.

Actions would include notification of personnel, evacuation of personnel in the area to a safe zone, and training on the specific chemicals that may be released. The importance of wind direction, whether the gas is heavier or lighter than air, flammable or explosive, corrosive, means to detect the gas such as odor (and use of personal gas monitors), means to protect the employees through PPE, especially respiratory protection and the use of full face respirator (gas mask) with an organic vapor canister or self-contained breathing apparatus or airline respirator escape SCBA.

Per Hazard Communication, we will keep on site, and a readily available SDS for each chemical to which we may be exposed. This information will be provided by the facility operator.

Asbestos Awareness

NIOSH Pocket Guide to Chemical Hazards - Asbestos

On some job sites, employees may have potential exposure to asbestos if precautionary steps noted below are not taken. Asbestos can be found in older tile flooring, pipe and mechanical insulation, plaster, fireproofing, soundproofing, roofing materials, and in sprayed-on materials located on beams, in crawl spaces, and between walls. Undisturbed, it is perfectly safe.
Asbestos is not a specific mineral, but rather a fibrous form of various minerals. It is a remarkable product because it is resistant to corrosive chemicals, it is a nonconductor of electricity, it has a high tensile strength (equal to that of steel wire), and is resistant to heat (it will not burn, but will disintegrate at extremely high temperatures). Some forms of asbestos, such as chrysotile, can be spun into thread. In fact, one pound of chrysotile can produce 30,000 feet of thread -- it is that fine. Other types of asbestos have fibers which cannot be spun, but are excellent for their frictional properties (brakes) and their insulation and sound deadening properties. The actual minerals found in asbestos include iron, magnesium, silica, and water. Asbestos is a truly remarkable product which has been serving mankind since the ancient Greeks and Romans.

Unfortunately, asbestos has a down side that has been discovered and statistically documented in recent years -- it is hazardous to your health. There are two types of asbestos, friable and non-friable.

Friable asbestos can be crumpled with hand pressure and is likely to emit minute fibers can cause serious long term health effects. Fluffy sprayed-on materials used for fireproofing, insulation, or sound proofing are considered to be friable.

Non-friable asbestos, undisturbed, poses no health risk. Vinyl-asbestos floor tile or roofing felt are considered non-friable if intact and generally do not emit airborne fibers unless subjected to sanding, sawing and other aggressive operations. Asbestos-cement pipe or sheet can emit airborne fibers if the materials are cut or sawed, or if they are broken.

The health hazards associated with asbestos are caused by the microscopic fibers which, when released, enter the deepest portion of the lung (past your natural defenses such as hairs, mucus, cilia, and macrophages). Scar tissues can develop and the lung stiffens thus reducing gas exchange. This is called asbestosis. Another disease associated with asbestos is lung cancer. High exposure levels of asbestos increases one's chance of lung cancer by a factor of five. Mesothelioma, a disease caused primarily by exposure to amosite and crocidolite, can be fatal. Lastly, though not likely, it is possible to get cancer of the stomach and colon.
The health hazards associated with asbestos are chronic and, as such, present themselves after a long period of time.

Asbestos Awareness Training is required for all employees who work in areas that contain or may contain asbestos. This training will be documented.

Steps to avoid asbestos exposure:

1. Under no circumstances will asbestos containing material (ACM) or presumed asbestos containing material (PACM) be disturbed during work activities.

2. If you believe the materials you will be working with contain asbestos, do not disturb the material and contact your supervisor.

3. Obey all asbestos warning signs and labels. ACM and PACM will not be disturbed.

4. If our employees are working on a multi-contractor worksite adjacent to a Class I asbestos abatement job and possible exposure occurs because of inadequate containment (an unlikely scenario because not only would the containment be faulty, the negative pressure system would have to fail), they are to immediately remove themselves from the area until the breach and containment systems is repaired.

5. All exposure to thermal system insulation, sprayed-on, and troweled-on surfacing material will be assumed to be asbestos exposure unless results of laboratory analysis show that the material does not contain asbestos.

For the record, permissible exposure to airborne asbestos fibers may not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) averaged over the 8-hour workday, and 1 fiber per cubic centimeter of air (1.0 f/cc) averaged over a 30 minute work period.
Crystalline Silica Awareness

Silica, Crystalline (Respirable Size), National Institute of Health

Crystalline Silica can be readily found on many job sites in rocks, as well as many concrete and masonry products. Crystalline Silica can be released in the air when employees are performing such tasks as:

a. Chipping, hammering, drilling, crushing, or hauling rock.

b. Abrasive blasting.

c. Sawing, hammering, drilling, or sweeping concrete or masonry.

Unprotected respiratory exposure to crystalline silica may cause a lung disease called silicosis as well as cancer and death.

Occupational silica exposure is completely preventable through employee training, use of a silica substitute, use of engineering controls, improved work practices, and, lastly, use of personal protective equipment.

Employees who are potentially exposed to an environment containing airborne concentrations of silica will receive training prior to working with silica and receive periodic refresher training after work has started.

Silica training will include:

a. Exposure monitoring for respirable silica.

1. Full shift personal samples will be taken that are representative of the employee’s regular, daily exposure to silica. A certified industrial hygienist will use a combination device, called a cyclone assembly, and a sampling pump to trap tiny respirable silica particles from the air in the work environment.

2. The cyclone assembly and sampling pump will be placed on an employee who will wear the device throughout the work shift for up to 8 hours.

3. Sampling requires that just a select few employees who are closest to the silica source be fitted. The industrial hygienist can help you determine who will be most appropriate.

4. At the end of the sampling period, the hygienist will de-activate the sampling pump and remove the filters, which will be sent to a certified laboratory for analysis.
5. Employee exposures to concentrations of silica must be kept below the permissible exposure limits found in 1910.1000 - Table Z-3, below:

<table>
<thead>
<tr>
<th>Substance</th>
<th>mppcf a</th>
<th>mg/m3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crystalline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartz (Respirable)</td>
<td>250b</td>
<td>10 mg/m3 e</td>
</tr>
<tr>
<td>%SiO2+5</td>
<td>%SiO2+2</td>
<td></td>
</tr>
<tr>
<td>Quartz (Total Dust)</td>
<td></td>
<td>30 mg/m3</td>
</tr>
<tr>
<td>Cristobalite: Use ½ the value calculated from the count or mass formulae for quartz.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tridymite: Use ½ the value calculated from the formulae for quartz.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amorphous, including natural diatomaceous earth</td>
<td>20</td>
<td>80 mg/m3</td>
</tr>
<tr>
<td>Substance</td>
<td>mppcf a</td>
<td>mg/m3</td>
</tr>
<tr>
<td>Silicates (less than 1% crystalline silica):</td>
<td></td>
<td>%SiO2</td>
</tr>
<tr>
<td>Mica</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Soapstone</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Talc (not containing asbestos)</td>
<td>20c</td>
<td></td>
</tr>
<tr>
<td>Talc (containing asbestos) Use asbestos limit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tremolite, asbestiform (see 29 CFR 1910.1001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portland cement</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Graphite (Natural)</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Coal Dust:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respirable fraction less than 5% SiO2</td>
<td></td>
<td>2.4 mg/m3 e</td>
</tr>
<tr>
<td>Respirable fraction greater than 5% SiO2</td>
<td></td>
<td>10 mg/m3 e</td>
</tr>
<tr>
<td>%SiO2+2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inert or Nuisance Dust:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respirable fraction</td>
<td>15</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td>Total dust</td>
<td>50</td>
<td>15 mg/m3</td>
</tr>
</tbody>
</table>

Note -- Conversion factors - mppcf X 35.3 = million particles per cubic meter = particles per c.c.

a. Millions of particles per cubic foot of air, based on impinger samples counted by light-field techniques.
b. The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.
c. Containing less than 1% quartz; if 1% quartz or more, use quartz limit.
d. All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1.
e. Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics:

<table>
<thead>
<tr>
<th>Aerodynamic diameter (unit density sphere)</th>
<th>Percent passing selector</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>90</td>
</tr>
<tr>
<td>2.5</td>
<td>75</td>
</tr>
<tr>
<td>3.5</td>
<td>50</td>
</tr>
<tr>
<td>5.0</td>
<td>25</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>

The measurements under this note refer to the use of an AEC (now NRC) instrument. The respirable fraction of coal dust is determined with an MRE; the figure corresponding to that of 2.4 mg/m3 in the table for coal dust is 4.5 mg/m3.
b. The health hazards associated with respirable silica are silicosis, lung cancer, pulmonary tuberculosis and other airway diseases.

Silicosis is caused by exposure to respirable crystalline silica dust. Crystalline silica is a basic component of soil, sand, granite, and most other types of rock, and it is used as an abrasive blasting agent. Silicosis is a progressive, disabling, and often fatal lung disease. Cigarette smoking adds to the lung damage caused by silica.

Symptoms of silicosis:
Silicosis (especially the acute form) is characterized by shortness of breath, fever, and cyanosis (bluish skin); it may often be misdiagnosed as pulmonary edema (fluid in the lungs), pneumonia, or tuberculosis. Severe mycobacterial or fungal infections often complicate silicosis and may be fatal in many cases.

Three types of silicosis:
1. Chronic silicosis: usually occurs after 10 or more years of exposure to crystalline silica at relatively low concentrations
2. Accelerated silicosis: results from exposure to high concentrations of crystalline silica and develops 5 to 10 years after the initial exposure
3. Acute silicosis: occurs where exposure concentrations are the highest and can cause lung cancer.

c. The exposure limits for respirable silica.

See 1910.1000 Table Z-3.

Permissible Exposure Limit (PEL) = Crystalline Quartz (respirable):
250 mppcf (millions of particles per cubic feet of air)/(%SiO2 +5); 10 mg/m3/(%SiO2 + 2); Quartz (total dust):
30 mg/m3/(%SiO2 + 2); Cristobalite and Tridymite: Use 1/2 the value calculated from the count or mass formula for quartz.
d. Acceptable substitutes for silica.

The many types of abrasive materials have varying degrees of health hazards -- silica sand being probably the most hazardous mineral abrasive used.

Whenever possible, its use should be limited and, if possible, a substitute material used. Other types of abrasives include: synthetic or natural mineral grains, metallic shot or hard grit (made of steel or chilled cast iron), and organic abrasives such as ground corncobs and walnut shells. These and other engineering controls such as containment and ventilation are important for employee safety.

e Engineering controls.

It is important to note that silica is only hazardous in its airborne form. Engineering controls would include local exhaust ventilation and blasting cabinets.

Establishing a clearly identified exposure area.

f. Work practice controls.

Use of water sprays, wet methods for cutting, chipping, drilling, sawing, grinding, etc.

Eating, drinking, or smoking near crystalline silica dust is prohibited.

Employees will wash hands and face before eating, drinking or smoking away from silica exposure area.
g. Personal protective equipment.

The **only health hazard from silica is respiratory**, therefore appropriate half-face or full face respiratory will be used.

1. Up to 0.5 milligrams per cubic meter of air (mg/m$^3$) of airborne exposures to crystalline silica:
   - Half-facepiece particulate respirators with N95 or better filters

2. Up to 1.25 milligrams per cubic meter of air (mg/m$^3$) of airborne exposures to crystalline silica:
   - Any powered, air-purifying respirator with a high-efficiency particulate filter.
   - Any supplied-air respirator operated in a continuous-flow mode

3. Up to 2.5 milligrams per cubic meter of air (mg/m$^3$) of airborne exposures to crystalline silica:
   - Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.
   - Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.

4. Up to 2.5 milligrams per cubic meter of air (mg/m$^3$) of airborne exposures to crystalline silica:
   - Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.

However, when working with respirable silica, there are many physical hazards and appropriate PPE will be worn to address the hazards presented by the work at hand.

1. Eye protection: Goggles; safety glasses with side shields
2. Head protection: Hard hat
3. Hand protection: Gloves
4. Foot protection: Steel toed work boots
5. Body protection: Tyvek suits/coveralls
Following are NIOSH recommendations for reducing crystalline silica exposures.

**NIOSH Safety Recommendations:**

NIOSH recommends the following measures to reduce crystalline silica exposures at the job site and prevent silicosis and silicosis-related deaths:

1. Prohibit silica sand (or other substances containing more than 1% crystalline silica) as an abrasive blasting material and substitute less hazardous materials.
2. Conduct air monitoring to measure worker exposures.
3. Use containment methods such as blast-cleaning machines and cabinets to control the hazard and protect adjacent workers from exposure.
4. Practice good personal hygiene to avoid unnecessary exposure to silica dust.
   a. Wash hands and face before eating.
   b. No eating, drinking or tobacco products in the blasting area.
   c. Shower before leaving work site.
   d. Vehicles parked away from contaminated area.
5. Wear washable or disposable protective clothes at the job site; shower and change into clean clothes before leaving the job site to prevent contamination of cars, homes, and other work areas.
6. Use respiratory protection when source controls cannot keep silica exposures below the NIOSH REL.
7. Provide periodic medical examinations for all workers who may be exposed to crystalline silica.
8. Post signs to warn workers about the hazard and to inform them about required protective equipment.
9. Provide workers with training that includes information about health effects, work practices, and protective equipment for crystalline silica.
10. Report all cases of silicosis to the state health department.
Lead Hazard Awareness:

Pure lead (Pb) is a heavy metal at room temperature and pressure, and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.

OSHA standard 29 CFR 1926.62, addresses occupational exposure to lead in the construction industry. The word “lead” within this standard refers to elemental lead, all inorganic lead compounds, and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.

There may be times when employees are working within the vicinity of lead or lead-containing materials.

Under no circumstances will employees be exposed to lead above the action level which, for lead, is 30 micrograms of lead per cubic meter of air (30 µ/m³), averaged over an 8-hour workday. As a matter of interest, the permissible exposure limit (PEL) for lead is 50 micrograms of lead per cubic meter of air (50 µ/m³), averaged over an 8-hour workday.

Lead found in paints, coatings, and compounds that are undisturbed, pose no risk of hazard exposure and work around these items do not require respirators, special clothing, or negative pressure enclosures.

Care will be taken by all employees to not abrade, remove, touch, or in any way disturb lead or lead containing compounds within the work area.

Contractors who actually abate lead do so under the provisions of the above lead standard which precludes lead from escaping into the surrounding areas by negative pressure enclosures and other methods.

As a point of interest, persons whom perform lead abatement have to have received special training, be licensed, and be part of a medical surveillance program.

To drive home the point of the importance of leaving lead at the job site undisturbed and avoided, employees must be aware of the health hazards associated with lead exposure.

The below is extracted from 29 CFR 1910.1025 App A, Substance data sheet for occupational exposure to lead:

II. HEALTH HAZARD DATA

A. "Ways in which lead enters your body". When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air
as a dust, fume, or mist it can be inhaled and absorbed through you lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.

B. "Effects of overexposure to lead" - (1) "Short term (acute) overexposure". Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

(2) "Long-term (chronic) overexposure". Chronic overexposure to lead may result in severe damage to your blood - forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women.
Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(3) "Health protection goals of the standard". Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 ug/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 ug/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 ug) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg percent or ug percent. This is a shorthand notation for 100g, 100 ml, or dl. (References to BLL measurements in this standard are expressed in the form of ug/dl.)

BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

Once your blood lead level climbs above 40 ug/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 ug/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 ug/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead-related impairments and diseases -- both short term and long term -- is to maintain your BLL below 40 ug/dl. The provisions of the standard are designed with this end in mind.
Heavy Construction Equipment

Motor vehicles that may access any airport area will be equipped with a two-way radio on the FAA Ground Traffic Control frequency.

All heavy equipment must be inspected prior to use and comply with applicable OSHA and ANSI standards.

Heavy construction equipment would include:

- Cranes
- Excavators/Back hoes
- Front-end loaders
- Haulage Vehicles (Trucks/Dump Trucks)
- Forklifts
- Man-lifts

Only company and/or delivery vehicles used for the sole purpose of conducting work tasks on-site are permitted in construction areas. Vehicles one ton or greater and equipment used on-site must have an audible backup alarm. The driver and all passengers in any vehicle will wear seat belts.

Bi-directional machines such as front-end loaders and bulldozers will have an audible alarm, distinguishable from the surround noise level which will be used if the operator does not have a clear, unobstructed view or a ground guide indicating that the line of travel is safe.

Scissors points on all front-end loaders which may harm the operator will be guarded as well as all parts exposed to employees such as belts, gears, pulleys, sprockets, spindles, drums, flywheels, chains and other moving parts.

All trucks into which earth is dumped will have protection for the driver of that vehicle or the driver must exit the vehicle before loading.

Vehicle operators will not operate heavy equipment on any access roadway or grade that is not suitable for the vehicle.

Bulldozer blades, loader buckets, dump bodies and similar equipment will be fully lowered or blocked to prevent movement during maintenance or when not in use.

When equipment is parked, the parking brake will be set. Additionally, on inclines, wheeled vehicles will be chocked. Equipment left unattended at night, adjacent to either a highway or construction area in use, will be clearly visible with reflectors, lights, or illuminated (with reflectors or lights) barricades.
Safety requirements for heavy construction equipment:

1. General repairs must not be made to powered equipment until workers are protected from movement of the equipment or its parts.

2. Before repairs are made workers must comply with lock-out/tag-out requirements, if applicable, of our Control of Hazardous Energy Program.

3. Wherever mobile equipment operation encroaches on a public thoroughfare, a system of traffic controls must be used.

4. Flaggers are required at all locations where barricades and warning signs cannot control the moving traffic.

5. Job-site vehicles must be equipped with the following, if so designed:
   a. Operable service, emergency, and parking brakes.
   b. Two operable headlights and taillights for night operation.
   c. Windshield wipers and defogging equipment as required.
   d. Fenders or mud flaps.
   e. Adequate seating if the vehicles are used to transport employees.

6. Vehicles and systems must be checked for proper operation at the start of each shift.

7. Vehicles operating when rear vision is blocked must be equipped with an automatic backup alarm or its equivalent.

8. Haulage vehicles in operation must be under operator control and must be kept in gear when descending grades.

9. Engines must be stopped during refueling.

10. Lights are required for night operation.

11. Equipment that is equipped with a windshield will be free of cracks or other visible damage.

12. All equipment will be equipped with rollover protective structures (ROPS).

13. Seatbelts are required to be worn at all times when provided in moving equipment.

14. No equipment or vehicle will be used to transport personnel unless it is specifically designed to do so, including beds of pick up trucks.
Equipment operators are responsible to check their equipment daily to verify it is working properly.

As a minimum, each operator will check:

- Brakes
- Lights
- Backup alarm and horn
- Hydraulic systems
- Steering mechanism
- Operating controls
- Mirrors
- Fire extinguisher
- Limit switches
-Leaks

Equipment operators will possess the required training, certification, and licenses as required by law for the equipment that they are operating.
Heavy Equipment and Electrical Power Lines

Provisions for Preventing Accidents Due to Proximity to Overhead Lines

Except where electrical distribution and transmissions lines have been deenergized and visibly grounded at point of work or where insulating barriers (not attached to the vehicle) have been erected to prevent physical contact with the lines, the following boom-type lifting or hoisting equipment clearance will be observed:

The erection, operation, or dismantling of any boom-type lifting or hoisting equipment (or any part thereof) closer than the minimum clearances from energized overhead high-voltage lines listed below is prohibited.

Nominal voltage (Phase to Phase) Minimum Required Clearance (Feet)

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 to 50,000</td>
<td>10</td>
</tr>
<tr>
<td>over 50,000 to 75,000</td>
<td>11</td>
</tr>
<tr>
<td>over 75,000 to 125,000</td>
<td>13</td>
</tr>
<tr>
<td>over 125,000 to 175,000</td>
<td>15</td>
</tr>
<tr>
<td>over 175,000 to 250,000</td>
<td>17</td>
</tr>
<tr>
<td>over 250,000 to 370,000</td>
<td>21</td>
</tr>
<tr>
<td>over 370,000 to 550,000</td>
<td>27</td>
</tr>
<tr>
<td>over 550,000 to 1,000,000</td>
<td>42</td>
</tr>
</tbody>
</table>

The storage of tools, machinery, equipment, supplies, materials or apparatus under, by, or near energized overhead high-voltage lines is prohibited if at any time it is possible to bring such tools machinery, equipment, supplies, materials or apparatus closer than the minimum clearances below.

Nominal voltage (Phase to Phase) Minimum Required Clearance (Feet)

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 to 50,000</td>
<td>6</td>
</tr>
<tr>
<td>over 50,000 to 345,000</td>
<td>10</td>
</tr>
<tr>
<td>over 345,000 to 750,000</td>
<td>16</td>
</tr>
<tr>
<td>over 750,000 to 1,000,000</td>
<td>20</td>
</tr>
</tbody>
</table>

A ground guide will be designated to observe clearance of the equipment and give warning to the equipment operator in situations where it is difficult for the equipment operator to maintain the desired clearances by visual means.

An overhead wire will be considered energized unless the owner of the line or the electrical utility authorities indicate that it is not energized and it has been visibly grounded.
Hoists

A hoist is a useful mechanical device which gives one the ability to lift and move heavy objects -- not people. No person is to ride on a hoist. As with all mechanical devices, improper use may lead to injury. You must know what you are doing and you must be careful.

Before use, hoists must be inspected for bent or damaged components. Particular attention should be paid to guarding. Fingers and loose clothing could be snagged in exposed mechanisms. Chains, cables, or rope slings must not be kinked, twisted, or frayed.

Loads must be properly rigged with hooks or slings and they must never exceed the hoist's rated capacity.

Ensure that the area around the hoist is free from debris and, most importantly, people. Do not allow yourself or others to be under a hoisted load.
Horizontal Directional Drilling (HDD)

Only employees qualified by training or experience may perform HDD work. Further, HDD equipment may be used only by authorized employees.

Prior to use, all HDD equipment will be inspected in accordance with the Operator’s Manual which must be maintained on the job site with the equipment.

PPE

The Association of Equipment Manufacturers (AEM) recommends that all employees wear properly rated electrically insulated footwear at all times. Other appropriate PPE would include eye protection, hearing protection, highly visible clothing, and insulated rubber gloves depending on the work situation.

UNDERGROUND UTILITIES

The greatest hazard in HDD work involves hitting an underground utility. Call “811” which is a call before you dig information service. The below universal color indicates what utility is buried below ground:

- Red – Electric
- Orange – Communications, Telephone/CATV
- Blue – Potable Water
- Green – Sewer/Drainage
- Yellow – Gas/Petroleum Pipe Line
- Purple – Reclaimed Water
- White – Premark site of intended excavation

Caution must be exercised because:

1. Many underground utilities are not recorded.
2. Many that are recorded are not accurate.
3. Many are at different depths below ground than indicated.

Utilities must be physically identified to ensure they are not hit.

Once utilities are found, use signage incorporating the universal color codes.

Note: After we put in an underground item, we must report it so the next contractor does not hit it.
With the horizontal location known and the utilities exposed to determine their depth at regular intervals along the drill path, drilling may start with the drill head tracked by an experienced employee using a tracking device to direct the operator to steer the drill over, under, or around existing utilities.

Check and double check as you work. There may be loops, valves, tees and other items protruding into the drill path. Remember, many utility items underground are not reported or improperly reported.

The drill operator and the tracking equipment operator must be in constant contact either with two-way radios or hand signals.

If the tracker reading is not “normal”, stop work and determine the problem. When working near an existing utility, slow down and use extra care.
Hot Tap Operations

Hot tap operations refer to a procedure used in the repair, maintenance and service 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.

Because, by definition, continuity of service is essential, it is impossible to use standard control of hazardous energy procedures.

Only trained employees working under the supervision of a competent person (by virtue of training or experience) will perform hot tap operations following documented procedures for the specific job.

Coordination with the facility operator will allow an exact determination of the metal involved, its thickness, the pressures, and, of course, the type of fluid/gas within the piece of equipment. While continuity of service is required, it may be possible to reduce pressures/flow during the hot tap operations.

A control zone will be established to keep workers (and others) not involved with the operations at a safe distance. Care will be taken to assure that all necessary permits and an emergency rescue plan, if deemed necessary, are in place. Attention will be given to the specialized tools and PPE requirements for hot tap operations.
Hydro-Blasting

**29 CFR 1926.302 - Power-operated hand tools**

**Hydro-blasting:**

Hydro-blasting uses the action of water under extremely high pressure to clean surfaces. Hydro-blasting is used for tank, vessel, and pipe cleaning as well as surface preparation. Hydro-blasting equipment may be powered by internal combustion engines (diesel) or electricity. The size of the equipment can vary from small portable units to the size of a tractor trailer. The pressures are enormous, up to 40,000 psi (Ultra High Pressure).

The advantage of hydro-blasting over abrasive blasting is that it can more safely be used in hazardous areas where a spark could cause and ignition of gases or other flammable substances.

While dust is certainly not a problem with hydro-blasting, consideration must be given to the disposal of waste water if it is contaminated with toxic or hazardous materials.

**Training:**

Prior to performing hydro-blasting work, employees must be trained on the hazards (including penetration of the skin by high pressure water), operating procedures, and maintenance of hydro-blasters.

Training must include a demonstration of the cutting action of the high pressure water and of its ability to cut and penetrate the skin. This live demonstration will emphasize the potential hazard to the human body by actually cutting through a piece of lumber, concrete block, or rubber boot.

Because of the infinite variable uses for hydro-blasting and the combinations of hydro-blasting equipment and the inherent dangers involved with hydro-blasting operations, all hydro-blasting operators must have received training on each type of equipment used. Only authorized personnel may operate hydro-blasting equipment.

Obviously, if an accident should occur and water penetrates the skin, medical attention must be given immediately.

Information and training also will address the tremendous force of the water, shock and electrical hazards, noise hazards, chemical release hazards, slip hazards, fall hazards, kick-back hazards, and visibility hazards.

At a minimum, a hydro-blasting team will consist of a pump operator and a nozzle operator.
Personal Protective Equipment (PPE):
All employees performing hydro-blasting work should wear, at a minimum, waterproof body protection, eye protection, head protection including full face shield, waterproof foot protection with steel toe caps, appropriate hand protection, and hearing protection. Depending on circumstances, metatarsal protective boots may be required.

Hydro-blasting Permits:
A Pre-Operational, Operation, and Post-Operation Permits will be developed by the site (or the contractor performing the work) that contains, at least, the below information:

1. Job Description and equipment being cleaned.
2. Precautions taken to protect electrical equipment.
3. Maximum operating pressure.
4. A list of qualified personnel.

Establishment of a control zone:
A control zone will be established to protect personnel when approaching all ends of the equipment being cleaned. The control zone will be identified by barricades and signage.

Equipment and Procedures:
1. The operator will inspect all hydro-blast equipment prior to use for defects, proper fluid levels, filters, and properly sized/rated fittings. This inspection will cover the high pressure unit, hoses and fittings. Defective equipment will be tagged out of service and not used.
2. All blast cleaning nozzles must be equipped with an operating valve (on the gun or foot pedal) which must be held open manually and always under control of the operator.
3. Objects to be cleaned will never be held manually.
4. The minimum total length of a hydro-blasting gun (hand-operated control valve, lance and nozzle resembling a gun layout) will be 66 inches from the shoulder pad to the nozzle.
5. A properly sized anti-reversal device (stinger assembly attached to a nozzle to prevent it from turning around inside a pipe or large tube) will be used throughout the task. The combined length of the hose connection, stinger, and nozzle will be a minimum of 1.5 times the diameter of the pipe being cleaned unless the pipe being cleaned has a “T”, then the combined length will be 3 times the diameter of the largest pipe.

6. Moleing device or lance will require a minimum of 2 feet end identification when a pipe flange is available. If no flange or other means to secure the anti-reversal device is used, the hose/flange will require a 2 feet end identification marking and a 4 feet end identification marking of a different color or different pattern.

7. A hydro-blasting system is not to be operated above the lowest working pressure (40% of the burst pressure) of any of its components.

8. All hydro-blasting must be completed from a stable work surface.

9. When operating hydro-blasting equipment, no ladders, step stools, benches, etc. are to be used. Approved scaffolding or platforms that are job specific may be used.

**System Shut Down Events:**
The system will be shut down and depressurized any time one of the below events occur:

1. The barricade is violated.

2. The equipment malfunctions (special attention should be given to the dump control valve).

3. Repairs need to be made.

4. The system is to be left unattended.
Kettle Operations

Only trained and authorized persons will be involved with kettle operations. All operations will be performed within a control zone that prohibits entrance by unauthorized persons.

During kettle operations, employees will wear appropriate PPE including hand protection: gloves; skin protection: long sleeves and long pants; foot protection: steel toed work boots; eye protection: safety goggles; and head protection: hard hat, as necessary.

While our work generally has material within the kettle at 450°F, at no time shall the material within the kettle exceed 500°F.

The kettle lids will not be opened except for loading the kettle with solid roofing material or unless the material in the roofing kettle is less than 150°F.
Ladders

§1629. Stairways and Ladders.
§1675. General. (Ladders)
§3278. Portable Wood Ladders.
§3279. Portable Metal Ladders.
§3287. Ladders.

All employees using ladders are required by Cal/OSHA standard to receive training and understand proper procedures for ladder use before using a ladder in a work situation.

All ladders will be inspected periodically and defective ladders will be tagged and placed out of service.

American National Standards Institute (ANSI) and NIOSH approval labels should never be covered with paint or tape. Having ladders that are constructed to standard will prevent collapse and resultant falls.

Specific operational procedures for ladders directly relating to the elimination of fall hazards are listed below:

a. A stairway or a ladder will be provided at all personnel points of access where there is a break in elevation of 19 inches or more.

b. Ladders will never be overloaded.

c. Ladder rungs, cleats, and steps must be parallel, level, and uniformly spaced when a ladder is in position for use.

d. Ladders will not be tied or fastened together unless they are so designed.

e. Portable ladders used for gaining access to an upper level will extend at least 3 feet above the upper landing surface or the ladder will be secured at its top.

f. Ladders must be free of oil, grease, or other slipping hazards.

g. Ladders must be used for the purpose for which they were designed.

h. Non-self-supporting ladders will be used at such an angle so that the horizontal distance from the top support to the foot of the ladder is approximately ¼ of the working length of the ladder.

i. Ladders will only be used on stable and level surfaces unless secured to prevent displacement.

j. Ladders shall not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement.
k. Ladders placed in any location where they can be displaced by job site activities or traffic will be secured to prevent accidental displacement, or a barricade will be used to keep the activities or traffic away from the ladder.

l. The area around the top and bottom of the ladder shall be kept clear.

m. Ladders shall not be moved, shifted, or extended while occupied.

n. The top step of a stepladder shall not be used as a step.

o. Portable ladders with structural defects will be immediately marked in a manner that readily identifies them as defective and removed from service until repaired.

p. When ascending or descending a ladder, one must face the ladder.

q. Employees must use at least one hand to grasp the ladder when progressing up and/or down the ladder.

r. Employees are not to carry any object or load that could cause loss of balance and a resultant fall.

Fixed ladders where the length of climb is less than 24 feet but the top of the ladder is greater than 24 feet above the lower level must have cages, wells, ladder safety devices, or self-retracting lifelines.

Fixed ladders where the length of climb equals or exceeds 24 feet shall have at least one of the following:

   a. Ladder safety devices.

   b. Self-retracting lifelines and rest platforms not exceeding 150 feet.

   c. A cage or well, and multiple ladder sections not exceeding 50 feet in length. At the maximum interval of 50 feet, ladder sections will be offset on landing platforms.
Lighting

A competent person will ensure that all work areas have adequate lighting. Adequate lighting serves a two-fold purpose – allowing tasks to be more readily performed as well as providing the additional safety factor of being seen by persons not involved with the work – especially vehicular traffic.

If generators are used for auxiliary lighting, they will be operated and maintained by authorized persons who are competent by training or experience.
Line-Clearance Tree-Trimming Operations

Note: The entire 29 CFR 1910.269, except paragraph (r)(1), applies to line-clearance tree-trimming operations performed by qualified employees (those who are knowledgeable in the construction and operation of the electric power generation, transmission, or distribution equipment involved, along with the associated hazards.

Paragraphs (a)(2), (a)(3), (b), (c), (g), (k), (p), and (r) of 29 CFR 1910.269 apply to line-clearance tree-trimming operations performed by line-clearance tree trimmers who are not qualified employees. These paragraphs include:

Training:

Each employee shall be trained in, and familiar with, the safety-related work practices, safety procedures, and other safety requirements in 29 CFR 1910.269 that pertain to his or her job assignments.

Each employee shall also be trained and familiar with any other safety practices, including applicable emergency procedures (such as pole-top and manhole rescue), that are not specifically addressed by 29 CFR 1910.269 but that are related to his or her work and are necessary for his or her safety.

The degree of training shall be determined by the risk to the employee for the hazard involved.

Each line-clearance tree trimmer who is not a qualified employee shall also be trained and competent in:

1. The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment,

2. The skills and techniques necessary to determine the nominal voltage of exposed live parts, and

3. The minimum approach distances specified in 29 CFR 1910.269 corresponding to the voltages to which the employee will be exposed and the skills and techniques necessary to maintain those distances.

The employer shall determine, through regular supervision and through inspections conducted on at least an annual basis, that each employee is complying with the safety-related work practices required by 29 CFR 1910.269.
An employee shall receive additional training (or retraining) under any of the following conditions:

1. If the supervision or annual inspections required by paragraph (a)(2)(iv) of 29 CFR 1910.269 indicate that the employee is not complying with the safety-related work practices required by 29 CFR 1910.269, or

2. If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those which the employee would normally use, or

3. If he or she must employ safety-related work practices that are not normally used during his or her regular job duties.

Note: The Occupational Safety and Health Administration considers tasks that are performed less often than once per year to necessitate retraining before the performance of the work practices involved.

The above training shall be of the classroom or on-the-job type.

The training shall establish employee proficiency in the work practices required by 29 CFR 1910.269 and shall introduce the procedures necessary for compliance with 29 CFR 1910.269.

The employer shall ensure that each employee has demonstrated proficiency in the work practices involved before that employee is considered as having completed the training required above.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
Information transfer:
Host employer responsibilities:

Before work begins, the host employer shall inform contract employers of:

The characteristics of the host employer's installation that are related to the safety of the work to be performed including:

1. The nominal voltages of lines and equipment,
2. The maximum switching-transient voltages,
3. The presence of hazardous induced voltages,
4. The presence of protective grounds and equipment grounding conductors,
5. The locations of circuits and equipment, including electric supply lines, communication lines, and fire protective signaling circuits.

Note: The host employer MUST OBTAIN the information listed in paragraphs 1 through 5, above, if it does not have this information in existing records.

Conditions that are related to the safety of the work to be performed, that are listed in paragraphs 6, 7, & 8, below, that are known to the host employer;

6. The condition of protective grounds and equipment grounding conductors,
7. The condition of poles, and
8. Environmental conditions relating to safety.

Note: To comply with paragraphs 6, 7, & 8, above, the host employer need only provide information to contract employers that the host employer can obtain from its existing records through the exercise of reasonable diligence. The host employer is not required to make inspections of worksite conditions to obtain this information.

Information about the design and operation of the host employer's installation that the contract employer needs to make the assessments required by this 29 CFR 1910.269.

Note: The above paragraph requires the host employer to obtain information about the design and operation of its installation that contract employers need to make required assessments if it does not have this information in existing records.

Note: First-aid training:

In addition to the requirements for first aid training found in our safety program, when employees are performing work on, or associated with, exposed lines or equipment energized at 50 volts or more, persons with first-aid training shall be available as follows:

For field work involving two or more employees at a work location, at least two trained persons shall be available. However, for line-clearance tree trimming operations performed by line-clearance tree trimmers who are not qualified employees, only one trained person need be available if all new employees are trained in first aid within 3 months of their hiring dates.
**Job Briefings:**

Before each job:

1. In assigning an employee or a group of employees to perform a job, we shall provide the employee in charge of the job with all available information that relates to the determination of existing characteristics and conditions, see Information Transfer, above.

2. All briefings, short or extensive, must cover at least the following subjects: Hazards associated with the job, work procedures involved, special precautions, energy-source controls, and personal protective equipment requirements.

If the work or operations to be performed during the work day or shift are repetitive and similar, at least one job briefing shall be conducted before the start of the first job of each day or shift.

Additional job briefings shall be held if significant changes, which might affect the safety of the employees, occur during the course of the work.

A brief discussion is satisfactory if the work involved is routine and if the employees, by virtue of training and experience, can reasonably be expected to recognize and avoid the hazards involved in the job.

A more extensive discussion shall be conducted:

1. If the work is complicated or particularly hazardous, or

2. If the employee cannot be expected to recognize and avoid the hazards involved in the job.

**Note:** An employee working alone need not conduct a job briefing. However, it shall be ensured that the tasks to be performed are planned as if a briefing were required.
Personal Protective Equipment:

Note: At no cost, and replaced as necessary, personal protective equipment will be provided to the erection of new electric transmission and distribution lines and equipment, and the alteration, conversion, and improvement of existing electric transmission and distribution lines and equipment.

Personal fall arrest equipment used by employees who are exposed to hazards from flames or electric arcs shall be capable of passing a drop test equivalent to that required by paragraph (b)(2)(xii) of this section after exposure to an electric arc with a heat energy of 40±5 cal/cm².

When used by employees weighing no more than 310 pounds, fully equipped, body belts and positioning straps that conform to American Society of Testing and Materials Standard Specifications for Personal Climbing Equipment, ASTM F887-12e1, are deemed to be in compliance with paragraph (b)(2) of 1926.954.

Work-positioning equipment shall be inspected before use each day to determine that the equipment is in safe working condition. Work-positioning equipment that is not in safe working condition may not be used.

Personal fall arrest systems shall be used in accordance with our normal Fall Protection Program found in our Safety Program.

Note: Fall protection equipment rigged to arrest falls is considered a fall arrest system and must meet the applicable requirements for the design and use of those systems. Fall protection equipment rigged for work positioning is considered work-positioning equipment and must meet the applicable requirements for the design and use of that equipment.

Employees use fall protection systems as follows:

1. Each employee working from an aerial lift shall use a fall restraint system or a personal fall arrest system.

2. Except as provided in paragraph (b)(3)(iii)(C) of this section, each employee in elevated locations more than 4 feet above the ground on poles, towers, or similar structures shall use a personal fall arrest system, work-positioning equipment, or fall restraint system, as appropriate, per our Fall Protection Program found in our Safety Program.

Note: The preceding two (2) paragraphs apply to structures that support overhead electric power transmission and distribution lines and equipment. They do not apply to portions of buildings, such as loading docks, or to electric equipment, such as transformers and capacitors. Subpart M of this part contains the duty to provide fall protection associated with walking and working surfaces. Until it is assured that employees are proficient in climbing and the use of fall protection under 29 CFR 1926.950(b)(7), the employees are not considered “qualified employees” for the purposes of the two (2) paragraphs, above. These paragraphs require unqualified employees (including trainees) to use fall protection any time they are more than 4 feet above the ground.
On and after April 1, 2015, Work-positioning systems shall be rigged so that an employee can free fall no more than 2 feet.

Anchorages for work-positioning equipment shall be capable of supporting at least twice the potential impact load of an employee's fall, 3,000 pounds-force whichever is greater.

Note: Wood-pole fall-restriction devices meeting American Society of Testing and Materials Standard Specifications for Personal Climbing Equipment, ASTM F887-12e1, are deemed to meet the anchorage-strength requirement when they are used in accordance with manufacturers' instructions.

Unless the snap hook is a locking type and designed specifically for the following connections, snap hooks on work-positioning equipment may not be engaged:

1. Directly to webbing, rope, or wire rope;
2. To each other;
3. To a D ring to which another snap hook or other connector is attached;
4. To a horizontal lifeline; or
5. To any object that is incompatibly shaped or dimensioned in relation to the snap hook such that accidental disengagement could occur should the connected object sufficiently depress the snap hook keeper to allow release of the object.
Materials Handling and Storage Near Energized Lines or Equipment:
In areas to which access is not restricted to qualified persons only, materials or equipment may not be stored closer to energized lines or exposed energized parts of equipment than the following distances, plus a distance that provides for the maximum sag and side swing of all conductors and for the height and movement of material-handling equipment:

1. For lines and equipment energized at 50 kilovolts or less, the distance is 10 feet.

2. For lines and equipment energized at more than 50 kilovolts, the distance is 10 feet plus 4 inches) for every 10 kilovolts over 50 kilovolts.

Note: Paragraph (b) of 29 CFR 1926.966 specifies the size of the working space:

The employer shall provide and maintain sufficient access and working space about electric equipment to permit ready and safe operation and maintenance of such equipment by employees.

Note: Paragraph (b): American National Standard National Electrical Safety Code, ANSI/IEEE C2-2012 contains guidelines for the dimensions of access and working space about electric equipment in substations. Installations meeting the ANSI provisions comply with paragraph (b) of this section. The Occupational Safety and Health Administration will determine whether an installation that does not conform to this ANSI standard complies with paragraph (b) of this section based on the following criteria:

(1) Whether the installation conforms to the edition of ANSI C2 that was in effect when the installation was made;

(2) Whether the configuration of the installation enables employees to maintain the minimum approach distances, established by the employer under 29 CFR 1926.960(c)(1)(i), while the employees are working on exposed, energized parts; and

(3) Whether the precautions taken when employees perform work on the installation provide protection equivalent to the protection provided by access and working space meeting ANSI/IEEE C2-2012.
**Mechanical Equipment:**

The critical safety components of mechanical elevating and rotating equipment shall receive a thorough visual inspection before use on each shift.

**Note:** Critical safety components of mechanical elevating and rotating equipment are components for which failure would result in free fall or free rotation of the boom.

No motor vehicle, earthmoving, or compacting equipment having an obstructed view to the rear may be operated on off-highway workplaces where any employee is exposed to the hazards created by the moving vehicle, unless:

1. The vehicle has a reverse signal alarm audible above the surrounding noise level, or
2. The vehicle is backed up only when a designated employee signals that it is safe to do so.

Rubber-tired self-propelled scrapers, rubber-tired front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler-type tractors, crawler-type loaders, and motor graders, with or without attachments, shall have rollover protective structures.

Mobile equipment, if provided with outriggers, shall be operated with the outriggers extended and firmly set, except if the work area or the terrain precludes the use of outriggers, the equipment may be operated only within its maximum load ratings specified by the equipment manufacturer for the particular configuration of the equipment without outriggers. Outriggers may not be extended or retracted outside of the clear view of the operator unless all employees are outside the range of possible equipment motion.
Line-Clearance Tree Trimming Operations (Non-Qualified Employees)

Note: Tables R-5, R-6, R-7, and R-8 are found at the end of this section.

Before an employee climbs, enters, or works around any tree, a determination shall be made of the nominal voltage of electric power lines posing a hazard to employees. However, a determination of the maximum nominal voltage to which an employee will be exposed may be made instead, if all lines are considered as energized at this maximum voltage.

There shall be a second line-clearance tree trimmer within normal (that is, unassisted) voice communication under any of the following conditions:

1. If a line-clearance tree trimmer is to approach more closely than 3.05 meters (10 feet) to any conductor or electric apparatus energized at more than 750 volts or
2. If branches or limbs being removed are closer to lines energized at more than 750 volts than the distances listed in Table R-5, Table R-6, Table R-7, and Table R-8 or
3. If roping is necessary to remove branches or limbs from such conductors or apparatus.

Line-clearance tree trimmers shall maintain the minimum approach distances from energized conductors given in Table R-5, Table R-6, Table R-7, and Table R-8.

Branches that are contacting exposed energized conductors or equipment or that are within the distances specified in Table R-5, Table R-6, Table R-7, and Table R-8 may be removed only through the use of insulating equipment.

Note: A tool constructed of a material that can be demonstrated to have insulating qualities that meet ASTM F711-02 (2007), Standard Specification for Fiberglass-Reinforced Plastic (FRP) Rod and Tube Used in Live Line Tools, are deemed to comply the above if the tool is clean and dry.

Ladders, platforms, and aerial devices may not be brought closer to an energized part than the distances listed in Table R-5, Table R-6, Table R-7, and Table R-8.

Line-clearance tree-trimming work may not be performed when adverse weather conditions make the work hazardous in spite of the work practices required by this section. Each employee performing line-clearance tree trimming work in the aftermath of a storm or under similar emergency conditions shall be trained in the special hazards related to this type of work.

Note: Thunderstorms in the immediate vicinity, high winds, snow storms, and ice storms are examples of adverse weather conditions that are presumed to make line-clearance tree trimming work too hazardous to perform safely.
**Brush chippers**

Brush chippers shall be equipped with a locking device in the ignition system.

Access panels for maintenance and adjustment of the chipper blades and associated drive train shall be in place and secure during operation of the equipment.

Brush chippers not equipped with a mechanical infeed system shall be equipped with an infeed hopper of length sufficient to prevent employees from contacting the blades or knives of the machine during operation.

Trailer chippers detached from trucks shall be chocked or otherwise secured.

Each employee in the immediate area of an operating chipper feed table shall wear personal protective equipment as required by Subpart I of this part.

**Sprayers and related equipment**

Walking and working surfaces of sprayers and related equipment shall be covered with slip-resistant material. If slipping hazards cannot be eliminated, slip-resistant footwear or handrails and stair rails meeting the requirements of Subpart D of this part may be used instead of slip-resistant material.

Equipment on which employees stand to spray while the vehicle is in motion shall be equipped with guardrails around the working area. The guardrail shall be constructed in accordance with Subpart D of this part.

**Stump cutters**

Stump cutters shall be equipped with enclosures or guards to protect employees.

Each employee in the immediate area of stump grinding operations including the stump cutter operator shall wear personal protective equipment as required by Subpart I of this part.
Gasoline-engine power saws

Gasoline-engine power saw operations shall meet the requirements of 29 CFR 1910.266(e) and the following:

Each power saw weighing more than 6.8 kilograms (15 pounds, service weight) that is used in trees shall be supported by a separate line, except when work is performed from an aerial lift and except during topping or removing operations where no supporting limb will be available.

Each power saw shall be equipped with a control that will return the saw to idling speed when released.

Each power saw shall be equipped with a clutch and shall be so adjusted that the clutch will not engage the chain drive at idling speed.

A power saw shall be started on the ground or where it is otherwise firmly supported. Drop starting of saws over 6.8 kilograms (15 pounds), other than chain saws, is permitted outside of the bucket of an aerial lift only if the area below the lift is clear of personnel.


A power saw engine may be started and operated only when all employees other than the operator are clear of the saw.

A power saw may not be running when the saw is being carried up into a tree by an employee.

Power saw engines shall be stopped for all cleaning, refueling, adjustments, and repairs to the saw or motor, except as the manufacturer's servicing procedures require otherwise.

Backpack power units for use in pruning and clearing

While a backpack power unit is running, no one other than the operator may be within 3.05 meters (10 feet) of the cutting head of a brush saw.

A backpack power unit shall be equipped with a quick shutoff switch readily accessible to the operator.

Backpack power unit engines shall be stopped for all cleaning, refueling, adjustments, and repairs to the saw or motor, except as the manufacturer's servicing procedures require otherwise.
Rope

Climbing ropes shall be used by employees working aloft in trees. These ropes shall have a minimum diameter of 12 millimeters (0.5 inch) with a minimum breaking strength of 10.2 kilonewtons (2,300 pounds). Synthetic rope shall have elasticity of not more than 7 percent.

Rope shall be inspected before each use and, if unsafe (for example, because of damage or defect), may not be used.

Rope shall be stored away from cutting edges and sharp tools. Rope contact with corrosive chemicals, gas, and oil shall be avoided.

When stored, rope shall be coiled and piled, or shall be suspended, so that air can circulate through the coils.

Rope ends shall be secured to prevent their unraveling.

Climbing rope may not be spliced to effect repair.

A rope that is wet, that is contaminated to the extent that its insulating capacity is impaired, or that is otherwise not considered to be insulated for the voltage involved may not be used near exposed energized lines.

Fall protection

Each employee shall be tied in with a climbing rope and safety saddle when the employee is working above the ground in a tree, unless he or she is ascending into the tree.
**TABLE R-5-ALTITUDE CORRECTION FACTOR**

Altitude above sea level

<table>
<thead>
<tr>
<th>Altitude (m)</th>
<th>Correction Factor A</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 900</td>
<td>1.00</td>
</tr>
<tr>
<td>901 to 1,200</td>
<td>1.02</td>
</tr>
<tr>
<td>1,201 to 1,500</td>
<td>1.05</td>
</tr>
<tr>
<td>1,501 to 1,800</td>
<td>1.08</td>
</tr>
<tr>
<td>1,801 to 2,100</td>
<td>1.11</td>
</tr>
<tr>
<td>2,101 to 2,400</td>
<td>1.14</td>
</tr>
<tr>
<td>2,401 to 2,700</td>
<td>1.17</td>
</tr>
<tr>
<td>2,701 to 3,000</td>
<td>1.20</td>
</tr>
<tr>
<td>3,001 to 3,600</td>
<td>1.25</td>
</tr>
<tr>
<td>3,601 to 4,200</td>
<td>1.30</td>
</tr>
<tr>
<td>4,201 to 4,800</td>
<td>1.35</td>
</tr>
<tr>
<td>4,801 to 5,400</td>
<td>1.39</td>
</tr>
<tr>
<td>5,401 to 6,000</td>
<td>1.44</td>
</tr>
</tbody>
</table>

**TABLE R-6-ALTERNATIVE MINIMUM APPROACH DISTANCES FOR VOLTAGES OF 72.5 KV AND LESS ¹**

<table>
<thead>
<tr>
<th>Nominal voltage (kV)</th>
<th>Phase-to-phase exposure</th>
<th>Phase-to-ground exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>phase-to-phase</td>
<td>Avoid Contact</td>
<td>Avoid Contact</td>
</tr>
<tr>
<td><strong>m</strong></td>
<td><strong>ft</strong></td>
<td><strong>m</strong></td>
</tr>
<tr>
<td>0.50 to 0.300</td>
<td></td>
<td>0.33</td>
</tr>
<tr>
<td>0.301 to 0.750</td>
<td></td>
<td>0.63</td>
</tr>
<tr>
<td>0.751 to 5.0</td>
<td></td>
<td>0.65</td>
</tr>
<tr>
<td>5.1 to 15.0</td>
<td></td>
<td>0.77</td>
</tr>
<tr>
<td>15.1 to 36.0</td>
<td></td>
<td>0.84</td>
</tr>
<tr>
<td>36.1 to 46.0</td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td>46.1 to 72.5</td>
<td></td>
<td>1.20</td>
</tr>
</tbody>
</table>

¹ Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 corresponding to the altitude of the work.

² For single-phase systems, use voltage-to-ground.
### TABLE R-7-ALTERNATIVE MINIMUM APPROACH DISTANCES FOR VOLTAGES OF MORE THAN 72.5 KV 1 2 3

[In meters or feet and inches]

<table>
<thead>
<tr>
<th>Voltage range phase to phase (kV)</th>
<th>Phase-to-ground exposure</th>
<th>Phase-to-phase exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>72.6 to 121.0</td>
<td>1.13 m</td>
<td>3.71 ft</td>
</tr>
<tr>
<td>121.1 to 145.0</td>
<td>1.30 m</td>
<td>4.27 ft</td>
</tr>
<tr>
<td>145.1 to 169.0</td>
<td>1.46 m</td>
<td>4.79 ft</td>
</tr>
<tr>
<td>169.1 to 242.0</td>
<td>2.01 m</td>
<td>6.59 ft</td>
</tr>
<tr>
<td>242.1 to 362.0</td>
<td>3.41 m</td>
<td>11.19 ft</td>
</tr>
<tr>
<td>362.1 to 420.0</td>
<td>4.25 m</td>
<td>13.94 ft</td>
</tr>
<tr>
<td>420.1 to 550.0</td>
<td>5.07 m</td>
<td>16.63 ft</td>
</tr>
<tr>
<td>550.1 to 800.0</td>
<td>6.88 m</td>
<td>22.57 ft</td>
</tr>
</tbody>
</table>

1. Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 corresponding to the altitude of the work.

2. Employers may use the phase-to-phase minimum approach distances in this table provided that no insulated tool spans the gap and no large conductive object is in the gap.

3. The clear live-line tool distance shall equal or exceed the values for the indicated voltage ranges.

### TABLE R-8-DC LIVE-LINE MINIMUM APPROACH DISTANCE WITH OVERVOLTAGE FACTOR 1

[In meters]

<table>
<thead>
<tr>
<th>Maximum anticipated per-unit transient overvoltage</th>
<th>Distance (m) maximum line-to-ground voltage (kV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 400 500 600 750</td>
<td></td>
</tr>
<tr>
<td>1.5 or less ...............................................</td>
<td>1.12 1.60 2.06 2.62 3.61</td>
</tr>
<tr>
<td>1.6 .............................................................</td>
<td>1.17 1.69 2.24 2.86 3.98</td>
</tr>
<tr>
<td>1.7 .............................................................</td>
<td>1.23 1.82 2.42 3.12 4.37</td>
</tr>
<tr>
<td>1.8 .............................................................</td>
<td>1.28 1.95 2.62 3.39 4.79</td>
</tr>
</tbody>
</table>

1. The distances specified in this table are for air, bare-hand, and live-line tool conditions. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 corresponding to the altitude of the work.
LP - Gas Storage

§1706. LP-Gas Fired Space Heaters.
Liquefied petroleum gas (LP-Gas) is sometimes used on job sites to provide fuel for temporary heating devices.

LP-Gas systems must have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type. All cylinders must be DOT approved.

Rules for inside storage (under construction standards) are simple -- it is not allowed!

Note: Under industry standards, up to 300 pounds of LP-Gas may be stored, with adherence to specific safety procedures, is allowed.

Rules for outside storage requires that containers be in a suitable ventilated enclosure or otherwise protected against tampering. At least one approved portable fire extinguisher having a rating of not less than 20-B:C must be readily available.

The distances from buildings or groups of buildings that containers must be stored are as follows:

<table>
<thead>
<tr>
<th>Quantity of LP-Gas Stored</th>
<th>Distance in Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 lbs or less</td>
<td>0</td>
</tr>
<tr>
<td>501 to 6,000 lbs</td>
<td>10</td>
</tr>
<tr>
<td>6,001 to 10,000 lbs</td>
<td>20</td>
</tr>
<tr>
<td>over 10,000 lbs</td>
<td>25</td>
</tr>
</tbody>
</table>

Storage must not be near building openings or vehicular traffic.
§1706. LP-Gas Fired Space Heaters
When LP-Gas is used for temporary heating on units that provide over 7,500 BTU per hour or use containers greater than 2.5 pounds maximum water capacity [nominal 1 pound LP-Gas capacity], the following will apply:

a. Container valves, connectors, regulators, manifolds, piping and tubing must not be used as structural supports for the heaters.

b. The LP-Gas containers and all associated equipment including hoses must be located so as to minimize exposure to high temperatures or physical damage.

c. The maximum water capacity of individual containers must be 245 pounds [nominal 100 pound LP-Gas capacity].

Heaters that are not integral heater-container units, which are connected by hose to the LP-Gas, must be at least 6’ from the container. Blower and radiation type heaters must not be directed toward the container or any other unit within 20 feet. Heaters specifically designed for attachment to the container are permitted as long as the heat is not directed to the LP-Gas container.
Machine Guarding

Machine Guarding

Most injuries that occur when operating a machine happen at the point of operation – the point on a machine where the actual work (cutting, bending, and spinning) occurs. This is also the point where guards can protect fingers and hands exposed to that danger. Machine guarding also protects employees from other dangers such as flying pieces of metal, sparks, gears, belts, and rotating parts.

The most common types of machines on job sites are power tools which often have guards to prevent injury.

Accident prevention in this area is a function of machine design – engineering controls – and operator training. Types of machine guarding are almost as numerous as types of machines – the most common being a physical barrier to prevent accidental insertion of body parts. Guards are vital for safety reasons and machine guards designed into a machine should never be altered or removed. The speed and tremendous forces involved in modern machines are such that severe injury or even death could occur without warning and without even slowing the machine down.

Training and proper work methods go a long way toward reducing machine accidents. Like all safeguards, there is generally a way to bypass safety features that are engineered into machines. This is sometimes done to increase speed or just to make one's job easier. This could result in a tragic, avoidable accident. The few seconds saved could cause a lifetime of grief. **Do not bypass safety systems.**

Operate all machines according to the instructor's manual and follow all safety procedures.
Machinery

Spinning, pounding, and moving – gears, pulleys, levers – electricity, fuel, and hydraulics – action, reaction, force: danger! Machinery takes energy and performs a task or a multitude of tasks. Machinery, from a safety standpoint, is a collection of individual, simple machines (pulleys, gears, etc.) combined to work in harmony to accomplish a specific job.

The danger is obvious: the power, speed, movement, and momentum of machinery is not going to be altered by something as insignificant as an employee’s finger, hand, or even body.

How does one deal with the dangers of machinery?

1. **Never** operate any machinery until you have received proper training and you thoroughly understand safety procedures as well as procedures to follow for adjustments, power interruption, jamming, lubrication, and inspection.

2. Ensure the guarding systems are in place, functioning properly, and have not been altered or removed.

3. If a hazard assessment of the machinery operation dictates specific personal protective equipment (PPE), wear it!

4. From purely a safety standpoint, think of any power operated item with moving parts as machinery. This would include items as diverse as a small electric drill to an 80,000 pound tractor-trailer.
Material Storage

29 CFR 1926.250 - General requirements for storage

General Requirement for Storage

1. All materials stored in tiers shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling or collapse.

2. Maximum safe load limits of floors within buildings and structures, in pounds per square foot, shall be conspicuously posted in all storage areas, except for floor or slab on grade. Maximum safe loads shall not be exceeded.

3. Aisles and passageways shall be kept clear to provide for the free and safe movement of material handling equipment or employees. Such areas shall be kept in good repair.

4. When a difference in road or working levels exist, means such as ramps, blocking, or grading shall be used to ensure the safe movement of vehicles between the two levels.

Material Storage

1. Material stored inside buildings under construction shall not be placed within 6 feet of any hoistway or inside floor openings, nor within 10 feet of an exterior wall which does not extend above the top of the material stored.

2. Each employee required to work on stored material in silos, hoppers, tanks, and similar storage areas shall be equipped with personal fall arrest equipment meeting the requirements of Fall Protection of this Safety Manual.

3. Noncompatible materials shall be segregated in storage.
   a. Bagged materials shall be stacked by stepping back the layers and cross-keying the bags at least every 10 bags high.

4. Materials shall not be stored on scaffolds or runways in excess of supplies needed for immediate operations.

5. Brick stacks shall not be more than 7 feet in height. When a loose brick stack reaches a height of 4 feet, it shall be tapered back 2 inches in every foot of height above the 4-foot level.

6. When masonry blocks are stacked higher than 6 feet, the stack shall be tapered back one-half block per tier above the 6-foot level.

7. Used lumber shall have all nails withdrawn before stacking.

8. Lumber shall be stacked on level and solidly supported sills and shall be so stacked as to be stable and self-supporting.
Mobile Equipment

Our mobile equipment operators must be aware of the hazards associated with their use. In addition to powered industrial trucks, which are addressed in our powered industrial truck program, mobile equipment would include items such as tractors, haulage vehicles, and earthmoving equipment.

Only authorized persons will be allowed to operate our mobile equipment and this authorization will be issued after employees have completed appropriate training for the specific item of mobile equipment, obtained required licenses and/or certification, and demonstrated through proficiency testing that they are capable of safely operating the equipment.

Prior to use [at the beginning of each shift] the mobile equipment operator will inspect his item of equipment following the guidelines of the owner/operator manual which must be kept with the vehicle. Emphasis will be placed on clutch, braking systems, steering, lighting, and control systems. Defects in these items will be reported immediately to the supervisor. If the piece of mobile equipment cannot be safely operated, it will be locked out of service using our standard lockout/tagout procedures.

Because of their power; weight; size; restricted visibility; and, often, high center of gravity, operation of mobile equipment takes skill and attention to detail. One moment of inattention can lead to a major mishap in an instant.

As a general rule passengers are not to ride on our mobile equipment unless:

1. Riding is a function of a job task and is authorized by a supervisor, and,
2. The piece of mobile equipment is equipped to accommodate riders safely, i.e., has a seat and seat belt for a second (or more) person(s).

Operators and other persons will access and exit the mobile equipment using steps, grab bars, attached ladders, or systems designed into the vehicle. No person is allowed to jump on or off this type of equipment.

All mobile equipment will be fitted with a working back-up alarm which will be checked by the operator as part of the safety inspection.

If the mobile equipment does not have an enclosed cab, at a minimum, approve eye protection will be worn. Additionally, depending on the need, the following PPE will be used if needed: steel toed work boots; hard hats, hearing protection, gloves, and skin protection (long sleeve shirts).
Mobile equipment rules of use:

1. Before starting the engine, seat belts will be fastened and adjusted for proper fit.

2. The equipment will only be used in the manner for which it was designed and intended for.

3. Loads will be secured, centered, and within the vehicle’s established load limits.

4. Because of the equipment’s size and configuration, if the operator does not have a clear view of where he/she is heading, flags, markers, or a ground guide will be used using standard hand signals for directions.

5. During fueling operations, the following procedures will be implemented:
   a. The engine will be turned off.
   b. The operator and any riders will exit the vehicle.
   c. No smoking or open flames will be within the immediate area.
   d. The operator will ensure that the gasoline or diesel fuel nozzle makes contact with the filling neck of the tank before filling.
   e. All vehicle fluids will be checked before restarting the engine.
NFPA 70E

**Standard for Electrical Safety in the Workplace**


A national consensus standard, such as NFPA 70E-2012, however, can sometimes be relevant to a general duty clause citation in the sense that the consensus standard may be used as evidence of hazard recognition and the availability of feasible means of abatement. The general duty clause, Section 5(a)(1) of the Occupational Safety & Health Act, is violated if an employer has failed to furnish a job site that is free from recognized hazards causing or likely to cause death or serious physical harm. The general duty clause is used where there is no standard that applies to the particular hazards involved.

All electrical work will be done in compliance with the National Electric Code (NEC), OSHA standards, and NFPA 70E. Both OSHA standards and NFPA 70E deal with worker safety, while the NEC deals with the design, installation, and inspection of electrical installations.

A copy of NFPA 70E will be readily available for reference, training, and employee use.

**Training:**

All employees who face electrical hazards that are not reduced to a safe level by the applicable electrical installation requirements will be trained in safety-related work practices and procedural requirements as necessary to provide protection from the electrical hazards associated with the job assignments. Employees will be trained to identify and understand the relationship between electrical hazards and possible injury.

Training will be in a classroom and/or on-the-job and the degree of training will be determined by the risk to the employee.

Employees will receive training in emergency procedures including methods of release from contact with exposed energized electrical conductors or circuit parts, methods of first aid, and CPR if the duties warrant such training. Blaine L. Nurse, our Safety Director, will certify that employees have been trained in approved methods of resuscitation annually.
Training for Qualified Persons:

Note: A qualified person has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

1. Qualified persons must be trained and knowledgeable of the construction and operation of equipment or a specific work method and to recognize and avoid the electrical hazards with respect to the equipment or work methods.
   
a. Qualified persons will be familiar with the proper use of special precautionary techniques, PPE, including arc-flash, insulating and shielding materials, and insulated tools and test equipment.
   
   Note: A person can be qualified with respect to certain equipment and methods but still be unqualified for others.
   
b. Qualified persons will be permitted to work with the Limited Approach Boundary of exposed energized electrical conductors and circuit parts operating at 50 volts or more and will be trained in the following:
   
   1. The skills and techniques necessary to distinguish exposed energized electrical conductors and circuits parts from other parts of electrical equipment
   2. The skills and techniques necessary to determine the nominal voltage of exposed energized electrical conductors and circuit parts.
   3. The approach distances specified in Table 130.2(c) and the corresponding voltages to which the qualified person will be exposed.
   4. The decision-making process necessary to determine the degree and extent of the hazard and the PPE and job planning necessary to perform the task safely.

c. If undergoing OJT and, in the course of the OJT has demonstrated an ability to perform duties safely under the direct supervision of a qualified person, this person will be considered qualified for the performance of these duties.

d. Tasks performed less often that once per year will require retraining before performance of the work practices involved.

e. Qualified persons will be trained to select an appropriate voltage detector and demonstrate how to use a device to verify the absence of voltage, including interpreting indications provided by the device. They will be trained to understand all limitations of each specific voltage detector that may be used.
Training for Unqualified Persons:
Unqualified persons will be trained in and be familiar with any of the electrical safety related practices that are necessary for their safety.

NOTE: Unqualified persons will not be permitted to enter spaces that are required to be accessible to qualified employees only unless the electric conductors and equipment involved are in an electrically safe work condition.

Retraining:
Retraining will be given when.

a. Supervisors or annual inspections indicate that the employee is not complying with the safety-related work practices.

b. New technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different than those the employee would normally use.

c. If the employee must employ safety-related work practices that are not normally used during regular job duties.

Training Documentation:
The company will document that each employee has received the training above after the employee demonstrates proficiency in the work practices involved and will be maintained for the duration of the employee’s employment. Training documentation will contain the employee’s name and dates of training.

Host Employer Responsibilities:
The host employer will inform contract employers of:

a. Known electrical hazards that are related to the contract employer’s work that might not be recognized by the contract employer or its employees.

b. Information about the employer’s installation that the contract employer needs to make assessments.

The host employer will report observed contract employer related violations (dealing with electrical work) to the contract employer.
Contract Employer Responsibilities:

a. The contract employer will ensure that each of its employees is instructed in the hazards communicated to the contractor employer by the host employer. This instruction is in addition to the basic instruction required by NFPA 70E.

b. The contract employer will ensure that each of its employees follow the work practices required by NFPA 70E and safety-related work rules required by the host employer.

c. The contractor employer will advise the host employer of:
   1. Any unique hazards presented by the contract employer’s work.
   2. Any unanticipated hazards found during the contract employer’s work that the host employer did not mention.
   3. The measures the contractor took to correct any violations reported by the host employer and prevent such violations from recurring in the future.

Electrical Safety Program:
The employer will implement and document an overall safety program that directs activity appropriate for the voltage, energy level, and circuit conditions.

Safety related work practices are only one component of an overall an electrical safety program.

Electrical Safety Program Procedures:
The program will address safety related work practices for working within the Limited Approach Boundary. Program elements found in Annex E to NFPA 70E would be included such as evaluations, anticipating unexpected events, electrical flash arc hazard analysis, and the fact that all electrical parts are considered live until proven otherwise.

Risk/Hazard Evaluation Procedures:
Risk/hazard evaluation procedures are to be used before work is started within the Limited Approach Boundary of energized electrical conductors and circuit parts operating at 50 volts or more or where an electrical hazard exists. An example of Hazard/Risk Evaluation Procedures as well an example of a Hazard Risk Analysis Evaluation Flow Chart is found in Annex F to NFPA 70E. It would contain event severity, frequency, probability and avoidance to determine the level of safe practices to be employed.
Pre-Job Briefings for Routine Work:

Prior to performing routine work (routine work is not complicated or particularly hazardous and the employee should be able to recognize and avoid hazards presented), a job briefing will be held before each job and include all employees involved. Topics would include hazards associated with the job, work procedures involved, special precautions, energy source controls, and PPE requirements.

Test Instruments and Equipment:

All test instruments, equipment, and their accessories will be rated for the circuits and equipment to which they will be connected. Further they will meet the requirements of ANSI/ISA-66010-1, *Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements*, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 volts and below.

Operations Verification:

When test instruments are used for the testing for the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument will be verified before and after an absence of voltage test is performed.

Insulating PPE Maintenance and Use:

Electrical protective equipment will be maintained in a safe, reliable condition. Insulating equipment will be inspected for damage before each day’s use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves will be given for an air test along with the inspection.

Maximum test intervals for rubber insulating equipment will be in accordance with NFPA 70E Table 130(c)(6)(c). Time frames for testing would include: 1) Blankets-before first issue/every 12 months, thereafter, 2) Gloves-before first issue and every 6 months, and, 3) Sleeves-before first issue and every 12 months. Covers and line hose will be tested if insulating value is suspect.

Energized Electrical Work Permit:

Reference Annex J to NFPA 70E. Energized Electrical Work Permits are not part of NFPA 70E. Within Annex J, however, are both an example of an Energized Electrical Work Permit and a Flow Chart to illustrate items to consider when determining the need for the permit.

In every case, if the voltage level is \( \geq 50 \text{ volts} \) AND there are exposed live parts, an Energized Electrical Work Permit is required.
In Part I [to be completed by the Requester] of the Energized Electrical Work Permit will include:

1. Job/Work Order Number.
2. Description of the work to be done.
3. Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage.
4. Requester Name, Title, and Date.

In Part II (to be completed by the Electrically Qualified persons doing the work) of the Energized Electrical Work Permit will include:

1. Detailed job description procedure to be used in performing the above detailed work.
2. Description of the Safe Work Practices to be employed.
3. Results of the Shock Hazard Analysis.
5. Results of the Arc Flash Hazard Analysis.
7. Necessary personal protective equipment to safely perform the assigned task.
8. Means employed to restrict the access of unqualified persons from the work area.
9. Evidence of completion of a Job Briefing including discussion of any job-related hazards.
10. A signed and dated agreement by each Electrical Qualified Person that the above work can be done safely.

In Part III of the Energized Electrical Work Permit will include:

Signed and dated approval(s) by persons such as:

1. Manufacturer Manager
2. Safety Manager
3. General Manager
4. Maintenance/Engineering Manager
5. Electrically Knowledgeable Person

**Illumination of Work Areas:**

Employees will not enter spaces containing electrical hazards unless illumination is provided that enables the employees to perform the work safely. Where lack of illumination or an obstruction precludes observation of the work to be performed, employees will not perform any task with the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.
Non-Ionizing Radiation Hazards

Note: All climbers, as well as any other employees with potential exposure to non-ionizing radiation hazards, have been trained for working in radio frequency environments and must use RF monitors.

Non-ionizing radiation is electromagnetic radiation that does not have enough energy to completely remove an electron from an atom when passing through matter.

Ionizing radiation is high-energy radiation capable of producing ionization in substances through which it passes, i.e., electromagnetic waves that are energetic enough to detach electrons from atoms or molecules.

Radiofrequency (RF) and microwave (MW) radiation are non-ionizing electromagnetic radiation.

Electromagnetic radiation is restricted to that portion of the spectrum commonly defined as the radio frequency region, which for our purposes also includes the microwave frequency region.

RF in the frequency ranges 3 kilohertz (kHz) - 300 Megahertz (MHz) and MW is in the frequency ranges 300 MHz - 300 gigahertz (GHz).

The hazards associated with RF and MW are limited to heating of tissue and/or cells in the body, damage to the eyes (cataracts), reduced sperm count, and shocks or burns. The preceding hazards will only be possible at ten times the exposure limit.

Per 29 CFR 1926.54, Nonionizing Radiation, employees shall not be exposed to microwave power densities in excess of 10 milliwatts per square centimeter.

To prevent unnecessary RF and MW exposures at any level, access to the work site will be controlled by signage and fences, and access will be allowed only to persons trained in RF and MW safety procedures.

Signage for possible exposure above 10 times the PEL is as follows:
Signage for possible exposure from the action level to time the PEL is as follows:

![CAUTION Sign](image)

Engineering controls will be utilized before the required use of PPE.

Engineering controls would include, if possible, turning off and locking out transmitters both on the tower on which we are working, as well as nearby towers which would expose our employees to unacceptable radiation exposures.

If the transmitters cannot be completely shut down (locked-out), an attempt will be made to lower their output to put create a safe working space.

If the above cannot be accomplished, employees will be provided, and required to use, specialized protective clothing and eye wear specifically designed to prevent RF radiation from reaching the skin and eyes of employees.

Following is a link to Federal Communications Commission, Office of Engineering & Technology, OET Bulletin 56, August 1999, Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields: [Click Here](#)
## Pest Control Equipment

### Spraying Operations Hazards:

<table>
<thead>
<tr>
<th>Primary hazards include</th>
<th>Solutions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical exposure</td>
<td>Read and obey Safety Data Sheets (SDS) form information/Implement effective hazard communication program that includes employee training.</td>
</tr>
<tr>
<td>Eye injury</td>
<td>Wear protective goggles when using sprayers.</td>
</tr>
<tr>
<td>Hearing loss</td>
<td>Wear ear protection (ear plugs or ear mufflers) when using power equipment.</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>Maintain comfortable harness setting/Use safe-lifting techniques.</td>
</tr>
<tr>
<td>Respiratory Protection:</td>
<td>Face filter mask (recommended).</td>
</tr>
</tbody>
</table>

Only trained and authorized personnel may operate spraying equipment. Prior to operating a powered sprayer, it must be inspected in accordance with the operator’s manual. The operator’s manual should be readily available at the workplace. The inspection would include guards, shields, fluid levels, and the presence of “danger”, “warning” and “caution” decals. Ensure the controls, gauges, and dials are in working order. Know the purpose of all the controls, gauges, and dials. Never operate a sprayer with missing or defective protective devices. Before the start of each workday inspect the sprayer in accordance with the manufacturer’s recommendations and repair or replace any loose, broken, missing, or damaged parts all parts.
Fuel Powered Backpack Blower/Sprayer

The fuel powered backpack blower/sprayer owner’s manual should be kept with the sprayer and be available for ready reference.

Sturdy, snug fitting clothing that allows freedom of movement is recommended. Avoid wearing anything that could be drawn into the air intake.

Before work:

Inspect the blower/sprayer and adjust the carrying harness to suit your size. Never operate the blower/sprayer if it is damaged in any way.

Fuel the machine in a well-ventilated area, outdoors, before it is placed on the operator.

If assistance is required to put the unit on your back after starting, the engine speed should be at idle during this brief time and the assistant should be clear of the outlet nozzle and exhaust.

Use:

Keep bystanders at least 50 feet away during use.

Do not walk backward while using the sprayer.

When spraying, stand so that the wind blows away from you and bystanders.

When finished, clean the liquid container.

Emergency:

If the blower/sprayer catches fire, throw it off immediately by releasing the spring catches on both side of the harness. It is advisable to practice this procedure before an emergency occurs.

Hand Held Sprayers

Hand held sprayers should be inspected before use per the owner’s manual. Work upwind and ensure the SDS for the chemical product being used is readily available. After use, the sprayer should be properly cleaned to eliminate the possibility of chemical contamination during subsequent use. Appropriate PPE would be:

1. Eye Protection with side shields
2. Gloves
3. Appropriate footwear
4. Dust mask
Pile Driving

General Requirements:

Boilers and piping systems which are a part of, or used with, pile driving equipment shall meet the applicable requirements of the American Society of Mechanical Engineers, Power Boilers (section I). Additionally, all pressure vessels which are a part of, or used with, pile driving equipment shall meet the applicable requirements of the American Society of Mechanical Engineers, Pressure Vessels (section VIII).

Overhead protection, which will not obscure the vision of the operator, shall be provided. This overhead protection will be the equivalent of 2-inch planking or other solid material of equivalent strength.

Stop blocks shall be provided for the leads to prevent the hammer from being raised against the head block. Also, a blocking device, capable of safely supporting the weight of the hammer, will be provided for placement in the leads under the hammer at all times while employees are working under the hammer. Guards will also be provided across the top of the head block to prevent the cable from jumping out of the sheaves.

When the leads must be inclined in the driving of batter piles, provisions shall be made to stabilize the leads.

Fixed leads will be provided with a ladder, and adequate attachment points, so that the loft worker may engage his safety belt lanyard to the leads. If the leads are provided with loft platforms, such platform will be protected by standard guardrails.

Steam hose leading to a steam hammer or jet pipe will be securely attached to the hammer with an adequate length of chain or cable to prevent whipping in the event the joint at the hammer is broken. Air hammer hoses will also be provided with the same protection as required for steam lines. This safety chain or cable must be at least 1/4-inch in diameter and will also be provided for each hose connection to prevent the line from thrashing around in case the coupling becomes disconnected.

Steam line controls will have two shutoff valves. One must be a quick-acting lever type within easy reach of the hammer operator.

Guys, outriggers, thrustouts, or counterbalances must be provided as needed to maintain stability of pile driver rigs.
Pile Driving from Barges and Floats:
Barges or floats supporting pile driving operations will meet the applicable requirements of CFR 29 1926.605 - Marine Operations and Equipment.

Pile Driving Equipment:
Engineers and winchmen will accept signals only from the designated signalmen.

All employees must be clear when piling is being hoisted into the leads.

When piles are being driven in an excavated pit, the walls of the pit must be sloped to the angle of repose, or sheet-piled and braced.

When steel tube piles are being "blown out", employees will be kept well beyond the range of falling materials.

When it is necessary to cut off the tops of driven piles, pile driving operations need to be suspended. The exception is when the cutting operations are located at least twice the length of the longest pile from the driver.

When driving jacked piles, all access pits will be provided ladders and bulkheaded curbs to prevent material from falling into the pit.
Pipe Tie-Ins

Prior to a pipe tie-in, the flow of gas, steam, vapor, and liquid must be halted. It is absolutely vital to know the ramifications of halting the flow within the pipe, particularly in hazardous facilities such as chemical plants, refineries, and other facilities which have a higher degree of hazard than normal work sites. In these types of facilities, prior to any blocking of flow through pipes, permission will be obtained from the facility operator. Failure to follow this specific rule could result in a major catastrophe.

Before actual tie-in is attempted, the original pipe that has been taken out of service (by positive means such as valve, block, or tag) will be purged of contaminants, and gas tested, if appropriate.

At the completion of the tie-in, the facility operator will be notified before flow is restored to the pipe.

It is vital to know the chemical and physical properties of the material within the pipe so an appropriate fire extinguisher can be selected and available. This information will also allow for hazard assessment and PPE selection.
Post-Tensioning Operations

29 CFR 1926.701 - General requirements

OSHA has little to say about post-tensioning operations other than that which is found in CFR 1926.701(c) which states that:

a. No employee (except those essential to the post-tensioning operations) shall be permitted to be behind the jack during tensioning operations.

b. Signs and barriers shall be erected to limit employee access to the post-tensioning area during tensioning operations.

However, by following the below guidelines and procedures, the hazards of post-tensioning operations can be controlled.

1. Concrete pre-stressing and post-tensioning operations should be done according to the specifications and instructions of a professional engineer, and a copy of these plans and instructions will be available on site while the work is being done if required by the Safety Manager or General Contractor.

2. Stressing operations must be carried out under the direction of a competent person.

3. Employees involved in pre-stressing or post-tensioning must be instructed in and follow safe work procedures.

4. Appropriate eye protection must be worn by all employees involved in grouting, stressing and cable trimming operations.

5. Tendons, including bars, strands and wires, used for tensioning purposes must be protected against physical damage and corrosion during handling, transportation and storage.

6. Strand couplers must not be reused until they have been inspected by a qualified person and determined to be safe for reuse.

7. Welding, burning, or other work is not permitted on any surface where strands have been strung or tensioned unless proper care is taken to protect the strands from sparks or other heat sources and from stray electric currents.

8. Visual or audible signaling devices must be provided and used in the area of tensioning operations to warn approaching employees.

9. Employees not directly involved in tensioning or de-tensioning operations must be kept clear of the danger area and must remain clear until operations are completed and the visual and/or audible warning signals are turned off or removed.
10. Strand elongation and strand deflection must be measured in a way that does not expose the employee to a risk of injury.

11. During pre-stressing operations employees must be protected by guards or other suitable devices at the tensioning ends and anchoring points to contain the flying strands and the strand vises in the event of strand failure.

12. Guards must be fabricated from mild steel plate, not less than ¼” thick, or ¾” thick or better plywood that provides at least equivalent strength.

13. Deflecting devices must be designed to prevent slip-out and to allow backing off of strands from the deflected position.

14. Written de-tensioning procedures should be prepared by a professional engineer and followed so that employees are not exposed to danger from equipment or strand failure or structural failure. These procedures would include methods to safeguard the operator and other employees from hazards while cutting strands.

15. Strand vises and hydraulic equipment and components must be used and maintained in accordance with the manufacturer’s instructions.

16. Strand vises must not be reused until they have been inspected by a competent person and determined to be safe for reuse.

17. Damaged or worn vises and hydraulic equipment will be removed from service.

18. The supervisor or competent person must ensure that operators are given the maximum allowable values for both stretch of the tendon and hydraulic pressure at the pump.

19. If there is a significant difference between the expected value and the measured value for either stretch of a tendon or hydraulic pressure at the pump, the employees must stop operations on that particular tendon and consult with the professional engineer in charge to obtain instructions on how to proceed.

20. Each jack pressure gauge must be checked at frequent intervals against a master gauge, and the site engineer must be furnished with a calibration chart.

21. Only hydraulic pressure hoses with self-seating couplings should be used, and care must be taken to ensure that end connections are not subjected to bending stresses at any time.
22. Hydraulic equipment must have a bypass valve which is adjusted and maintained to limit the hydraulic pressure so that the tension exerted by the jack on the tendon does not exceed 90% of the minimum specified ultimate strength of the tendon.

23. Hydraulic hoses must be inspected for leaks or bubbles after each stressing operation and any damaged hoses should be immediately removed from service.

24. The hydraulic system must be regularly inspected for oil leaks and other damage and necessary corrective action taken.

25. Where adequate clearance exists, the platform width at jacking locations must be at least 32”.

26. Each blowout must be reported to the structural design engineer, investigated and logged.

27. A copy of the logged entry must be available on site for reference purposes.

28. If there is risk of injury from handling coiled post-tensioning tendons, a suitable coil handling device must be used.

29. All jacks must be secured to suitable anchors before they are installed on a cable for tensioning, and must not be unsecured before they are removed from the cable, if a falling jack could endanger employees.
§5042. Safe Operating Practices
§5043. Inspections
§5044. Alloy Steel Chain Slings
§5048. Synthetic Web Slings

All the applicable provisions of Cranes and Derricks in Construction, above, apply to Rigger Training, Qualification and Certification.

Rigger training should incorporate familiarization with rigging, hardware, slings and safety issues associated with rigging, lifting loads and lift planning. Training should include classroom, hands-on training, and exams. Hands-on trainings should include proper inspection, use, selection and maintenance of loose gears (slings, shackles, hooks, etc.).

Additionally, when working within the petrochemical industry, the provisions of API2D 2-3 and API2D 3.14 apply. Specifically, only personnel with training and experience who have completed a rigger training program (including crane operators and inspectors) may attach or detach lifting equipment to loads or lifting loads.

Prior to use on each shift, rigging equipment, including slings and all fastenings and attachments, will be inspected for damage or defects by a qualified person. Additional inspections will be performed during sling use and where service conditions warrant, to ensure that it is safe.

Defective/damaged equipment including slings and rigging will not be used and will be immediately removed from service.

Rigging equipment, when not in use, will be removed from the immediate work area and stored properly so as not to present a hazard to employees.

Under no circumstances may any employee be under a suspended load.

Cal/OSHA Table S-1 contains indicates rated capacities for various types of slings and grommets, safe working loads for shackles, number and spacing of U-Bolt Wire Rope Clips, and maximum allowable wear at any point of link.
Only alloy steel chain slings may be used for hoisting.

Welded alloy steel chain slings must have permanently affixed durable identification stating size, grade, rated capacity, and sling manufacturer. Of course, hooks, rings, oblong links, pear-shaped links, welded or mechanical coupling links, or other attachments, when used with alloy steel chains, will have a rated capacity at least equal to that of the chain.

Rigging equipment will not be loaded in excess of its recommended safe working load and load identification will be attached to the rigging.

Specific requirements for use and inspection of alloy steel chains, wire rope, natural rope and synthetic fiber, synthetic webbing, and shackles are found in the above standards.
Scissor-Lift Fall Protection

This project is committed to the philosophy of 100% continuous fall protection whenever workers are exposed to fall hazards of six feet (6’) or greater. **A monitor system is not an acceptable form of fall protection on any Skanska project.** In the event any deviation from this fall protection procedure is required, the activity must be approved by the Environmental, Health and Safety Director and Account Executive.

What type of fall protection is required for scissor-lifts? This apparently simple question has a relatively simple answer. However, how it is derived is somewhat complicated because OSHA does not have a standard to deal with this issue.

Clearly, there is a hazard – falling from height. However, fall protection while using a scissor-lift is not covered in the fall protection, scaffold and ladder fall protection, nor aerial lift fall protection standards.

Section 5(a)(1) of the Occupational Safety and Health Act, commonly referred to as the General Duty Clause is a “catch all clause” which states: "Each employer shall furnish to each of its employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

In the absence of a specific standard relating to a safety or health risk, the above is the reference OSHA will cite.


Fall protection is provided by employees maintaining firm footing on the lift and using guardrails. Under no circumstances are employees to place ladders or other items on the lift to extend their reach. Per ANSI/SIA standards, with which OSHA concurs, "Use of planks, ladders, or any other device on the aerial platform for achieving additional height or reach shall be prohibited." Use of these items negates the value of the guardrail system and may possibly exceed the scissor-lift’s design limits for stability.

Further, personnel are not to tie off to items adjacent to the lift – the most obvious reasons are: the anchorage point may not be sufficient and movement of the lift would pull the employee out of and off of the lift.
If, for some reason, guardrails are not being provided for specific operational reasons, then a personal fall protection system may be used which would include an anchorage point, lanyard and safety harness.

However, this option is severely limited because its design would have to be approved by a registered engineer or the scissor-lift manufacturer would have to approve the use of the lift as an anchorage.

Under ideal conditions, rarely found on a construction site, scissor-lifts may be moved with the lift extended. However, should obstacles, debris, drop-offs, holes, depressions, ramps or other hazards be present, the lift must be lowered prior to movement.

The gates of aerial lifts will be properly engaged whenever the lift is in use. Travel in aerial lifts is prohibited while platform is elevated.

Aerial lifts shall not be used as material hoists unless the load is contained within the basket and meets the lift’s rated capacity. The lift shall not be modified for hoisting material unless the manufacturer approves it in writing.

Use proper fall prevention/protection in accordance with manufacturer’s requirements in all boom supported elevating work platforms.

Personal Fall Arrest Systems will consist of a full-body harness, double lanyard with shock absorbing device or retractable lifeline, locking snap hook and anchorage points meeting OSHA regulations and ANSI requirements.
Signs & Tags

§3340. Accident Prevention Signs
When appropriate, signs and tags will be used to warn of specific hazards. Types of signs are classified according to their use, and their design is regulated by standard. All personnel will be instructed in the meaning of the various types of signs. Sign usage includes:

a. Danger Signs (Red, Black & White): indicates immediate danger and denotes that special precautions are necessary.

b. Caution Signs (Yellow Background): warns of a potential hazard or cautions against an unsafe practice.

c. Safety Instruction Signs (White Background): used to provide general instructions and suggestions relative to safety measures.

The wording on signs must be positive, clear, concise, and easy to understand or the sign loses its value.

Accident prevention tags are to warn of hazardous or potentially hazardous conditions that are out of the ordinary, unexpected, or not readily apparent. They are not used where signs, guarding or other positive means of protection are used. All tags must have:

A signal word: “Danger,” “Caution,” “Warning,” “BIOHAZARD” (or its symbol) and a major message, and

A major message: “High Voltage” or “Do not start”. (Major messages indicate the specific hazardous condition.)

The color scheme is basically the same as for signs:
red = danger
yellow = caution
orange = warning
fluorescent orange = biological hazard

Danger Tags: indicate an immediate hazard that presents a threat of death or serious injury.

Caution Tags: indicate a non-immediate hazard or unsafe practice that presents a lesser threat of injury.

Warning Tags: indicate a hazard between “Danger” and “Caution”.

Biohazard Tags: indicate the actual or potential presence of a biological hazard and identify equipment, rooms, containers, etc. that may be contaminated.

Pay attention to signs and tags, and realize that they are in place for only one reason – your safety.
Slings

29 CFR 1926.251 - Rigging equipment for material handling

A sling is the assembly which connects a load to the material handling equipment. There are many types of slings including, but not limited to:

a. Bridle wire rope sling
b. Cable laid endless sling-mechanical joint sling
c. Cable laid grommet-hand tucked sling
d. Cable laid rope sling-mechanical joint sling
e. Strand laid endless sling-mechanical joint sling
f. Strand laid grommet-hand-tucked sling

Additionally, slings are made of various materials such as alloy steel chain, wire rope, and natural and synthetic fiber rope. Each of these materials has their own operating limits which include not only capacity, but temperature, kinks, cuts, and specific conditions.


All slings, regardless of type, must be inspected each day before use and all fastenings and attachments must be inspected for damage or defects by a competent person. Depending on work conditions, additional inspections may be required. Damaged or defective slings will be immediately removed from service. Below are safe operating practices which must be followed:

a. Slings may not be shortened with knots or bolts or other makeshift devices.
b. Sling legs may not be kinked.
c. Slings may not be loaded in excess of their rated capacities.
d. Slings used in a basket hitch must have the load balanced to prevent slippage.
e. Slings must be securely attached to their loads.
f. Slings must be padded or protected from the sharp edges of their loads.
g. Suspended loads must be kept clear of all obstructions.
h. All employees must be kept clear of loads about to lifted and of suspended loads.
i. Hands or fingers may not be placed between the sling and its load while the sling is being tightened around the load.

j. Shock loading is prohibited.
k. A sling may not be pulled from under a load when the load is resting on it.
§1629. Stairways and Ladders

Stairways are an acceptable method for gaining access to floors and working levels of buildings and scaffolds.

**Note:** In addition to the stairways required, buildings 60 ft. or more in height or 48 ft. below ground level require an elevator.

Stairways, ramps or ladders will be provided at all points where a break in elevation of 18 inches or more occurs in a frequently traveled passageway, entry or exit.

Stairways must be installed as follows:

a. In buildings of up to three stories or 36 ft. in height, at least one stairway is required.

b. In buildings of more than three stories or 36 ft. in height, two or more stairways are required.

c. A stairway to a second or higher floor must be installed before studs are raised to support the next higher floor.

d. In steel frame buildings, a stairway must be installed leading up to each planked floor.

e. In concrete buildings, a stairway must be installed to the floor that supports the vertical shoring system.

f. Stairways shall be at least 24 in. in width and shall be equipped with stair rails, handrails, treads, and landings.

g. All guardrails railings, including their connections and anchorage, shall be capable of withstanding a load as specified in 1620(c).

h. Handrails must be 34 in. to 38 in. above the tread nosing.

i. Wooden posts shall be not less than 2 in. by 4 in. in cross section, spaced at 8-foot or closer intervals. Wooden top railings shall be smooth and of 2-in. by 4-in. or larger material. Double, 1-in. by 4-in. members may be used as top railings when certain conditions are met.

j. Railings and toeboards must be installed around stairwells.

k. The stairway shall have landings at each floor, or level, of not less than 30 in. in the direction of travel and extend at least 24 in. in width at every 12 feet or less of vertical rise.

l. Stair steps must be illuminated with at least 5-ft. candles of light and all lamps must be guarded.
Tools - Hand

§2395.45. Equipment Connected by Cord and Plug.
§3382. Eye and Face Protection.
§3557. Switches and Controls for Portable Tools.

When using hand and power tools, appropriate PPE will be used to provide protection for the eyes, skin, ears, hands, feet, and respiratory system in accordance with our PPE Program.

Any tool not in compliance with Cal/OSHA or ANSI standards will not be used. Such tools, as well as any tools found to be defective in any manner, will be identified as unsafe by tagging and removed from the job site.

All hand and power tools and similar equipment, whether furnished by the employer or the employee, shall be maintained in a safe condition.

Here are basic procedures for the use of hand tools:

1. Hand tools shall be used only for the purpose for which they are designed.
2. Hand tools will be kept clean and, where appropriate, oiled.
3. Hand tools which are damaged will not be used.
4. Hand held cutting tools will be kept sharp and will be sheathed or retracted when not in use.
5. When using a striking tool such as a hammer or chisel, safety glasses or safety goggles will be used.
6. Do not force tools.
7. If you are unfamiliar with the proper procedure for using a tool, ask your Supervisor for instruction.
8. Power tools may be operated only by those persons who are qualified by training or experience.
9. Do not alter guards on power tools; wear appropriate PPE.
10. Electrical tools must be grounded and, in the absence of permanent wiring, a Ground Fault Circuit Interrupter must be used.
11. Electric tools will not be lifted by their cords and pneumatic tools will not be lifted by their hoses.
Tools - Pneumatic Powered

29 CFR 1926.102 - Eye and face protection
29 CFR 1926.300 - General requirements
29 CFR 1926.302 - Power-operated hand tools
29 CFR 1926.102 - Eye and face protection
29 CFR 1926.300 - General requirements
29 CFR 1926.302 - Power-operated hand tools

Pneumatic powered tools must be safeguarded whenever there are hazardous employee exposures. This is especially important for point of operation guarding.

Three specific hazards associated with pneumatic powered tools which are unique to their use are noise levels, tool retention, and air hose pressure. Care must be taken to assure that noise levels are within acceptable limits (noise monitoring may be necessary) and, if required, engineering controls and/or ear protection will be employed.

Eye protection will be worn when using pneumatic powered tools in accordance with the owner/operator's manual.

1. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.

2. Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

3. All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 p.s.i. pressure at the tool shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.

4. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment which meets the requirements of 29 CFR 1926 Subpart E. This would include eye, face, hand, head, and foot protection. The 30 p.s.i. requirement does not apply for concrete form, mill scale and similar cleaning purposes.

5. The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.

6. The use of hoses for hoisting or lowering tools shall not be permitted.
7. All hoses exceeding 1/2-inch inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.

8. Airless spray guns of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch) shall be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released.

Note: In lieu of the above, a diffuser nut which will prevent high pressure, high velocity release, while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection, shall be provided.

9. Lastly, abrasive blast cleaning nozzles shall be equipped with an operating valve which must be held open manually. A support shall be provided on which the nozzle may be mounted when it is not in use.

Care must be taken to ensure that employees are not exposed to unsafe levels of respirable dust or crystalline silica.

The PEL for particles not otherwise regulated is 5.0 mg/m³. The PEL for respirable dust containing crystalline silica is determined by the below formula:

\[
\text{PEL} = \frac{10 \text{ mg/m}^3}{(\%\text{SiO}_2+2)}
\]

where \(\%\text{SiO}_2+2\) refers to the amount of crystalline silica measured in the sample.

Our operations would not exceed these PEL’s and respiratory protection is not required.
Tools - Powder-Actuated

29 CFR 1926.102 - Eye and face protection
29 CFR 1926.300 - General requirements
29 CFR 1926.302 - Power-operated hand tools

A powder-actuated fastening tool propels a nail, pin, or fastener through an object to fasten it to another object. These tools, if misused, are extremely dangerous because essentially, they are similar to a pistol or rifle.

The speed of the projectile may range from 300 ft./second to 1290 ft./second.

Only trained and authorized persons may operate a powder actuated tool and, for safety, these tools should be kept secured when not in use.

Prior to use, the tool must be inspected and tested according to the manufacturer’s instruction manual which should be kept with the tool.

Defective tools must not be used and they must be taken out of service.

Use of appropriate personal protective equipment – including, at least, eye/face and ear protection – is required not only for the operator, but also those employees in the vicinity. PPE will be in accordance with the owner/operator’s manual.

On the job site, each tool should be accompanied by: 1) its container; 2.) the operator’s instruction & service manuals; 3) the tool inspection record; and 4) service tools & accessories.

Tools must not be loaded until just before firing and, under no circumstances, are they to be pointed at any person. Hands must be kept clear of the open barrel end. A powder activated tool must never be left unattended – loaded or empty – for safety and security reasons.
Fasteners must not be driven into very hard or brittle materials such as cast iron, glazed tile, surface-hardened steel, glass block, live rock, face brick or hollow tile; easily penetrated materials unless these materials are backed by a substance; nor a damaged area caused by an unsatisfactory fastening. Of course, these tools must never be used in an explosive or flammable atmosphere.

Before fastening questionable material, the operator can determine its suitability by using a fastener as a center punch. If the fastener point does not easily penetrate, is not blunted, and does not fracture the material, initial test fastenings will be made in accordance with the manufacturer’s instructions.

The tool must be held perpendicular to the work surface and in the event of a misfire, the operator must hold the tool firmly against the work surface and follow, exactly, the manufacturer’s instructions.

Tools must be used with the correct shield, guard, or attachments recommended by the manufacturer.

Because the case and load are color coded, it is imperative that the operator can distinguish the colors of brass and nickel as well as gray, brown, green, yellow and red and purple.
Traffic Control - Surveying

Working in, near, and around traffic is an inevitable part of land surveying. When employees work in these hazardous conditions caused by moving vehicles, traffic control procedures become necessary.

The primary function of traffic control procedures is to move vehicles and pedestrians safely and expeditiously through or around temporary traffic control zones while protecting on-site workers and equipment.

Traffic control systems will be used when a hazard exists to our employees because their work conditions encroach upon public streets or highways. The controls used will be in conformance with California Manual on Uniform Traffic Control Devices for Streets and Highways, 2014. This will be referred to as the Manual in the following pages.

Planning:

When planning a surveying project that requires temporary traffic controls, be sure to:

a. Use standard traffic control layouts like those shown in the Manual.
b. Use surveying methods that minimize exposure to traffic hazards.
c. Consider factors that will affect traffic hazards and implement temporary traffic controls to minimize the hazards such as:
   1. Traffic speed
   2. Peak traffic hours
   3. Motorists’ sight distances
   4. Effect of unusual survey activities on traffic
   5. Pavement conditions wet, frosty, etc
   6. Special conditions and events, such as school hours and large public gatherings.
d. Inform state or local authorities to obtain any necessary approvals, if any survey activity is going to significantly affect the normal flow of traffic for 20 minutes or longer.
e. Observe local district/region policies and procedures regarding traffic controls.
f. Assign adequate personnel to survey parties to meet special safety needs, such as flaggers or lookouts.
Our employees will use the following general safety procedures when working in or around traffic:

a. Employees on foot that are exposed to vehicular traffic will wear warning attire such as vests, jackets, or shirts manufactured in accordance with the requirements ANSI/ISEA 107-2004, High Visibility Safety Apparel and Headwear.

b. Maintain at least six feet of space between moving traffic and your work area. Survey at the maximum space possible between moving traffic and your work area. Any surveying that requires working within six feet of moving traffic must be approved by the site supervisor.

c. Whenever possible, each employee must face moving traffic at all times. If it is not possible to face traffic, a lookout should be used.

d. Do not make sudden movements that might confuse a motorist and cause an accident.

e. Carefully and deliberately use surveying hand signals so they will not startle or confuse motorists or be mistaken for a flagger’s direction.

f. Minimize crossing traffic lanes and never attempt to run across traffic lanes.

g. When possible, place a barrier vehicle or a shadow vehicle between moving traffic and workers.

h. Minimize working near moving traffic when the motorists’ attention may be distracted by other ongoing activities, such as vehicular accidents, maintenance activities, and construction operations.
Temporary Traffic Control:

Temporary traffic controls are used to establish a “working area-of-protection” for employees. Methods of temporary traffic control include use of:

a. Portable warning/control devices.
b. Lane or shoulder detours or closures
c. Personnel such as flaggers and lookouts.

Traffic movement should be disrupted as little as possible by traffic controls. Optimum safety can be achieved most effectively through controlling the activities of surveyors rather than restricting vehicular movements.

Do not undertake any form of temporary traffic control without consulting and following the directives of the Manual.

Lane closures should only be undertaken with the approval of the proper state or local authorities.

The protection of employees and the public shall be the primary consideration when temporary traffic control measures are used.

All reasonable measures shall be used to avoid interference with vehicular movement. Lane and shoulder closures will not be considered until other alternatives have been evaluated for employee protection.

Minimize the time temporary control devices are used. Employee breaks should be scheduled so that temporary control devices are utilized for the entire period they are in place.

The site supervisor is responsible for inspecting and monitoring traffic controls set by surveyors or others. If controls are inadequate or conditions change, surveying activities will stop until a safe condition is established.

Except for special surveys or because of lack of reasonable daylight alternatives, surveys on or adjacent to roads shall be done only during full daylight hours.

In general, limit the length of a work area to 0.5 mile. When the scope of the survey is longer than 0.5 mile, divide the survey into lengths of 0.5 mile or less. When using lane or shoulder closures, limit the total closure length to an area that can be surveyed during an uninterrupted period of work.
Lookouts:

While working on foot on or near the traveled way, workers should normally be protected by barrier vehicles, guardrail, or other physical means. When using a physical barrier is not possible and workers are expose to the possibility of an errant vehicles, a person shall be assigned as a lookout.

A lookout is an employee whose only duty is to provide immediate warning to coworkers of vehicles or equipment that have become imminent hazards to their safety. The lookout will not try in any way to direct traffic. A lookout is used only to warn of impending traffic hazards, not direct or control it.

Lookouts are required when all of the following conditions exist:

a. Work occurs on a roadway with a posted speed of 55 mph or more.

b. Workers are without physical protection (barrier vehicle, k-rail, natural or man-made terrain features, etc.).

c. Working on foot within 30 feet of moving traffic.

Lookouts should be considered whenever:

a. Working without traffic controls on streets and highways.

b. Working within 25 feet of the centerline of an actively-used railroad track outside of a railroad right of way.

c. Where there are conflicting or multiple vehicular and equipment movements.

d. In areas with restricted sight distances.

Lookouts must be in constant communication with the employee under their protection. If restricted sight distance or other factors preclude verbal communication, use a radio.

Lookouts should be stationed where they can observe traffic sufficiently in advance of the workers to warn them of approaching danger by out of control vehicles by using audible warning devices such as horns or whistles.

In some cases, more than one lookout may be necessary. When it appears that a vehicle or some equipment has become a threat to personnel, the lookout will immediately and repeatedly activate the warning device.
Flaggers:

A flagger is a trained person who gives motorists, pedestrians, and cyclists exact instructions, enabling them to move through temporary traffic control zones safely.

A flagger(s) will be used at locations where barricades and warning signs cannot remove the hazard associated with moving traffic. The number of flaggers required, and matters regarding the deployment of the flagger or flaggers, will be decided based on the Manual.

When a flagger(s) is needed, they shall be placed in relation to the equipment or operation so as to give effective warning.

Areas where a flagger is used will be posted with legible traffic signs at all points of hazard. All traffic control signs or devices used for protection of construction workers must conform to Part VI of the Manual.

All flaggers must wear appropriate attire that has been selected in accordance with the requirements of the Manual or ANSI/ISEA 107-2004, High Visibility Safety Apparel and Headwear.

a. For daytime work, the flagger's vest, shirt, or jacket will be orange, yellow, strong yellow green or fluorescent versions of these colors.

b. For nighttime work, similar outside garments will be retroreflective. The retroreflective material will be orange, yellow, white, silver, strong yellow-green, or a fluorescent version of one of these colors and will be visible at a minimum distance of 1,000 feet. The retroreflective clothing will be designed to identify clearly the wearer as a person and be visible through the full range of body motions.

c. During the hours of darkness, flaggers' stations shall be illuminated such that the flagger will be clearly visible to approaching traffic and flaggers shall be outfitted with reflectorized
Uniformed law enforcement officers may be used as flaggers in some locations, such as an urban intersection, where enforcement of traffic movements is important. Uniformed law enforcement officers may also be used on freeways where traffic is channeled around work sites and it is necessary to assure that advisory and regulatory speeds are being enforced. For nighttime work and in low-visibility situations, a retroreflective garment as described above should be worn.

Hand-signaling devices, such as STOP/SLOW paddles, lights, and red flags are to be used to control traffic through temporary traffic control zones. The STOP/SLOW paddle, which gives drivers more positive guidance than red flags, should be the primary hand-signaling device. The standard STOP/ SLOW sign paddle will be 18 inches square with letters at least 6 inches high. A rigid handle should be provided. This combination sign should be fabricated from light semi-rigid material, and will have an octagonal shape. The background of the STOP face will be red with white letters and border. To be better seen, the STOP/SLOW paddles may be supplemented by one or two symmetrically positioned alternately flashing white high-intensity lamps on each side. The background of the SLOW face will be orange with black letters and border. When used at night, the STOP/ SLOW paddle will be retroreflectorized in the same manner as signs.

Flag use should be limited to emergency situations and at low-speed and/or low-volume locations which can best be controlled by a single flagger. Flags used for signaling will be a minimum of 24 inches square, made of a good grade of red material, and securely fastened to a staff about 3 feet long. The free edge should be weighted so the flag will hang vertically, even in heavy winds. When used at night, flags will be retroreflective red.
Flagger Training:
Flaggers will be trained in the proper fundamentals of flagging moving traffic before being assigned as flaggers. The training and instructions will be based on the Manual and work site conditions, and will include the following:

a. Flagger equipment which must be used.

b. Layout of the work zone and flagging station.

c. Methods to signal traffic to stop, proceed or slow down.

d. Methods of one-way traffic controlled.

e. Trainee demonstration of proper flagging methodology and operations.

f. Emergency vehicles traveling through the work zone.

g. Handling emergency situations.

h. Methods of dealing with hostile drivers.

i. Flagging procedures when a single flagger is used.

All signaling directions used by flaggers will be consistent with the Manual. Flaggers shall be trained by persons with the qualifications and experience necessary to effectively instruct the employee in the proper fundamentals of flagging moving traffic.'

All training records will be maintain in our office as required by Section 3203.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
Surveying Without Traffic Controls:

Setting up traffic controls such as a lane closure or shoulder detour may be the most dangerous part of the survey. If the exposure to the hazard can be reduced without affecting traffic flow and the survey can be performed safely, then we do not have to risk establishing traffic control.

Short term surveying operations may be undertaken without traffic controls if all of the following conditions exist:

   a. Approval from the site supervisor.
   b. The traffic volume is light.
   c. Sight distance in each direction is at least 550 feet.

Note: When 550 feet of site distance is not available, one or more lookouts may be posted to extend visual coverage.

   d. Vehicles can be parked completely off the road.

If all of the above conditions are met, the survey can be performed without traffic controls using ALL of the following methods:

   a. There will be one surveyor used as a lookout.
   b. All surveyors will be off the road completely as traffic approaches and passes.
   c. Surveyors must face traffic whenever possible.
   d. There must be a planned escape route in case there is out of control traffic.
**Ventilation**

There may be times in the course of our work such as grinding, cutting, sawing, sanding, etc. that hazardous dusts are released into the atmosphere that exceed the concentrations specified in the “Threshold Limit Values of Airborne Contaminants for 1970” of the American Conference of Governmental Industrial Hygienists, listed below:

<table>
<thead>
<tr>
<th>MINERAL DUSTS</th>
<th>(a)mppcf</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SILICA</strong></td>
<td></td>
</tr>
<tr>
<td>Crystalline Quarts</td>
<td></td>
</tr>
<tr>
<td>Threshold Limited calculated from the formula</td>
<td>(b)((250) \div (%\text{SiO}_2+5))</td>
</tr>
<tr>
<td>Cristobalite.</td>
<td>20</td>
</tr>
<tr>
<td>Amorphous, including natural diatomaceous earth</td>
<td></td>
</tr>
<tr>
<td><strong>SILICATES (Less than 1% crystalline silica)</strong></td>
<td>20</td>
</tr>
<tr>
<td>Mica</td>
<td></td>
</tr>
<tr>
<td>Portland Cement</td>
<td>20</td>
</tr>
<tr>
<td>Soapstone</td>
<td>20</td>
</tr>
<tr>
<td>Talc (non-abestiform)</td>
<td>20</td>
</tr>
<tr>
<td>Talc (fibrous), use asbestos limit</td>
<td></td>
</tr>
<tr>
<td><strong>GRAPHITE (Natural)</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>INERT OR NUISANCE PARTICULATES</strong></td>
<td>50 (or 15 mg/m³ which-ever is the smaller)</td>
</tr>
<tr>
<td>Note 1 Covers all organic and inorganic particulates not otherwise regulated. Same as Particulates Not Otherwise Regulated.</td>
<td></td>
</tr>
<tr>
<td>Note 2 Inert or Nuisance Dusts includes all mineral, inorganic, and organic dusts as indicated by examples in TLV's Appendix D.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

a. Millions of particles per cubic foot or air, based on impinger samples counted by lightfield techniques.

b. The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.
Below these threshold limits, no action is required; however, employees may wear dust masks for personal comfort.

As always, engineering controls are preferred to personal protective equipment to deal with job site hazards. Therefore, local exhaust ventilation is a preferred method of maintaining atmospheres that have dust levels below the concentrations noted in the Mineral Dusts Table, above.

Local exhaust ventilation must be designed so that they prevent dispersions of dust in concentrations causing harmful exposure and that dusts are not drawn through the work area of employees.

The dust collected by an exhaust or ventilating system will be discharged to the outside atmosphere.

If concentrations are so great that a dust separator is used, the dust and refuse will be disposed of in such a manner as to not harm employees.

Of course, if the above ventilation procedures do not reduce the dust levels to acceptable limits, respirators will be used.
Welding, Cutting, & Hotwork

§1520. Hand Protection.
§1522. Body Protection.
§1536. Ventilation Requirements for Welding, Brazing, and Cutting.
§1537. Welding, Cutting, and Heating of Coated Metals.
§1740. Storage and Use of Cylinders.
§1742. Hose and Connections.
§1743. General Precautions.
§3381. Head Protection.
§3382. Eye and Face Protection.
§3385. Foot Protection.
§4845. General Precautions.
§4851. Arc Welding and Cutting.
§5155. Airborne Contaminants.
§5206. Chromium (VI).

Employees assigned to operate arc welding, cutting, and oxygen-fuel welding and/or brazing equipment, and their supervisors, must be properly trained and instructed in the operation of such equipment. Proper PPE will be worn by all welders.

Before welding or cutting, the supervisor or competent person will inspect the area with emphasis on fire prevention and authorize welding or cutting using our Hot Work Permit noting special precautions that must be taken.

An appropriate fire extinguisher and first aid equipment will be readily available for immediate use.

**Compressed Gas Cylinders Use:**

Compressed gas cylinders are used at many facilities – the most common being oxygen and acetylene for welding.

Failure to follow basic safety procedures could result in serious injuries such as:

a. Flash burn – due to explosion.

b. Fragment impalement – due to explosion.

c. Compression of the foot – due to mishandling of tanks.

d. Inhalation of hazardous gases – due to leakage.
Basic safety procedures for gas cylinder use:

a. Cylinders must remain upright and chained to a substantial support or cart when in use.

b. Wear appropriate personal protective equipment for the job – such as steel toed shoes, apron, goggles, gloves, helmet, etc.

c. Read and understand the SDS for the gas being used and know the location of the SDS in case of an emergency.

d. Have appropriate fire extinguisher readily available.

e. To release the gas, open the cylinder valve slowly – standing away from the face and back of the gauge – and leave the opening tools in place (on the valve stem) for quick shut-off in the event of an emergency.

f. Ensure cylinder valves, regulators, couplings, and hoses are free of oil and grease and ensure all connections are tight.

g. When using oxygen-fuel systems, use flashback arrestors and reverse-flow check valves to prevent flashback.

h. Keep cylinders away from open flames and sources of heat.

i. Cylinders are never allowed in confined spaces.

1. When welding or cutting in a confined space, the tanks must remain outside the confined space.

2. Appropriate ventilation must be assured, portable equipment must be secured to prevent movement, if appropriate, and a rescue plan should be prepared.

3. If the rescue plan involves pulling the person out, attachment of the lifelines should be so the person’s body does not jam in the exit and prevent his extraction.

4. If arc welding is suspended for a substantial period of time, the electrodes must be removed to prevent accidental contact and the machine must be disconnected from the power source.

5. If gas cylinder work is suspended, the torch valves must be closed and the fuel-gas and oxygen supply must be positively shut off or disconnected outside the confined space.

6. After welding operations are completed, the welder must mark the hot metal or provide some other means of warning other workers.

j. Do not alter or attempt to repair safety devices or valves.

k. Remove the regulators when: a) moving cylinders; b) work is completed, and/or c) cylinders are empty.
Compressed gas cylinders will:
   a. Have valve protectors in place when not in use or connected for use.
   b. be legibly marked to identify the gas contained therein.
   c. Have the valves closed before the cylinder is moved, when the cylinder is empty, and at the completion of each job.
   d. Be stored in areas away from intense heat, electric arcs, and high temperature lines.
   e. Be secured upright (chained in portable dolly), in storage or transportation, to prevent tipping, falling, rolling, and damage from passing or falling objects. Oxygen cylinders must be kept 20 feet from any flammable gases or petroleum products.
   f. Be marked "EMPTY" when appropriate.
   g. Be removed from service if the regulators or gauges are defective.
   h. Be used only for the purpose for which they are designed -- for example, cylinders will not be used as rollers or supports.
   i. Be kept away from stairs.
   j. Workers in charge of oxygen or fuel-gas supply equipment (including distribution piping systems and generators) must be instructed and judged competent for such work.

Regulators and gauges will be inspected daily.
All cylinders, cylinder valves, couplings, regulators, hoses and apparatus will be kept free of oily or greasy substances.

Operators of welding equipment will report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs will be made only by qualified personnel.

Persons performing arc welding and cutting must be properly instructed and qualified to operated such equipment and, if performing gas shielded arc welding, must be familiar with *Recommended Safe Practices for Gas-Shielded Arc Welding*, A6.1-1966, American Welding Society.

Electric welders will be inspected daily before use with emphasis on the cables. All splicing of cables must maintain the insulated protection with no exposed metal parts. Cables in need of repair will not be used.

The competent person will ensure that ventilation within a confined space is adequate to negate the possibility of a respiratory or explosion hazard.
A fire watch will be assigned when there is potential a fire might develop. Of course, any person assigned to fire watch must have received training in the specific fire extinguishing equipment being used. When welding, cutting, or brazing an object near a fire hazard that is not readily movable, the fire hazard will be removed. If any fire hazards remain, shields will be used to confine the sparks, heat, and slag. If the provisions of this paragraph cannot be met, welding and/or cutting may not take place. In fact, as a company policy, if welding cannot be conducted safely, it may not be conducted.

Fire watchers are required in all locations where other than a minor fire might develop and any of the below conditions exist:

a. Appreciable amounts of combustible materials closer than 35 feet to point of operation.

b. Appreciable combustibles are 35 feet or more away but are easily ignited by sparks.

c. Wall or floor openings within a 35 foot radius expose combustible material in adjacent areas including concealed spaces in walls or floors.

d. Combustible materials are adjacent to the opposite side of metal partitions, ceilings, or roofs that are likely to be ignited by conduction or radiation.

The fire watch must be maintained at least one half hour after welding or cutting operations have ceased to detect, and extinguish, possible smoldering fires.

When performing operations capable of producing heat at chemical plants, refineries, or other facilities which have a higher degree of hazard than normal work sites, a hot work permit is generally required. Included in these types of operations are burning, cutting, heating, and welding.

Located with our Hot Work Permit are fire safety instructions that must be read and understood by the persons identified on the permit.
Welding, cutting, and heating of metals of toxic significance (lead, zinc, cadmium, mercury, beryllium, or exotic metals or paints) in enclosed spaces will require either general mechanical ventilation of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits or local exhaust ventilation consisting of freely movable hoods intended to be placed by the welder or burner as close as practicable to the work. This system shall be of sufficient capacity and so arranged as to remove fumes and smoke at the source and keep the concentration of them in the breathing zone within safe limits.

This would include inert-gas metal-arc welding performed on stainless steel to protect against dangerous concentrations of nitrogen dioxide.

When performing welding operations on stainless steel and there is exposure to airborne chromium (VI) above its action level of 2.5 micrograms per cubic meter of air (2.5 µg/m³) calculated as an 8-hour time-weighted average (TWA), the provisions of 29 CFR 1910.1126 must be adhered to. The PEL is 5 µg/m³. If air monitoring, as described in 29 CFR 1926.1026, is below .5 µg/m³, the provisions of this standard do not apply.
Specific Procedures for Gas Welding:
Cal/OSHA T8 CCR 4799
When performing gas welding, the following precautions, work procedures, and operating procedures will be followed:

General Precautions:

1. Mixtures of fuel gases and air or oxygen may be explosive and shall be guarded against. No device or attachment facilitating or permitting mixture of air or oxygen with combustible gases prior to consumption, except at the burner or in a standard torch or blowpipe, shall be allowed unless approved for the purpose.

2. Backflow protection shall be provided by an approved device that will prevent oxygen from flowing into the fuel-gas system or fuel from flowing into the oxygen system. The backflow protection device shall be installed on either the torch or at each station outlet (i.e., the point at which gas is withdrawn from the permanent piping) either upstream or downstream of the shutoff valve for the oxygen or fuel gas station outlet valve(s).

3. Acetylene shall not be generated, piped (except in approved cylinder manifolds) or utilized at a pressure in excess of 15 pounds per square inch gauge pressure.

4. The use of liquid acetylene shall be prohibited.

5. Oil or grease shall not be permitted to come in contact with oxygen cylinders, valves, regulators or other fittings. Oxygen cylinders and apparatus shall not be handled with oily hands or gloves, or greasy materials. A jet of oxygen shall not be permitted to strike an oily surface, greasy clothes or enter a fuel oil or other storage tank.

6. Oxygen shall not be used from a cylinder or cylinder manifold unless a pressure-reducing device intended for use with oxygen, and so marked, is provided.

7. Fuel-gas shall not be used from cylinders through torches or other devices equipped with shutoff valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.

Note: Low pressure air-gas torches may be used on small cylinders provided there is no shutoff valve on the torch.
8. Welding fuel-gas cylinders shall be placed with valve end up whenever they are in use. Liquefied gases shall be stored and shipped with the valve end up. Nothing shall be placed on top of an acetylene cylinder when in use which may damage the safety device or interfere with the quick closing of the valve.

9. Cylinders shall be handled carefully.
   
   Note: Rough handling, knocks, and falls are liable to damage the cylinder, valve or safety devices and result in leakage.

10. Before connecting a regulator to a cylinder valve, the valve shall 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 valve shall be opened while standing to one side of the outlet; never in front of it. A fuel-gas cylinder valve shall never be opened up, cracked near other welding work or near sparks, flame, or other possible sources of ignition.

   Exception: Hydrogen cylinders. See suppliers instructions before connecting the regulator.

11. Before a regulator is removed from a cylinder valve, the cylinder valve shall be closed and the gas released from the regulator.

12. If cylinders are found to have leaky valves or fittings which cannot be stopped by closing of the valve, the cylinders shall be taken outdoors away from sources of ignition and slowly emptied.

13. Cylinders having leaking fuse plugs or other leaking safety devices shall be plainly tagged, and the supplier shall be promptly notified of the condition and his instructions followed. A warning shall be placed near the cylinders prohibiting any approach to them with a lighted cigarette or other source of ignition.

14. Safety devices shall not be tampered with.

15. The cylinder valve shall always be opened slowly.

16. An acetylene cylinder valve shall not be opened more than one and one-half turns of the spindle, and preferably no more than three-fourths of a turn.

17. Torches in use shall be inspected at the beginning of each working shift for leaking shutoff valves, hose couplings, and tip connections. Defective torches shall not be used. Clogged torch tip openings shall be cleaned with suitable cleaning wires, drills, or other devices designed for such purpose.

18. Torches shall be lighted by friction lighters or other approved devices, and not by matches or from hot work.
19. Unalloyed copper shall not be used for acetylene or acetylenic compounds except in listed equipment.

20. When flammable gas lines or other parts of equipment are being purged of air or gas, open lights or other sources of ignition shall not be permitted near uncapped openings.

21. No welding or cutting shall be performed on an acetylene or oxygen pipeline, including the attachment of hangers or supports, until the line has been purged. Only oil-free air, oil-free nitrogen, or oil-free carbon dioxide shall be used to purge oxygen lines.

22. If pipeline protective equipment incorporates a liquid, the liquid level shall be maintained, and a suitable antifreeze may be used to prevent freezing.

23. Cylinders shall be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them, or fire-resistant shields shall be provided.

24. No person, other than the gas supplier, shall attempt to mix gases in a cylinder. No one, except the owner of the cylinder or person authorized by him, shall refill a cylinder.

25. Cylinders containing oxygen or acetylene or other fuel or gas shall not be taken into confined spaces. Training of Operators and Instructions:

Employees in charge of the oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems shall be instructed for this work before being left in charge.

Rules and instructions covering the operation and maintenance of oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems shall be readily available.
Ventilation Requirements for Welding, Brazing, and Cutting

Mechanical Ventilation for Indoor Operations:

Local exhaust systems providing a minimum air velocity of 100 lineal feet per minute in the welding zone shall be used except as otherwise specified by this section.

1. Where local exhaust ventilation is not feasible, mechanical dilution ventilation sufficient to prevent exposure to concentrations of airborne contaminants from exceeding the PEL will be provided.

2. Respiratory protective equipment will be used when the ventilation requirements are not feasible.

Toxic Substances Used in Any Enclosed Space:

Local exhaust ventilation shall be used when potentially hazardous materials are employed as base metals, fluxes, coatings, platings or filler metals. These include, but are not limited to, the following materials:

- Beryllium
- Cadmium
- Chromium
- Fluorides
- Lead (Mercury, Zinc)
- Inert-gas metal-arc welding or oxygen cutting of stainless steel

Note: When the nature of the work is such that local exhaust ventilation is not an effective means for preventing potentially hazardous exposure levels supplied-air respirators shall be worn.

Toxic Substances Used in the Open Air:

Where toxic substances, such as those listed above are used, respiratory protective equipment shall be provided and used in accordance with our Respiratory Protection Program except as otherwise specified by this section.

1. In operations involving beryllium-containing base or filler metals, only supplied-air respirators shall be used.

2. Except for operations involving beryllium, cadmium, lead, or mercury, respiratory protective equipment is not required when natural or mechanical ventilation is sufficient to remove welding fumes from the breathing zone of the workers.
Improper Use of Welding Gases:
Compressed gases used for welding and cutting shall not be used for ventilation purposes, comfort cooling, blowing dust from clothing, or cleaning the work area.

Chlorinated Hydrocarbons:
Degreasing or other operations involving chlorinated hydrocarbons shall be located or controlled such that vapors from these operations will not enter the atmosphere surrounding any welding or cutting operations to prevent the degradation of such chlorinated hydrocarbon vapors to more highly toxic gases by the action of heat or ultraviolet radiation.

Precautionary Labels:
Hazardous materials used in welding and cutting shall bear precautionary labels as required by Section 5150 of the General Industry Safety Orders.

Fire Prevention and Suppression Procedure:
A fire prevention and suppression procedure will be established whenever any welding and cutting operations are taking place.

This would include installation and operation of all gas welding and cutting systems when used with gases and oxygen for welding, flame cutting, heating and heat treating operations and includes brazing and soldering.
Specific Procedures for Electric Welding:
Cal/OSHA T8 CCR 4851
When performing arc welding and cutting, the following safety procedures will be employed to ensure safety of our employees:

1. Where the work permits, the welder will be enclosed in an individual booth painted with a finish of low reflectivity, such as zinc oxide and lamp black, or shall be enclosed with noncombustible screens having a similar low reflectivity finish. Booths and screens shall permit circulation of air at floor level. Workers or other persons adjacent to the welding areas shall be protected from the rays by noncombustible or flameproof screens or shields or shall be required to wear appropriate goggles.

2. Welding machines shall be left on the outside of a confined space and heavy portable equipment shall be blocked to prevent accidental movement.

3. When operations are suspended for any substantial period of time, such as during lunch or overnight, welding machines shall be shut off at some point outside the confined space. Where practicable, the electrodes and electrode holders shall be removed from the confined space. All electrodes shall be removed from the holders and the holders carefully located to prevent accidental contact. Upon completion or discontinuance of welding operations, the welder shall provide some means of warning other workers of the location of hot metal.

4. Manual Electrode Holders
   a. The employer shall ensure that only manual electrode holders intended for arc welding and cutting and capable of handling the maximum current required for such welding or cutting shall be used.
   b. Current-carrying parts passing through those portions of the holder gripped by the user and through the outer surfaces of the jaws of the holder shall be insulated against the maximum voltage to ground.
5. Welding Cables and Connectors:
   a. Arc welding and cutting cables shall be insulated, flexible and capable of handling the maximum current required by the operations, taking into account the duty cycles.
   b. Only cable free from repair or splice for 10 feet (3 m) from the electrode holder shall be used unless insulated connectors or splices with insulating quality equal to that of the cable are provided.
   c. When a cable other than the lead, mentioned above, wears and exposes bare conductors, the portion exposed shall not be used until it is protected by insulation equivalent in performance capacity to the original.
   d. Insulated connectors of equivalent capacity shall be used for connecting or splicing cable. Cable lugs, where used as connectors, shall provide electrical contact. Exposed metal parts shall be insulated.

6. Ground Returns and Machine Grounding:
   a. Ground return cables shall have current-carrying capacity equal to or exceeding the total maximum output capacities of the welding or cutting units served.
   b. Structures or pipelines, other than those containing gases or flammable liquids or conduits containing electrical circuits, may be used in the ground return circuit if their current-carrying capacity equals or exceeds the total maximum output capacities of the welding or cutting units served.
   c. Structures or pipelines forming a temporary ground return circuit shall have electrical contact at all joints. Arcs, sparks or heat at any point in the circuit shall cause rejection as a ground circuit.
   d. Structures or pipelines acting continuously as ground return circuits shall have joints bonded and maintained to ensure that no electrolysis or fire hazard exists.
   e. Arc welding and cutting machine frames shall be grounded, either through a third wire in the cable containing the circuit conductor or through a separate wire at the source of the current. Grounding circuits shall have resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.
   f. Ground connections shall be mechanically and electrically adequate to carry the current.
7. When electrode holders are left unattended, electrodes shall be removed and holders placed to prevent employee injury.

8. Hot electrode holders shall not be dipped in water.

9. The competent person on site will ensure that when arc welders or cutters leave or stop work or when machines are moved, the power supply switch shall be kept in the off position.

10. Arc welding or cutting equipment having a functional defect shall not be used.

11. The control apparatus of arc welding machines shall be enclosed except for operating wheels, levers, and handles.

12. Input power terminals, top change devices and live metal parts connected to input circuits shall be enclosed and accessible only by means of insulated tools.

13. When arc welding is performed in wet or high humidity conditions, employees shall use additional protection, such as rubber pads or boots, against electric shock.
Nurse Stucco Inc.

Section III
Specific Compliance Programs
Cranes and Derricks in Construction

§1610. General Requirements.
§1610.1. Scope.
§1610.2. Design Standards.
§1610.3. Definitions.
§1610.5. Ground Conditions.
§1610.6. Equipment Modifications.
§1610.7. Fall Protection.
§1610.8. Equipment with a Rated Hoisting/Lifting Capacity of 2,000 Pounds or Less.
§1610.9. Equipment over Three Tons Rated Capacity.

§1611. Assembly/Disassembly.
§1611.1. Assembly/Disassembly - Selection of Manufacturer or Employer Procedures.
§1611.2. Assembly/Disassembly - General Requirements (Applies to All Assembly and Disassembly Operations).
§1611.3. Disassembly - Additional Requirements for Dismantling of Booms and Jibs (Applies to Both the Use of Manufacturer Procedures and Employer Procedures).
§1611.4. Assembly/Disassembly - Employer Procedures - General Requirements.
§1611.5. Power Line Safety (Up to 350 kV) - Assembly and Disassembly.

§1612. Power Line Safety.
§1612.1. Power Line Safety (Up to 350 kV) - Equipment Operations.
§1612.2. Power Line Safety (Over 350 kV).
§1612.3. Power Line Safety (All Voltages) - Equipment Operations Closer Than the Table A Zone.
§1612.4. Power Line Safety - While Traveling Under or Near Power Lines with No Load.

§1613. Inspections.
§1613.1. Inspections - Modified Equipment.
§1613.2. Inspections - Repaired/Adjusted Equipment.
§1613.3. Inspections - Post-Assembly.
§1613.4. Inspections - Each Shift.
§1613.5. Inspections - Periodic.
§1613.6. Inspections - Annual/Comprehensive.
§1613.7. Inspections - Severe Service.
§1613.8. Inspections - Equipment Not in Regular Use.
§1613.9. Inspections - General.
§1613.10. Inspections - Wire Rope.
§1614. Wire Rope - Selection and Installation Criteria.
§1615. Safety Devices.
§1615.1. Safety Devices.
§1615.2. Operational Aids.
§1615.3. Rigging Equipment for Material Handling.
§1616. Operations.
§1616.1. Operation.
§1616.2. Authority to Stop Operation.
§1616.3. Work Area Control.
§1616.4. Overhead Loads.
§1616.5. Free Fall and Controlled Load Lowering.
§1616.6. Hoisting Personnel.
§1616.7. Multiple-Crane/Derrick Lifts - Supplemental Requirements.
§1617. Signals.
§1617.1. Signals - General Requirements.
§1617.2. Signals - Radio, Telephone or Other Electronic Transmission of Signals.
§1618. Qualification and Training.
§1618.1. Operator Qualification and Certification.
§1618.2. Signal Person Qualifications.
§1618.3. Qualifications of Maintenance and Repair Employees.
§1618.4. Training.
§1619. Supplemental Requirements.
§1619.1. Tower Cranes.
§1619.2. Derricks.
§1619.3. Floating Cranes/Derricks and Land Cranes/Derricks on Barges.
§1619.4. Overhead & Gantry Cranes.
§1619.5. Dedicated Pile Drivers.
Because all personnel involved in crane operations must be trained, the below information is provided and specific information applicable to the work we do may be obtained by clicking the appropriate standard, above, identified by the below T8 CCR Section(s), in **bold**.

Hazards associated with crane operations are electrocution from overhead power lines and equipment failures because of operator error; faulty or damaged equipment; overloading; support failure such as ground or outrigger collapse; and miscommunication.

All of the regulations for cranes used in construction are covered in T8 CCR Sections **1610-1619, 1694, 2940, and 6060.** 1610-1619 covers Cranes and Derricks in Construction, 1694 covers Side Boom Cranes, 2940 covers Mechanical Equipment, and 6060 covers Procedures During Dive. For requirements/details on Cranes and Derricks in Construction refer to the above Sections/CalOSHA Guide for Cranes and Derricks in Construction. Employers and employees, in order to maintain safe and healthful working conditions, must ensure that:

1. All requirements including prohibitions are met.
2. Manufacturer’s instructions are followed.
3. All crane operators have a valid certificate of competency for the specific type of crane that they are operating.
4. Necessary tools, protective equipment, and trainings are provided.
5. Employees comply with all requirements of crane operation and perform tasks safely at all times.
Below is a summary of the regulatory requirements for cranes and derricks used in construction:

a. General requirements for cranes and derricks are given in the Subsections within Section 1610.

Requirements include:

1. Scope - applies to power operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. 1610.1

2. Design requirements are given in 1610.2 and 4884.

3. Definitions as per 1610.3.

4. Design, construction and testing of cranes and derricks with over 2000 lbs of hoisting/lifting capacity must meet requirements in 1610.4.

5. Ground conditions including slope, compaction, and firmness, and all supporting materials such as blocking, mats, cribbing, marsh buggies etc. must meet the requirements in 1610.5.

6. Equipment modifications or additions which affect the capacity or safe operation of the equipment are prohibited except where the requirements of subsections as shown in 1610.6 are met.

7. Fall protection is critical in crane operations and must be provided by employers. The fall protection system varies depending on the type of crane being used and the work activity. Requirements for fall protection are given in 1610.7.

8. For cranes with a rated hoisting/lifting capacity of 2,000 pounds or less, the employer must ensure that all of the requirements in 1610.8 are met.

9. For cranes with a rated hoisting/lifting capacity over 3,000 pounds, the employer must ensure that the cranes, derricks and accessory gears are not used until there is a verification of current certification as per 1610.9.
b. Section 1611 and its subsections 1611.1 through 1611.5 address all of the safety requirements related to assembly and disassembly operations.

1. When assembling or disassembling equipment (or attachments), the employer must comply with all applicable manufacturer prohibitions and requirements in 1611.1.

2. The general requirements for assembly and disassembly operations including supervision, review of procedures, crew instructions, etc. are given in 1611.2.

3. Employers/operators must also follow the requirements for dismantling of booms and jibs as specified in 1611.3.

4. Employer procedures for assembly/disassembly shall be developed by a qualified person. 1611.4

5. The employer shall follow the power line safety (up to 350 kV) requirements of 1611.5. Employers and employees always need to presume that power lines are energized.

c. Power line safety is regulated under T8CCR 1612 and its subsections. The requirements vary depending on the voltage of the power line. The following requirements apply:

1. For equipment operations with potential involvement of power lines up to 350 kV, employer shall follow the power line safety requirements of T8 CCR 1612.1.

2. For power lines over 350 kV, the employer shall follow all of the requirements of 1611.5 and 1612.1. See exceptions.

3. For all energized power lines (all voltages), whenever equipment operations including load lines or loads are closer than the minimum approach distance under Table A, the employer shall prohibit these operations. 1612.3

4. While traveling under or near power lines with no load, employer must establish procedures and criteria, and follow the safety requirements of T8CCR 1612.4.
d. Requirements for inspections of cranes and derricks are given in T8CCR 1613. Specific requirements include:

1. Prior to initial use, all equipment that has modifications or additions which affect the safe operation of the equipment or capacity, shall be inspected by a certificating agency. The inspection shall meet the requirements of T8CCR 1613.1.

2. Inspections of repaired/adjusted Equipment are subject to the requirements in 1613.2.

3. Post assembly inspections are subject to the requirements in 1613.3

4. The inspections done each shift are subject to the requirements in 1613.4

5. Periodic inspections shall be conducted at least four times a year. Cranes shall not be operated more than 750 hours, between periodic inspections. The inspection shall include all items as per 1613.5

6. Annual/Comprehensive inspections need to be done as per 1613.6

7. Where there is a reasonable probability of damage or excessive wear, the employer shall stop using the equipment and a qualified person shall inspect the equipment for structural damage, and the causing items/conditions. 1613.7

8. Equipment that has been idle for 3 months or more shall be inspected by a certificating agency or qualified person as per T8CCR 1613.5, before initial use. 1613.8

9. General inspections must comply with 1613.9.

10. Inspections of wire ropes are subject to the requirements of 1613.10.
e. Requirements for the selection and installation of wire ropes are given in 1614. Selection and installation of original and replacement wire rope shall be as per the wire rope manufacturer, the equipment manufacturer, or a qualified person.

f. Requirements for the safety devices and operational aids are given in 1615 and include:

1. Safety devices such as crane level indicator, horn, jib stops, boom stops etc. are required on all equipment unless otherwise specified. 1615.1

2. Operational aids such as boom hoist limiting device, boom angle, boom length indicator, load weighing device, etc. are required on all equipment unless otherwise specified. 1615.2

Note: Operational aids are classified into Category I and Category II. 1615.2

g. Requirements for the operation of cranes and derricks are given in T8CCR 1616 and include:

1. The employer shall follow manufacturer procedures for operation of the equipment including the use of attachments. Where procedures for operation are unavailable, the employer shall comply with 1616.1.

   Note: While operating equipment, devices such cell phones shall not be used for any other activities (texting, talking etc.) other than signaling.

2. Whenever there is a concern as to safety, the operator shall have the authority to stop and refuse to handle loads until a qualified person has determined that safety has been assured. 1616.2

3. Work area control including protecting employees in hazardous areas, communication among operators and signal persons shall be followed as per 1616.3.

4. Operations shall be conducted and the job controlled in a manner that will avoid exposure of employees to the hazard of overhead loads. Wherever loads must be passed directly over workers, occupied work spaces or occupied passageways, safety type hooks or equivalent means of preventing the loads from becoming disengaged shall be used. All requirements under 1616.4 shall also be met.
5. Boom free fall is prohibited in each of the circumstances mentioned in 1616.5. Controlled load lowering is required and free fall of the load line hoist is prohibited in each of the circumstances mentioned in 1616.5(d).

6. 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, would be more hazardous, or is not possible because of the project’s structural design or worksite conditions. 1616.6(a)

7. Hoisting of personnel using cranes is possible only when all of the requirements of 1616.6 are met.

   Note: The requirements of 1616.6 are supplemental, and apply when one or more employees are hoisted.

8. Supplemental requirements for Multiple-Crane/ Derrick Lifts are provided in 1616.7. Before beginning a crane/derrick operation in which multiple crane/derrick will be supporting the load, the operation shall be planned as per 1616.7(a) and directed by a qualified person.
h. The general requirements for using signals during the operation of cranes and derricks are given in 1617 and include:

1. A signal person shall be provided in each of the situations given under 1617.1. Only qualified persons shall be permitted to give signals except for a stop signal. Signals to operators shall be by hand, voice, or audible and as per 1617.1. Recommended hand signals are shown in Illustration 4 on next page.

2. The devices transmitting signals shall be tested on site before start of operations and the devices/ signaling shall meet requirements in 1617.2

3. Follow the additional requirements in 1617.3 for voice signals.

   Note: Employees shall not text or talk unless it is for signaling purposes.

Illustration 4
Recommended Hand Signals

<table>
<thead>
<tr>
<th>Hoist</th>
<th>Lower</th>
<th>Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swing</td>
<td>Boom up</td>
<td>Boom down</td>
</tr>
<tr>
<td>Travel</td>
<td>Make movement slowly</td>
<td>Emergency stop</td>
</tr>
</tbody>
</table>
i. The requirements for operator qualification, training and certification are given in 1618 and its subsections. They include:

1. Operator qualifications/certification/in-training must comply with 1618.1.
2. Make sure that each signal person meets the qualification requirements in 1618.2 prior to giving any signals.
3. Maintenance, inspection and repair personnel are permitted to operate the equipment only where all of the requirements of 1618.3 are met.
4. The employer shall provide training to all operators, signal persons, spotters, competent/qualified persons, and operators-in-training on their specific jobs as per 1618.4.

j. T8 CCR 1619 has supplemental requirements for certain types of cranes and derricks. Supplemental requirements include:

1. Section 1619.1 contains supplemental requirements for erecting, climbing, operating, dismantling, and all other operations and devices used in regard to tower cranes.
2. The supplemental requirements for derricks, whether temporarily or permanently mounted, are given in 1619.2.
3. Section 1619.3 contains supplemental requirements for floating cranes/derricks and land cranes/derricks on barges, pontoons, vessels or other means of flotation. See 1619.3 for complete requirements.
4. Overhead and gantry cranes, whether permanently or temporarily installed, are subject to the requirements of 1619.4.
5. The supplemental requirements for dedicated pile drivers are given in 1619.5.

k. Side-boom cranes mounted on wheel or crawler tractors shall meet all of the requirements of 1694(d).

l. A crane/derrick, used to get divers in/out of water, shall not be used for other purpose until all divers are back on board. 6060.
§5193. Bloodborne Pathogens

NOTE: Per CPL 2-2.69, Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens, the bloodborne pathogens standard does not apply to the construction industry. OSHA has not, however, stated that the construction industry is free from the hazards of bloodborne pathogens. Exposure to bloodborne pathogens would fall under Section 5(a)(1) of the OSH Act which states that "each employer shall furnish to each of his employees employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

Providing first aid or other medical assistance is not the primary job assignment of our designated first aid providers. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the job site where the incident occurred.

Recordkeeping: all work-related injuries from needle-sticks and cuts, lacerations, punctures and scratches from sharp objects contaminated with another person’s blood or other potentially infectious materials (OPIM) are to be recorded on the OSHA 300 as an injury.

a. To protect the employee's privacy, the employees name may not be entered on the OSHA 300.

b. If the employee develops a bloodborne disease, the entry must be updated and recorded as an illness.

Note: Our first aid kits do not contain sharps or needles. However, a contaminated sharp, such as a broken pair of glasses, may trigger the above.
Policy Statement

This Exposure Control Plan has been developed to eliminate or minimize the risk of exposure to bloodborne pathogens and other potentially infectious materials. This Plan presents methods and procedures to eliminate and/or minimize the hazards associated with occupational exposure to bloodborne pathogens or other infectious materials.

As a matter of policy, universal precautions will be used.

Additional components of this Plan include exposure determinations by job classification, standard operating procedures to eliminate or reduce the likelihood of disease transmission, the methods of disease transmission, definitions of terms, post exposure procedures and follow-up, training documentation, and recordkeeping.

Compliance with this Plan not only fulfills the requirements of the Occupational Safety and Health Administration, more importantly, it fulfills our desire to maintain a safe working environment and safeguard the health of our employees.

All affected employees should feel free to review this Plan at any time and are encouraged to consult with our Exposure Control Plan Administrator to resolve any issues affecting its implementation. Our Plan is to be made available to the Assistant Secretary of Labor for Occupational Safety and Health or designated representative.
Definitions

All employees should know the "language" of this plan. Because some of the words and/or terms are not used in everyday life, each person must be aware of the definitions so that we are all "reading off the same page."

Below are OSHA definitions:

**ASSISTANT SECRETARY**: the Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.

**BLOOD**: human blood, human blood components, and products made from human blood.

**BLOODBORNE PATHOGENS**: pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

**CLINICAL LABORATORY**: a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

**CONTAMINATED**: the presence, or the reasonably anticipated presence, of blood or other potentially infectious materials on an item or surface.

**CONTAMINATED LAUNDRY**: laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.

**CONTAMINATED SHARPS**: any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

**DECONTAMINATION**: the use of a physical or chemical procedure to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

**DIRECTOR**: the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

**ENGINEERING CONTROLS**: controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the work area.
EXPOSURE INCIDENT: a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee’s duties.

HAND-WASHING FACILITIES: a facility providing an adequate supply of running potable water, soap, and single use towels or hot air drying machines.

LICENSED HEALTHCARE PROFESSIONAL: a person whose legally permitted scope of practice allows him or her to independently perform the activities required §5193(f), Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up.

Note: The above activities include actually providing Hepatitis B vaccine, ordering appropriate laboratory test, determining contraindications to vaccination, providing post-exposure prophylaxis and counseling. The legal scope of practice for this professional must allow the independent performance of all the procedures described in paragraph (f), Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up.

HBV: hepatitis B virus.

HIV: human immunodeficiency virus.

NEEDLELESS SYSTEMS: a device that does not use needles for:

a. The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established,

b. The administration of medication or fluids, or

c. Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

OCCUPATIONAL EXPOSURE: reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.
OTHER POTENTIALLY INFECTIOUS MATERIALS:

a. The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;

b. Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and

c. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions, and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

PARENTERAL: piercing mucous membranes or the skin barrier through such events as needle-sticks, human bites, cuts, and abrasions.

PERSONAL PROTECTIVE EQUIPMENT: is 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.

PRODUCTION FACILITY: a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.

REGULATED WASTE: liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

RESEARCH LABORATORY: a laboratory producing or using research-laboratory-scale amounts of HIV or HBV. Research laboratories may produce high concentrations of HIV or HBV but not in the volume found in production facilities.
SHARPS WITH ENGINEERED SHARPS INJURY PROTECTIONS: a non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.

SOURCE INDIVIDUAL: any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to, hospital and clinic patients; clients in institutions for the developmentally disabled; trauma victims; clients of drug and alcohol treatment facilities; residents of hospices and nursing homes; human remains; and individuals who donate or sell blood or blood components.

STERILIZE: the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

UNIVERSAL PRECAUTIONS: is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

WORK PRACTICE CONTROLS: controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).
Exposure Control Plan

This Exposure Control Plan is provided for all personnel who, as a result of the performance of their duties, would have reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials.

This Plan will be reviewed and updated annually and whenever necessary as new or modified tasks and procedures are introduced which affect occupational exposure to bloodborne pathogens or other potentially infectious materials. The review and update of this plan will:

a. Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens.

b. Annually document consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.

First aid providers are employees responsible for direct trauma victim care, who are potentially exposed to injuries for contaminated sharps, will be asked for input on the identification, evaluation, and selection of effective engineering and work practice controls.

This Exposure Control Plan, with a copy of §5193, Bloodborne Pathogens, will be made accessible to all employees as well as the Assistant Secretary and the Director (see definitions) who may examine and copy this plan.

Exposure Determination

Three (3) lists will be prepared and they will be maintained at the end of this exposure control plan for bloodborne pathogens & other infectious material, located here.

List I: A list of all job classifications in which all employees have occupational exposure.

List II: A list of job classifications in which some employees have occupational exposure.

List III: A list of all tasks and procedures, or groups of closely related tasks and procedures, in which occupation exposure occurs and are performed by employees in job classifications noted in List II.

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.
Methods of Compliance

Universal precautions will be used. We will treat all trauma victims’ blood, bodily fluids, and other potentially infectious materials as if they are known to be infectious. Unfortunately, there is no immediate, practical way to determine if HIV, HBV, and other bloodborne pathogens are present so, to be safe, we will assume they are. Traditionally, isolation of infectious materials has been diagnosis-driven. This meant that if a person were diagnosed to have HIV or HBV infection, for example, then isolation precautions would be taken. Because the infection status of each trauma victim cannot be immediately known, it makes sense to treat all trauma victims and their body fluids as if they were infected. The precautions to take depend on the procedures being performed. For example, if one’s hands will be in contact with body substances, disposable gloves will be worn. If there is risk of one’s eyes being splashed with body fluids, eye protection will be worn. An impermeable barrier must be placed between yourself and the potentially infectious bodily fluids. Overkill is not necessary. Cleaning up a minor spill on a counter top does not require a mask, eye protection, and plastic apron. It does, however, require disposable gloves.

All employees will strictly adhere to the below engineering and work practice controls to eliminate or reduce the possibility of occupational exposure to bloodborne pathogens or other potentially infectious materials. Specific controls and procedures, noted below, will be used to eliminate or minimize employee exposure. If occupational exposure is:
HANDWASHING EQUIPMENT AND PROCEDURES:
Hand-washing facilities are provided which are readily accessible to all employees.

Employees will wash their hands and any other skin area exposed to blood or other potentially infectious materials with soap and water immediately or as soon as feasible:

a. After removal of gloves or other personal protective equipment.

b. Following contact with blood or other potentially infectious materials.

Particular attention will be given to fingernails and between fingers and rings under which infectious material may lodge. Furthermore, one should be aware that rings and jewelry are a good hiding place for bloodborne pathogens and other potentially infectious materials.

Examples of situations where hand-washing is appropriate:

a. Before and after examining any trauma victim.

b. After handling any soiled waste or other materials.

c. After handling any chemicals or used equipment.

If for some reason hand-washing facilities are not functioning, appropriate antiseptic hand cleaner and clean cloth/paper towels (antiseptic towelettes) will be provided and used. If antiseptic hand cleaner and clean cloth/paper towels are used, hands will be washed with soap and water as soon as feasible.

EATING, DRINKING, & SMOKING:
There shall be no eating, drinking, smoking, applying cosmetics, lip balm, or handling contact lenses in areas where there is a likelihood of occupational exposure to bloodborne pathogens or other potentially infectious materials.

Furthermore, food and drink shall not be kept in refrigerators, freezers, shelves, cabinets, on countertops, or benches where blood or other potentially infectious materials are present.
CONTAMINATED NEEDLES & OTHER CONTAMINATED SHARPS:

Contaminated needles will not be sheared or broken. Furthermore, all contaminated needles and other contaminated sharps shall not be bent, recapped, or removed unless:

a. It can be demonstrated that no alternative is feasible or that it is required by a specific medical procedure.

b. Recapping or needle removal may be accomplished through the use of a mechanical device or a one-handed method.

Contaminated reusable sharps will be placed in appropriate containers immediately or as soon as possible after use until properly reprocessed. These containers will:

a. Be puncture resistant.

b. Have warning labels affixed to containers potentially infectious material and contain the following legend:

Note: The above label will be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.

Labels shall be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

Red bags or red containers may be substituted for labels.

c. Be leak proof on the sides and bottom.
Reusable sharps that are contaminated with blood or other potentially infectious materials will not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed.

Contaminated non-reusable sharps will be discarded immediately or as soon as feasible and placed in containers that:

a. Are closable
b. Are puncture resistant
c. Are leak proof on sides and bottom
b. Have warning labels affixed that contain the following legend:

![Biohazard Label](image)

**Note:** The above label will be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.

Labels shall be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

Red bags or red containers may be substituted for labels.

Contaminated non-reusable sharps shall not be stored or processed in such a manner that requires employees to reach by hand into the containers where these sharps have been placed.

During use, containers for contaminated sharps must be:

a. Easily accessible to our employees.
b. Located as close as feasible to the immediate area where sharps are used or can be reasonably anticipated to be found.
c. Maintained upright throughout use.
d. Replaced routinely and not be allowed to overfill.
If leakage is possible when removing a container of contaminated sharps, it shall be placed in a second container with the following container requirements:

a. It will be disposable,

b. It will be constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping, and

c. Colored coded red or labeled as noted above.

Reusable containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous (introduced through the skin such as a cut) injury.

**OTHER REGULATED WASTE - CONTAINMENT:**
The provisions that apply to contaminated sharps, above, apply to other regulated waste.

**DISPOSAL OF CONTAMINATED SHARPS & OTHER REGULATED WASTE:**
The actual disposal of all regulated waste shall be in compliance with applicable state laws.

**SPECIMENS OF POTENTIALLY INFECTIOUS MATERIALS:**
Specimens of blood and potentially infectious materials shall be placed in a container which prevents leakage during collection, handling, processing, storage, transport, or shipping.

**SPLASHING, SPRAYING OF POTENTIALLY INFECTIOUS MATERIALS:**
All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, spattering, and the generation of droplets of these substances.

**MOUTH PIPETTING:**
Mouth pipetting and mouth suction of blood or other potentially infectious materials is prohibited.
Exposure Control Plan Administrator

Our designated Exposure Control Plan Administrator will be knowledgeable in all aspects of this Plan as it relates to our operations and be available to answer questions raised by our first aid providers. The Exposure Control Plan Administrator may call upon professionals in the Medical Arts to field questions that are of technical nature outside of the Administrator’s area of expertise.

The Exposure Control Plan Administrator will:

a. Ensure this Plan is kept current.

b. Ensure training is provided as required.

c. Maintain all records associated with this plan.

Designated First Aid Provider

Before one may be designated as a first aid provider, he/she must have a valid certificate in first aid training from the U.S. Bureau of Mines, the Red Cross, or equivalent training that can be verified by documentary evidence. No person is to administer any medical assistance for which they are not appropriately trained. It is noted that the rendering of first aid is not the primary job of our designated first aid providers.

Personal Protective Equipment (PPE)

In spite of work practice and engineering controls, there is a requirement for appropriate personal protective equipment to provide an impermeable barrier between potentially infectious materials and the employees work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

Employees will use appropriate personal protective equipment when there is a possibility of occupational exposure to bloodborne pathogens or other potential infectious materials.

Personal protective equipment will be provided in appropriate sizes and at no cost to the employees. Further, maintenance and replacement of personal protective equipment will be provided at no cost to the employee.

Personal protective equipment will be discarded immediately if its ability to function as a barrier is compromised.
Most importantly, employees must understand that personal protective equipment is useless unless it provides an impermeable barrier between bloodborne pathogens and other potentially infectious materials and the employee's clothes, skin, eyes, mouth, or other mucous membranes.

Personal Protective Equipment is considered appropriate if it prevents potentially infectious materials from reaching work/street clothing or body surface when used under normal conditions.

**DISPOSABLE GLOVES:**
Disposable, single use gloves, such as surgical or examination gloves will be worn when it can be reasonably anticipated that the employee may have hand contact with blood or other potentially infectious materials and when handling or touching contaminated items or surfaces. Disposable gloves will always be used when there is a possibility of contact with bloodborne pathogens or other potentially infectious materials.

Disposable gloves shall never be washed, decontaminated, or reused.

Disposable gloves shall be replaced as soon as practical when contaminated or as soon as feasible if they are torn, punctured, or their ability to function as a barrier is compromised.

Should any employee be allergic to the normal gloves provided, an appropriate alternative (such as hypoallergenic and/or powderless gloves) will be provided in the proper size at no cost to the employee.

**UTILITY GLOVES:**
Utility gloves may be used for general cleanup (not for any trauma victim procedure) when there is anticipated exposure to bloodborne pathogens or other potentially infectious materials. Utility gloves may be decontaminated for re-use if the integrity of the gloves is not compromised. They will be discarded if they are cracked, peeling, torn, punctured, or exhibit signs of deterioration or when their ability to function as a barrier is compromised.

**EYE AND RESPIRATORY PROTECTION:**
Eye (goggles, glasses, face shield, etc.) and respiratory (mask, etc.) protection will be used when it can reasonably be expected that bloodborne pathogens or other potentially infectious materials may splash or spray in or around the eyes, nose, mouth, and general head area of the employee.
PROTECTIVE BODY CLOTHING:
Protective body clothing such as gowns, aprons, lab coats, etc. will be worn as determined by the professional judgment of the employee in relation to task. The protective body clothing will certainly be worn where there can reasonably be expected exposure to bloodborne pathogens or other potentially infectious materials to the body area.

LAUNDRY:
Personal protective equipment will be cleaned, laundered, and disposed of at no cost to the employee.

Note: In rare and extraordinary circumstances, an employee, in her/his professional judgment, may decline to temporarily and briefly wear personal protective equipment if he/she deems that the equipment would prevent the delivery of health care or would have increased the hazard of occupational exposure to the employee or his/her co-workers. Should this event occur, it will be documented, investigated, and procedures will be developed to prevent a reoccurrence.

Housekeeping
Housekeeping is an ongoing, never ending procedure which not only enhances our work environment but also eliminates health risk to our personnel. In the area of bloodborne pathogens and other hazardous materials, to ensure proper cleaning, decontamination, sterilization, and disinfecting of surfaces within our work area, cleaning will be accomplished only by employees who have received training in universal precautions and the provisions of this plan. The documented Housekeeping Schedule & Checklist is found at the end of this exposure control plan for bloodborne pathogens & other infectious material. This Schedule will be adhered to following an incident that results in the potential exposure to bloodborne pathogens or other potentially infectious materials.

Broken, potentially infected glassware should be picked up and disposed of using mechanical means such as a brush and dust pan or forceps.

All sharps will be stored in a manner that allows easy access and safe handling.

Infectious waste will be placed in containers that are color coded red. These containers will be decontaminated as soon as practical.

Subsequent to rendering any procedures, employees will ensure that all surfaces on which blood, body fluids, bloodborne pathogens, or other infectious materials may be present are cleaned with an appropriate disinfectant.
Hepatitis B Epidemiology

Hepatitis B (serum hepatitis) routes of infection include parenteral, oral, or direct contact. The virus can also spread by contact with the respiratory tract. Its sources include contaminated needles and surgical instruments as well as contaminated blood products. Hepatitis B virus has also been found in urine. Further, the hepatitis B virus can live for up to seven (7) days on a dry surface and can be easily be transmitted by a single needle stick. Its incubation period is quite lengthy generally between 45 and 180 days. It affects all age groups. Recovery from hepatitis B does provide immunity. Generally, one can expect a complete recovery from viral hepatitis; however, it is potentially fatal depending on many factors including the virulence (aggressiveness) of the virus, prior hepatic damage, and natural barriers to damage and disease of the liver. It is possible for viral hepatitis to lead to fulminating viral hepatitis and sub-acute fatal viral hepatitis both of which are fatal. Onset symptoms may include headache, elevated temperature, chills, nausea, dyspepsia, anorexia, general malaise, and tenderness over the liver. These types of symptoms will last about one (1) week, and then subside, and jaundice will occur. Jaundice is caused by damaged liver cells. The convalescent stage begins with the disappearance of the jaundice and may last several months. Recovery is expected in six (6) months.
Risk of Exposure

Per the Department of Human Services of the Center for Disease Control, below is the risk of infection after occupational exposure:

**HBV:**
First aid providers who have received hepatitis B vaccine and have developed immunity to the virus are at virtually no risk for infection. For an unvaccinated person, the risk from a single needle-stick or cut exposure to HBV-infected blood ranges from 6-30% and depends on the hepatitis B e antigen (HBeAg) status of the source individual. In individuals who are both hepatitis B surface antigen (HBsAg) positive and HBeAg positive have more virus in their blood and are more likely to transmit HBV.

**HCV:**
Based on limited studies, the risk for infection after a needle-stick or cut exposure to HCV-infected blood is approximately 1.8%. The risk following a blood splash is unknown, but is believed to be very small; however, HCV infection from such an exposure has been reported.

**HIV:**
The average risk of HIV infection after a needle stick or cut exposure to HIV-infected blood is 0.3% (i.e., three-tenths of one percent, or about 1 in 300). Stated another way, 99.7% of needle-stick/cut exposures do not lead to infection.

The risk after exposure of the eye, nose, or mouth to HIV-infected blood is estimated to be, on average, 0.1% (1 in 1,000).

The risk after exposure of the skin to HIV-infected blood is estimated to be less than 0.1%. A small amount of blood on intact skin probably poses no risk at all. There have been no documented cases of HIV transmission due to an exposure involving a small amount of blood on intact skin (a few drops of blood on skin for a short period of time). The risk may be higher if the skin is damaged (for example, by a recent cut) or the contact involves a large area of skin or is prolonged (for example, being covered in blood for hours).

All employees with occupational exposure are encouraged to accept the hepatitis B vaccination.
Hepatitis B Vaccination

The hepatitis B vaccination series will be provided, at no cost, to all unvaccinated first aid providers as soon as possible (within 24 hours of initial exposure). All exposed first aid provider employees are encouraged to take this vaccination series unless they have previously received the complete hepatitis B vaccination series; antibody testing has revealed that the employee is immune; or the vaccine is contraindicated (not recommended) for medical reasons. Post-exposure evaluation, prophylaxis (prevention of or protection from disease), and follow-up will be provided at no cost to the employee.

The Hepatitis B vaccination will be performed under the supervision of a licensed physician or other licensed healthcare professional.

All laboratory tests will be conducted by an accredited laboratory at no cost to the employee.

Should routine booster dose(s) of hepatitis B vaccine (as recommended by the U.S. Public Health Service at a future date) be required, they will be provided at no cost as long as the employee remains a first aid provider.

An employee may decline the Hepatitis B vaccination and this declination shall not reflect unfavorably upon him/her; however this declination must be in writing. See the Hepatitis B Declination Form.

It is important to note that if a first aid provider initially declines the hepatitis B vaccination series, he/she may decide at a later date to accept the vaccination series and it will be provided at no cost assuming he/she is still occupationally exposed to bloodborne pathogens or other potentially infectious materials.

Sharps Injury Log

A Sharps injury log will be maintained for the recording of percutaneous injuries from contaminated sharps.

The information on the log will be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

The sharps injury log will contain:

a. The type and brand of device involved in the incident.

b. The department or work area where the exposure incident occurred.

c. An explanation of how the incident occurred.

The sharps injury log shall be maintained for the period of five years.
First Aid Provider Input

As a matter of policy, all first aid providers who are responsible for first aid delivery as an additional job are encouraged to suggest methods to improve our engineering and job site controls. This input may be made verbally to the Plan Administrator at any time. Additionally, during the annual refresher training, suggestions will be solicited.

Plan Review

This plan will be reviewed, and if necessary, updated annually to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure. As new medical devices are developed which reduce employee exposure, they will be introduced into our practice. A review of the “Sharps Log” will help identify problem areas and/or ineffective devices which may need replacement.

Post-Exposure Evaluation and Follow-Up

The information that has preceded Post-Exposure Evaluation and Follow-up has dealt with the methods to restrict occupational exposure to bloodborne pathogens and other infectious materials. Post-exposure evaluation and follow-up deals with the steps to take immediately following a potential exposure incident and the steps that will be taken over time to protect our employees from further health risk.

All incidents involving exposure to blood or other potentially infectious materials will be reported to the Exposure Control Plan Administrator, in writing, before the end of the shift in which the incident occurred using the Exposure Incident Report (Section II). This Report will be prepared regardless of whether or not there has been an "Exposure Incident" as defined in this Plan and in §5193. A separate Exposure Incident Report will be completed for each employee who was occupationally exposed.

Information in this Report will include:

a. The date and time the incident occurred.

b. A brief description of the events leading up to the exposure (what happened).

c. The name of the individual exposed.

d. The route of exposure.

e. “Source individual” and “exposed individual” information, including the acceptance or rejection of hepatitis B vaccination series.

f. A determination of whether or not an actual "exposure incident" occurred. Refer to Definitions in this Plan or §5193.
The Exposure Control Plan Administrator or his authorized representative will review the Exposure Incident Report and determine if methods or procedures may be altered to prevent a reoccurrence of the incident.

Further, an occupational bloodborne pathogens exposure incident which results in the recommendation for hepatitis B vaccination would be recorded on OSHA Form 300 as an injury. See Recordkeeping.

All unvaccinated employees who have assisted in any situation involving blood will be afforded the opportunity to receive the hepatitis B vaccination series as soon as possible but not later than twenty-four (24) hours after the situation.

A confidential medical evaluation and follow-up will be provided immediately, at no cost, to the employee. The healthcare professional evaluating an employee after an exposure incident will be provided a copy of §5193.

Further, the healthcare professional will be provided a description of the exposed employee's duties as they relate to the exposure incident; documentation of the route(s) of exposure; the circumstances under which the exposure occurred; the results of the source individual's blood testing, if available; and all medical records relevant to the appropriate treatment of the employee including vaccination status which is maintained by our office. See Recordkeeping.

The confidential medical evaluation and follow-up will include:

a. Documentation of the route(s) of exposure.

b. The circumstances under which the exposure incident occurred.

c. The identification and documentation of the source individual, unless it can be established that the identification is not feasible or prohibited by state or local law.

d. The exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained.

Note: If the employee consents to baseline blood collection, but does not consent at that time for HIV serologic testing, the sample shall be preserved for at least 90 days. If, within 90 days of the exposure incident, the employee elects to have the baseline sample tested, such testing shall be done as soon as feasible.

e. The source individual's blood shall be tested as soon as feasible to determine HBV and HIV infectivity unless it is already known, in which case this procedure is not necessary.
If consent to test the source individual's blood cannot be obtained the following will occur:

a. It will be established and documented that legally required consent cannot be obtained.

b. When the source individual's consent is not required by law, the source individual's blood shall be tested and the results documented.

The results of the source individual's testing shall be made available to the exposed employee and the employee shall be informed of applicable laws and the identity and infectious status of the source individual.

The employee shall be provided post-exposure prophylaxis, when medically indicated, and counseling.

The employee will be provided with a copy of the healthcare professional's written opinion within 15 days of the completion of the evaluation. The written opinion shall be limited to:

a. Whether Hepatitis B vaccination is indicated and if the employee has received such vaccination.

b. An indication that the employee has been informed of the results of the evaluation.

c. An indication that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.

All other findings or diagnoses will remain confidential and will not be included in the written report.
Recordkeeping

Complete and accurate medical records will be maintained for each employee with occupational exposure. These records shall remain confidential and will not be disclosed or reported, without the employee's express written consent, to any person within or outside the job site, except as required by law.

We will ensure that all records required by §3204, Access to Employee Exposure and Medical Records, are made readily available upon request of an employee as well as the Assistant Secretary & the Director for examination and copying. Medical records must have the written consent of employee before being released.

Per §3204(d), medical records will be maintained for at least the duration of employment plus 30 years. If we cease to do business, these records will be transferred to the successor employer. If there is no successor employer, we will notify affected current employees of their rights of access to these records at least three (3) months prior to cessation of business and notify the Director of NIOSH in writing of the impending disposal of records at least three (3) months prior to disposal. If we regularly dispose of records required to be maintained for at least thirty years, we may, with at least a (3) month notice, notify the Director of NIOSH on an annual basis of the records intended to be disposed of in the coming year.
Included in the employee's medical record will be:

a. The employee's name and social security number.

b. A copy of the employee's hepatitis B vaccination status including the date of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination.

   1. If the employee has declined to receive the hepatitis B vaccination series when appropriate, this declination will be included in the person's medical records.

c. A copy of all results of examinations, medical testing, and follow-up procedures as required following an exposure incident.

d. The employer's copy of the healthcare professional's written opinion following an exposure incident.

e. A copy of all information provided to the healthcare professional following an exposure incident.

All work-related injuries from needle-sticks and cuts, lacerations, punctures and scratches from sharp objects contaminated with another person's blood or other potentially infectious materials are to be recorded on the OSHA 300 as an injury.

a. To protect the employee's privacy, the employees name may not be entered on the OSHA 300.

b. If the employee develops a bloodborne disease, the entry must be updated and recorded as an illness.
Training

All of our first aid providers must have current certificates of first aid and CPR training on file. These records will be maintained by the Plan Administrator.

Initial training, training at the introduction of a new or altered task affecting exposure to bloodborne pathogens or other potentially hazardous materials, and annual training will be provided by a person knowledgeable in the subject matter contained in this Plan.

Training will be interactive between the instructor and employee. An opportunity to ask questions will be provided. Further, this Plan as well as §5193, Bloodborne Pathogens, will be readily available for review.

All training will be documented using the forms found in our Training Information and Documentation Program. Training documentation will be maintained for a period of three (3) years from the date on which the training occurred.

Training will include, but not be limited to, the following topics and materials:

   a. A complete review of our Exposure Control Plan and its accessibility.
   b. An accessible copy of §5193 and an explanation of its contents.
   c. A general explanation of the epidemiology and symptoms of bloodborne diseases.
   d. An explanation of the modes of transmission of bloodborne pathogens.
   e. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
   f. An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment.
   g. Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.
   h. An explanation of the basis for selections of personal protective equipment.
i. Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.

j. Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.

k. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.

l. Information on the post-exposure evaluation and follow-up that is provided after an exposure incident.

m. An explanation of the color coding required by §5193(g)(1).

n. A request for input from employees in the identification, evaluation, and selection of effective engineering and work practice controls.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

Waste Management

Waste management, if necessary, will comply with State EPA standards regarding handling, storage, and shipping of medical wastes.

Summary

The whole thrust of the exposure control plan for bloodborne pathogens & other infectious material Plan is to provide an awareness of the dangers of bloodborne pathogens, provide a means of reducing the possibility of occupational exposure, and, should occupational exposure occur, provide a means of reducing health risk.
Exposure Determination Form - List I

All job classifications in which all employees have occupational exposure.

1. First Aid Providers
2. __________________________
3. __________________________
4. __________________________
5. __________________________
6. __________________________

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.
Exposure Determination Form - List II

Job classifications in which some employees have occupational exposure:

1. None
2. ___________________________
3. ___________________________
4. ___________________________
5. ___________________________
6. ___________________________

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.
# Exposure Determination Form - List III

All tasks and procedures or groups of closely related tasks and procedures in which occupation exposure occurs and are performed by employees in job classifications noted in List II.

<table>
<thead>
<tr>
<th>Job Classification</th>
<th>Tasks</th>
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<tbody>
<tr>
<td>1. None</td>
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Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.
Nurse Stucco Inc.

Housekeeping Schedule & Checklist

SCHEDULE
Following every incident where there is a possibility of the presence of residual bloodborne pathogens or other potentially infectious materials.

CHECKLIST
Only personnel who have had training in our Exposure Control will ensure that all surfaces are decontaminated and that cleaning materials are properly disposed of. Areas to consider include, but are not limited to:

<table>
<thead>
<tr>
<th>YES</th>
<th>NA</th>
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<tbody>
<tr>
<td>FLOORS</td>
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<tr>
<td>WALLS</td>
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<td>EQUIPMENT</td>
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<td>PRODUCT</td>
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<tr>
<td>WASTE CONTAINERS</td>
<td></td>
</tr>
<tr>
<td>TOOLS</td>
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</tbody>
</table>

Broken, potentially infected glassware should be picked up and disposed of using mechanical means such as a brush and dust pan or forceps.

All sharps will be stored in a manner that allows easy access and safe handling.

Infectious waste will be placed in containers that are color coded red. These containers will be decontaminated as soon as practical.

Subsequent to rendering any procedures, employees will ensure that all surfaces on which blood, body fluids, bloodborne pathogens, or other infectious materials may be present are cleaned with an appropriate disinfectant.
Nurse Stucco Inc.

Hepatitis B Declination Form

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 V vaccine, at no charge to myself. However, I decline hepatitis B 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.

__________________________________________
(WITNESS)

__________________________________________
(EMPLOYEES SIGNATURE)

__________________________________________
(PRINTED NAME)

__________________________________________
(DATE)
Sharps Injury Log

Note: A sharps injury log will be maintained for the recording of percutaneous injuries from contaminated sharps.

The information on the log will be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

This sharps injury log shall be maintained for the period of five years.

(Incident Date)                     (Employee SSN)

Type and brand of device involved in the incident:

Work area where the exposure incident occurred:

Explanation of how the incident occurred:

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

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Annual Exposure Control Plan Review

This Exposure Control Plan was prepared:

At least annually, this program will be reviewed and, if necessary, updated to reflect innovations in procedures and technological developments that eliminates or reduces exposure to bloodborne pathogens.

As part of the annual review, the below will be considered:

- a. Employee Input
- b. Sharps Injury Log
- c. Exposure Incident Reports
- d. Professional Journals

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Nurse Stucco Inc.

Exposure Incident Report

ALL INFORMATION ON THIS FORM IS TO REMAIN CONFIDENTIAL

THIS FORM SHALL BE COMPLETED AS SOON AS FEASIBLE AFTER AN EXPOSURE INCIDENT BUT, UNDER NO CIRCUMSTANCES, AFTER THE SHIFT ON WHICH THE INCIDENT OCCURRED.

DATE: ______________________  TIME: ______________________

NAME OF EMPLOYEE: ______________________________________________

ROUTE OF EXPOSURE: _______________________________________________

SOURCE INDIVIDUAL'S NAME: _________________________________________

a. Above individual did / did not consent to be tested for HBV or HIV.
   b. Testing was done by: _____________________________________________
      1. Results: ____________________________________________________

EMPLOYEE WAS OFFERED AND ACCEPTED: NO YES

a. Hepatitis Vaccination Series. [Date(s)]  □ □  _____________
   1. If "NO", written declination was signed.

b. Post Exposure Evaluation and follow-up.  □ □

c. Employee consents to baseline blood collection.  □ □
   (Signature)

Description of events leading to this exposure incident:
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Corrective Measures to Prevent a Reoccurrence:
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________________________________ __________________________
Darren L. Nurse (Employee Signature)  (Exposure Control Plan Administrator Signature)
Prompt Rescue Policy Statement

Compliance with 29 CFR 1926.502(d)(20)

29 CFR 1926.502(d)(20) states: “The employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.”

Per OSHA interpretation letters [J. Nigel Ellis (May 11, 1999) & Charles Hill (August 14, 2000)], the hazard being addressed by 29 CFR 1926.502(d)(20) is being suspended by the fall arrest system after an arrested fall.

Prompt rescue is not defined, but it does imply that rescue be performed quickly – in time to prevent serious injury to the suspended worker.

As a matter of policy, under no circumstances will our employees attempt to perform a self-rescue.

The rationale for this policy is as follows:

1. Expecting a suspended employee to perform self-rescue presupposes that the employee is:
   a. Of clear mind after the fall, and
   b. In excellent physical condition, and
   c. Has not sustained any injuries from the fall arrest, and
   d. Did not have a medical event that caused the fall in the first place (fainting, for example).

2. Because our employees are not professional rescue persons, in depth self-rescue training would be required and practice self-rescue exercises performed for each possible combination of fall scenarios.

3. Specialize self-rescue equipment and training on that equipment would be required.

Prompt Rescue Procedures:
As a matter of policy, an employee performing work requiring a personal fall arrest system will not work alone. He/she will be in sight of another employee using a personal fall arrest system or be monitored by a safety monitor whose sole job will be to ensure there is not a fall event that goes unnoticed.

Prior to performing work requiring a personal fall arrest system, Darren L. Nurse our Injury and Illness Prevention Program Administrator, or designated competent person, will:

1. Assess the possible fall scenarios, and
2. Take inventory of in-house equipment that is readily available for possible rescue (ladders, forklifts, mobile scaffold, etc.), and
3. Be prepared to implement a plan of action utilizing our in-house equipment should a fall occur, or
4. Call an emergency rescue service and give them:
   a. Our exact location.
   b. A quick synopsis of what happened.
   c. The height of the suspended person.
   d. Known or suspected injuries.

____________________________________________

Blaine L. Nurse
Safety Director
Overview

One of the most serious hazards faced by our employees is falls from heights. Our Fall Protection Program has been developed to prevent injury from falls from a walking/working surface to a lower level, to prevent objects falling from above and striking persons below, and to prevent job site persons from falling into holes. Different types of work activities require different levels of fall protection. If an employee is not sure of proper fall protection to utilize in a specific work situation, he/she must ask a supervisor or competent person for the proper fall protection requirements before performing work.

Within the context of this program, the term “fall hazard” does not refer to falling off a ladder or scaffold. Scaffold and ladder safety is addressed within its own program.

A copy of our Fall Protection Program can be found readily accessible to our employees on appropriate job sites.

A copy of our Fall Protection Plan will be found on every applicable job site.

On all job sites where fall hazards exist, there will be at least one competent person who has the training and ability to identify fall hazards and the authority to ensure that proper fall protection systems are properly implemented.

The following areas of concern are addressed by this Program:

a. The need to know where fall protection is required.

b. Selection of fall protection systems which are appropriate for given situations.

c. Construction and installation of safety systems.

d. Supervision of employees.

e. Implementation of safe work procedures.

f. Training in selection, use, and maintenance of fall protection systems.

Our Fall Protection Program may be reviewed at any time by our employees. Should a question arise concerning this Program, personnel are encouraged to consult with their supervisor or Darren L. Nurse, our Fall Protection Program Administrator.
Duties of the Program Administrator

The duties of Darren L. Nurse include:

a. Training of personnel.

b. Maintenance of training records.

c. Random, unannounced job site inspections to assure compliance with both OSHA standards and company safety policies.

d. Resolution of specific problems that may present themselves regarding a particular job site situation.

e. Designating a competent (by training or experience) person at each applicable job site who will ensure:

1. A copy of our fall protection program/plan is readily accessible on appropriate job sites.

2. Subcontractors with whom we may work are appropriately trained in fall protection.

3. A written certification record has been prepared documenting that employees who have potential exposure to fall hazards at the job site have received the required training in protection.

4. The fall protection system(s) utilized at the job site are appropriate for the hazard(s) present.

5. That, before any work is initiated, the walking/working surfaces at the job site are capable of supporting both our personnel and equipment.

Darren L. Nurse will be familiar with all applicable standards and will keep up-to-date of developments in the field of fall protection.
Pre-Project Planning

Fall protection requires a joint effort by our personnel, and the specialty subcontractors who may be working with us, to identify work situations in which fall hazards exist, determine the most appropriate fall protection system to be utilized, and to ensure that all persons understand the proper methods of utilizing the selected fall protection systems. A pre-construction survey by a competent person will often provide the information needed to make these determinations.

Fall protection system requirements may change during a project and the competent person on site will ensure that fall protection is maintained at all times. Care will be taken to assure that load limits are not exceeded on walking/working surfaces and attachment points and hardware is capable of withstanding (with the appropriate safety factor) the potential forces that may be generated during an actual fall incident.

Fall protection hardware and equipment owned, rented, or leased will be NIOSH/ANSI approved and it is assumed that the manufacturer’s technical specifications and capabilities are accurate.

From the very inception of a potential project (pre-bid) to completion, fall protection needs and costs will be factored in.
Definitions

There are a number of terms and phrases, not common in everyday life, which must be understood to grasp the thrust of this Fall Protection Program. For those employees directly involved with this Program or affected by it, there are specific requirements and procedures which would be meaningless without an understanding of the "language" of our Fall Protection Program.

Note: Words used within the definitions which are themselves defined are printed in bold italic.

ANCHORAGE: a secure point of attachment for lifelines, lanyards or deceleration devices.

BODY HARNESS: straps which may be secured about the employee in a manner that will distribute the fall arrest 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 harness closed around the employee's body.

CARABINER: an oval metal ring with a snap link used to fasten a rope to the piton [a spike (attachment) with an eye to which a rope can be secured.]


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.

CONNECTOR: a device which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabineer, or it may be an integral component of part of the system (such as a buckle or d-ring sewn into a self-retracting lanyard).

CONTROLLED ACCESS ZONE (CAZ): an area in which certain work (e.g., overhand bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems; access to the zone is controlled.

DANGEROUS EQUIPMENT: equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.
DECELERATION DEVICE: any mechanism, such as a *rope grab*, rip-stitch *lanyard*, specially-woven *lanyard*, tearing or deforming *lanyards*, automatic self-retracting *lifelines/lanyards*, 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.

DECELERATION DISTANCE: the additional vertical distance a falling employee travels from the point at which the *deceleration device* begins to operate before stopping, excluding *lifeline* elongation and *free fall distance*. It is measured as the distance between the location of an employee’s *body harness* attachment point at the moment of activation (at the onset of fall arrest forces) of the *deceleration device* during a fall, and the location of that attachment point after the employee comes to a full stop.

EQUIVALENT: alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

FAILURE: load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

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 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 of *self-retracting lifeline/lanyard* extension before they operate and fall arrest forces occur.

GUARDRAIL SYSTEM: 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*.

INFEASIBLE: it is impossible to perform the construction work using a conventional fall protection system (i.e., *guardrail system*, safety net system, or *personal fall arrest system*) or that it is technologically impossible to use any one of these systems to provide fall protection.
LANYARD: a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body harness to a deceleration device, lifeline, or anchorage.

LEADING EDGE: the edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

LIFELINE: a component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of personal fall arrest system to the anchorage.

LOW-SLOPE ROOF: a roof having a slope less than or equal to 4 in 12 (vertical to horizontal).

LOWER-LEVELS: those areas or surfaces to which an employee can fall. Such areas or surfaces to include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

MECHANICAL EQUIPMENT: all motor or human propelled wheeled equipment used for roofing work, except wheelbarrows and mop carts.

OPENING: a gap or void 30 inches or more high and 18 inches or more wide, in a wall or partition through which employees can fall to a lower level.

OVERHAND BRICKLAYING AND RELATED WORK: the process of laying bricks and masonry units such that the surface of the wall to be jointed is on the opposite side of the wall from the mason, requiring the mason to lean over the wall to complete the work. Related work includes mason tending and electrical installation incorporated into the brick wall during the overhand bricklaying process.
PERSONAL FALL ARREST SYSTEM: a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body harness, and may include a lanyard, deceleration device, lifeline, or suitable combination of these. The use of body belts for fall arrest is prohibited.

POSITIONING DEVICE SYSTEM: a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

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 his ability to solve or resolve problems relating to the subject matter, the work, or the project.

ROPE GRAB: a deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

ROOF: the exterior surface on the top of a building. This does not include floors or formworks which, because a building has not been completed, temporarily become the top surface of a building.

ROOFING WORK: the hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.

SAFETY-MONITORING SYSTEM: a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

SELF-RETRACTING LIFELINE/LANYARD: a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.
SNAPHOOK: a connector comprised of a hook-shaped member with a normally closed keeper of similar arrangement which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snaphooks are generally one of two types:

1. The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection; or

2. The non-locking type with a self-closing keeper which remains closed until pressed open for connection or disconnection. The use of a non-locking snaphook as part of personal fall arrest systems and positioning device systems is prohibited.

STEEP ROOF: a roof having a slope greater than 4 in 12 (vertical to horizontal).

TOEBOARDS: a low protective barrier that will prevent the fall of material and equipment to lower levels and provide protection from falls for personnel.

UNPROTECTED SIDES AND EDGES: any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches high.

WALKING/WORKING SURFACE: any surface, whether horizontal or vertical, on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runway, formwork and concrete reinforcing steel; not including ladders, vehicles, or trailers on which employees must be located in order to perform their job duties.

WARNING LINE SYSTEM: a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of a guardrail, body belt, or safety net systems to protect employees in the area.

WORK AREA: that portion of a walking/working surface where job duties are being performed.
Where Fall Protection is Required

The "key" distance is 7½ feet. All employees must be aware that if there is a possibility of falling 7½ feet or more, in most situations, at least one (1) fall protection system will be implemented. Further, protection from being struck by falling objects from above will be provided on all job sites.

Many areas are included because, over time, most of these areas will present themselves on job sites even if the exposures are the result of another contractor’s work.

Below listed are specific situations where fall protection systems will be utilized.

UNPROTECTED SIDES AND EDGES:
Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge, which is 7½ feet or more above a lower level, shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

LEADING EDGES:
Each employee who is constructing a leading edge 7½ feet or more above lower levels shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems.

HOIST AREAS:
Each employee in a hoist area shall be protected from falling 7½ feet or more to lower levels by guardrail systems or personal fall arrest systems.
If a guardrail system is utilized in a hoist area and portions of the system are removed to facilitate the hoisting operation, and an employee must lean through the access opening or out over the edge of the access opening, that employee must be protected by a fall arrest system.

HOLES:
Each employee on walking/working surfaces shall be protected from falling through holes (including skylights) more than 6 feet above lower levels by personal fall arrest systems, covers, or guardrail systems.
   a. Each employee on a walking/working surface shall be protected from tripping in or stepping into or through holes (including skylights) (regardless of height) by covers.
   b. Each employee on a walking/working surface shall be protected from objects falling through holes (regardless of height) by covers.
FORMWORK AND REINFORCING STEEL:
Each employee on the face of formwork or reinforcing steel shall be protected from falling 6 feet or more to lower levels by personal fall arrest systems, safety net systems, or positioning device systems.

RAMPS, RUNWAYS, AND OTHER WALKWAYS:
Each employee on ramps, runways, and other walkways shall be protected from falling 7½ feet or more to lower levels by guardrail systems.

EXCAVATIONS:
Each employee at the edge of an excavation 7½ feet or more in depth shall be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other visual barriers.
Further, each employee at the edge of a well, pit, shaft, and similar excavation 6 feet or more in depth shall be protected from falling by guardrail systems, fences, barricades, or covers.

DANGEROUS EQUIPMENT:
Each employee less than 6 feet above dangerous equipment shall be protected from falling into or onto the dangerous equipment by guardrail systems or by equipment guards.
Each employee 6 feet or more above dangerous equipment shall be protected from fall hazards by guardrail systems, personal fall arrest systems, or safety net systems.

REBAR: Employees are not to place or tie reinforcing steel in walls, piers, columns, etc., more than 6 feet above an adjacent surface unless a personal fall protection system is used or other method affording equivalent protection from the hazard of falls from elevated surfaces is employed. Employees who work above grade or above any surface and who are exposed to protruding rebar or similar projections must be protected from impalement by:
   a. The use of guardrails, or
   b. Approved fall protection systems, or
   c. Approved troughs and covers.

Exception: Point-to-point horizontal or vertical travel on reinforcing steel up to 24 feet above the surface below providing there are no impalement hazards.
ROOFING WORK ON LOW-SLOPED ROOFS:
Because the height from which an employee may fall to a lower level varies from zero feet to 20 feet during roofing operations, Cal/OSHA Standard §1730, Roof Hazards, is copied below:

§1730. Roof Hazards.
(a) During roofing operations the employer shall comply with the provisions of Section 1509 and employees shall be trained and instructed in accordance with the provisions of Section 1510 of these orders.

(b) Slopes 0:12 to 4:12 -Single-Unit (Monolithic) Roof Coverings.
(1) Employees shall be protected from falls from roofs of a height of more than 20 feet by use of one or a combination of the methods in this section. Whenever felt laying machines or other equipment that is pulled by an operator who walks backwards is being used, this provision shall apply regardless of the height.

(2) Warning lines consisting of rope, wire or similar material, flagged with highly visible material hanging from the warning lines at approximately 6-foot intervals, shall be installed 34 to 45 inches above the roof surface to warn employees that they are approaching the edge of the roof.

(A) The stanchions (portable or fixed) supporting the warning lines shall be designed and installed to minimize tip over or displacement under normal working conditions.

(B) Warning lines shall have a minimum tensile strength of 500 pounds.

(C) The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

(3) Unless conditions prohibit, headers consisting of sheets of roofing or other roofing materials shall also be laid parallel to the edges of the roof to warn employees that they are approaching the edge of the roof.

(4) The warning lines and headers shall be placed no closer than 5 feet from the roof edge.

(5) When using felt-laying machines or other equipment that is pulled by an operator who walks backwards or motorized equipment on which the operator rides, the headers shall be placed no closer than 10 feet and the warning lines shall be placed no closer than 5 feet from those roof edges that are perpendicular (or nearly so) to the direction in which the operator is moving and when conditions prohibit the use of headers, the warning lines shall be placed no closer than 10 feet from those roof edges that are perpendicular (or nearly so) to the direction in which the operator is moving.

(6) The warning lines and headers shall be erected either around the complete perimeter of the roof or only in areas of the roof where work is being accomplished, so long as the warning lines and headers are moved as the work progresses in such a manner as to provide continuous warning to employees in the work area when they approach the roof edge. Access paths
shall be erected as follows:

(A) Points of access, materials handling areas and storage areas shall be connected to the work area by a clear access path formed by two warning lines.

(B) When the path to a point of access is not in use, a rope, wire, or chain, equal in strength and height to the warning line, shall be placed across the path at the point where the path intersects the warning line erected around the work area.

(7) Employees shall be instructed to stay inside the warning lines and headers except when work must be performed at the roof edge.

(8) Application of materials outside the warning lines shall be closely supervised by a qualified person.

(9) On narrow roofs and roofs of unusual shape where warning lines and headers would be impractical, the application of materials shall be closely supervised by a qualified person.

(10) When a felt-laying machine or any other equipment that is pulled by an operator who walks backwards is being used, the operator shall be no closer than 3 feet to the roof edges that are parallel (or nearly so) to the direction in which the operator is moving. Motorized equipment on which the operator rides shall not be used or stored between the warning line and the roof edge.

Note: The provisions of subsection (b) do not apply when employees are protected by the use of one or a combination of the following methods:

Personal Fall Protection [Section 1724(f)].

Catch Platforms [Section 1724(c)].

Scaffold Platforms [Section 1724(d)].

Eave Barriers [Section 1724(e)].

Standard Railings and Toeboards (Article 16).

Parapets at least 24 inches high; except that at those job sites where felt-laying machines or other equipment that is pulled by an operator who walks backwards or motorized equipment on which the operator rides is being used, the provisions of this subsection shall not apply provided that the parapet is 36 inches or more in height at those roof edges which are perpendicular (or nearly so) to the direction in which the equipment is moving.

(c) Slopes Greater Than 4:12 -Single-Unit (Monolithic) Roof Coverings.

Employees shall be protected from falls from roofs of a height of more than 20 feet by use of one or a combination of the following methods:

(1) Parapets, 24 inches or higher.

(2) Personal Fall Protection [Section 1724(f)].

(3) Catch Platforms [Section 1724(c)].

(4) Scaffold Platforms [Section 1724(d)].

(5) Eave Barriers [Section 1724(e)].

(6) Standard Railings and Toeboards (Article 16).
Note: The provisions of this subsection (c) do not apply under the following conditions:

At those job sites where motorized equipment on which the operator rides which has been designed for use on roofs of slopes greater than 4:12 is being used if the parapet is 36 inches or more in height at those roof edges which are perpendicular (or nearly so) to the direction in which the equipment is moving.

(d) Equipment Hazards on Sloped Roofs - Single-Unit (monolithic) Roof Coverings. Equipment that is pulled by an operator who walks backwards shall not be used on a roof having a slope greater than 4:12.

(e) Slopes 0:12 Through 5:12 - Multiple-Unit Roof Coverings. Employees shall be protected from falls from roofs that are of a height of more than 20 feet by the use of a roof jack system as provided in Section 1724(a), a minimum of 24-inch high parapet, or other method affording equivalent protection.

(f) Slopes Greater Than 5:12 - Multiple-Unit Roof Coverings. Employees shall be protected from falls from roofs that are of a height of more than 20 feet by one or a combination of the following methods:

1. A parapet at least 24 inches high.
2. Personal Fall Protection [Section 1724(f)].
3. Catch Platforms [Section 1724(c)].
4. Scaffold Platforms [Section 1724(d)].
5. Eave Barriers [Section 1724(e)].
6. Roof Jack Systems [Section 1724(a)] (Safety lines shall be required in conjunction with roof jack systems on roofs steeper than 7:12)

Note: For purposes of Section 1730, the height measurement shall be determined by measuring the vertical distance from the lowest edge of the roof or eaves to the ground or level below. The height of parapets shall not be included in the roof height measurements.

Exception to Section 1730: Section 1731 applies instead of Section 1730 for roofing work on new production-type residential construction with roof slopes 3:12 or greater.

Each employee engaged in roofing activities on low-sloped roofs with unprotected sides and edges 6 feet or more above lower levels shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems or a combination of a warning line system and a safety net system or a warning line system and a safety monitoring system.

NOTE: On roofs 50 feet or less in width, the use of a safety monitoring system alone (without the warning line system) is permitted.
STEEP ROOFS:
Each employee on a steep roof with unprotected sides and edges 7½ feet or more above lower levels shall be protected from falling by guardrail systems with toeboards, safety net systems, or personal fall arrest systems.

Note: Fall protection is required at any height when working:
   a. On roofs having a pitch of 4:12 or greater, while workers use pneumatic nailers.
   b. On roofs, while an operator uses a felt-laying machine or other equipment that requires the operator to walk back-wards.

PRECAST CONCRETE ERECTION:
Each employee, engaged in the erection of precast concrete members (including, but not limited to the erection of wall panels, columns, beams, and floor and roof "tee") and related operations such as grouting of precast concrete members, who is 6 feet or more above lower levels shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems.

STEEL ERECTION (IRON WORK):
Note: A qualified person will provide fall hazard training as it relates to steel erection and instruction will cover the following topics:
  1. The recognition and identification of fall hazards in the work area;
  2. The use and operation of guardrail systems (including perimeter safety cable systems), personal fall arrest systems, positioning device systems, fall restraint systems, safety net systems, and other protection to be used;
  3. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;
  4. The procedures to be followed to prevent falls to lower levels and through or into holes and openings in walking/working surfaces and walls; and
  5. The fall protection requirements for structural steel erection.

A PFP system must be used if guard rails or safety nets are not installed if working 15 feet or more above a lower level, except as noted below.

CONNECTING:
When connecting beams or other structural members at the periphery or interior of a building or structure where the fall distance is greater than two stories or 30 feet, whichever is less, iron workers shall be provided with and use a personal fall protection system tied-off to either columns, pendant lines secured at the tops of columns, catenary lines, or other secure anchorage points.

At heights over 15 and up to 30 feet above a lower level, connectors shall be provided with a personal fall arrest system, positioning device system or fall restraint system and wear the equipment necessary to be able to be tied off; or be provided with other means of protection from fall hazards.
STRUCTURAL WOOD FRAMING SYSTEMS:
When working on structural wood framing systems and during framing activities on wood or light gauge steel frame residential/light commercial construction 15 or more feet above a lower level, a PFP system must be used if guard rails or safety nets are not installed.

Exception: For residential/light commercial frame construction, workers are considered protected when working on braced joists, rafters or roof trusses spaced on 24 inch (or less) centers when they work more than 6 feet from unprotected sides or edges.

WALL OPENINGS:
Each employee working on, at, above, or near wall openings from which there is a drop of more than 4 feet, and the bottom of the opening is less than 3 feet above the working surface, will be guarded as follows:

1. When the height and placement of the opening in relation to the working surface is such that either a standard rail or intermediate rail will effectively reduce the danger of falling, one or both shall be provided;

2. The bottom of a wall opening, which is less than 4 inches above the working surface, regardless of width, will be protected by a standard toeboard or an enclosing screen. A toeboard is not required when a chute is attached to the opening.

WALKING/WORKING SURFACES NOT OTHERWISE ADDRESSED:
Each employee on a walking/working surface 7½ feet or more above a lower level that is not addressed will be protected from falling by a guardrail system, a safety net system, or a personal fall arrest system.

Note: On multi-employer work sites, employees of all contractors and subcontractors must understand the fall protection hazards that exist and be aware of the various methods of fall protection even if they are NOT directly exposed to fall hazards in their particular work area. For example, a contractor may have a controlled access zone in place and all persons on the job site, regardless of their employer, must understand the importance of remaining outside that CAZ.
Pre-Construction Survey

Prior to the initiation of any construction project, the job site will be surveyed by a competent/qualified person to determine:

a. If fall protection systems will be required.

b. If fall hazards exist, the types of conventional fall protection systems to be utilized.
   
   1. Particular attention will be given to anchorage points, location of warning lines, etc.

c. Rescue procedures to be used if a fall actually occurs.

d. The load-carrying capabilities of the walking/working surface.

e. Assuring that all personnel utilizing a fall protection system have training in that system.

This survey may be made without the use of fall protection because no work will be accomplished during this survey and installing fall protection systems would create a greater hazard.

If it is determined that certain areas within the overall worksite have fall hazards that cannot be addressed with conventional fall protection systems (those areas being limited to leading edge work, residential construction work, and precast concrete work), then a Fall Protection Plan must be prepared to specifically protect employees from these hazards.
Fall Protection Systems

GUARDRAIL SYSTEM:
A guardrail system is a physical barrier erected to prevent employees from falling to lower levels.

The main advantage of a guardrail system is that it is a “passive” system which, once installed, requires no employee involvement in its function. A guardrail will stop an employee who inadvertently walks into it.

GUARDRAIL SYSTEMS AT HOISTING AREAS:
When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section shall be placed across the access opening between the guardrail sections when hoisting operations are not taking place.

Note: If a portion of the guardrail system is removed at a hoisting area to facilitate the hoisting operations and an employee must lean out over the opening, then that employee must be protected by a personal fall arrest system. In this instance it is important to remember that the personal fall arrest system may not be attached to the guardrail system.

GUARDRAIL SYSTEMS AT HOLES:
Guardrail systems used at holes shall be erected on all unprotected sides of the edges of the hole.

When the hole is to be used for the passage of materials, the hole shall not have more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it shall be closed over with a cover or protected with a guardrail system on all unprotected sides or edges.

Note: Guardrails need not be erected around holes while employees are working at the hole, passing materials through the hole, etc. When work is completed around the hole, the hole must be protected by guardrails on all sides of the hole or by covers.

Guardrail systems used around holes which are used as points of access (such as ladder ways) will be provided with a gate or be offset so that a person cannot walk directly into the hole.

GUARDRAIL SYSTEMS ON RAMPS AND RUNWAYS:
Guardrail systems used on ramps and runways shall be erected along each unprotected side or edge. Ramps, runways, and other walkways on which employees need protection from falling 7½ feet or more to a lower level must be protected by a guardrail system and only a guardrail system.
PERSONAL FALL ARREST SYSTEM:

A personal fall arrest system is, as the name implies, a means of safely decelerating a falling body before a lower level is hit. The three (3) main components of a personal fall arrest system are the:

a. Anchorage point
b. Lanyard
c. Body harness

Note: Body belts will not be used in a personal fall arrest system.

The tie-off attachment point must be at or above the connection point on the harness to prevent additional free fall distance.

As are guardrails, personal fall arrest systems are “passive” and require no employee involvement once they are properly rigged.

For all practical purposes, d-rings and locking type snaphooks shall have a minimum tensile strength of 5,000 pounds and lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds. Anchorages must be capable of supporting 5,000 per employee.

Anchorages used in personal fall arrest systems must be independent of any anchorage being used to support or suspend platforms.

Note: Knots in a rope lanyard or lifeline can reduce its strength by as much as 50% and having a lanyard go over or around sharp edges can completely destroy its effectiveness.

With the exception that harnesses and components may be used as positioning device systems, personal fall arrest system components may not be used for purposes other than that for which they were designed.

Positioning device system components shall be inspected prior to each use for wear, damage, and other deterioration and defective components shall be removed from service.

Should a personal fall arrest system actually be used to stop a fall, it will be removed from service and not used again until inspected and determined to be undamaged and suitable for reuse by a competent person.
SAFETY NET SYSTEM:

Safety nets will be installed as close as practicable under the walking/working surface on which employees are working.

Where the elevation is 25 feet or more above the ground, water surface, or continuous floor level below, and when the use of personal fall arrest systems, personal fall restraint systems, positioning device systems or more conventional types of protection are clearly impractical, the exterior and/or interior perimeter of the structure shall be provided with an approved safety net extending at least 8 feet horizontally from such perimeter and being positioned at a distance not to exceed 10 feet vertically below where such hazards exist, or equivalent protection provided safety nets shall extend outward from the outermost projection of the work surface as follows:

<table>
<thead>
<tr>
<th>Vertical distance from working level to horizontal plane of net.</th>
<th>Minimum required horizontal distance of outer edge of net from the edge of working surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 5 feet</td>
<td>8 feet</td>
</tr>
<tr>
<td>More than 5 feet up to 10 feet</td>
<td>10 feet</td>
</tr>
<tr>
<td>More than 10 feet but not to exceed 30 feet.</td>
<td>13 feet</td>
</tr>
</tbody>
</table>

Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

Safety net labeling:

Safety nets purchased on or after January 1, 1998 will be labeled as meeting the requirements of ANSI A10.11-1989. Safety nets purchased before January 1, 1998 will be labeled as meeting the requirements of ANSI A10.11-1979 or ANSI A10.11-1989.
WARNING LINE SYSTEM:

A warning line system is a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, body harness, or safety net systems to protect employees in the area.

A warning line system is to be used only during roofing work on low-sloped roofs over 50-feet in width with unprotected sides and edges 6-feet or more above lower levels (on a simple rectangular roof, width is the lesser of the two primary overall dimensions. This is also the case with roofs which are sloped toward or away from the roof center). Most importantly, warning line systems must be used in conjunction with either a guardrail system, a safety net system, a personal fall arrest system, or a safety monitoring system.

Note: In the above scenario, either a guardrail system, a safety net system, or a personal fall arrest system alone provides adequate fall protection.

As a general rule, warning line systems will be used in conjunction with a safety monitoring system.

A warning line made of ropes, wires, chains, and supporting stanchions will be flagged at no more than 6-feet intervals with high-visibility material. As the name implies, this line will only “warn” employees that they are approaching an unprotected side or edge. The horizontal resisting force of a warning line is 16 pounds versus 200 pounds for a guardrail system.

No personnel are allowed in the area between a roof edge and a warning line unless they are performing roofing work in that area.

Mechanical equipment on roofs shall only be used in areas that are protected by either a warning line system, a guardrail system, or a personal fall arrest system.

The warning line shall be erected around all sides of the roof work area not less than 6-feet from the roof edge unless mechanical equipment is being used. In that case, the warning line shall be erected not less than 6-feet from the roof edge which parallels the mechanical operation and not less than 10 feet from the roof edge which is perpendicular to the direction of the mechanical operation.

Points of access, material handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by two warning lines. When the aforementioned areas are not in use, the warning line will be adjusted to completely seal off the work area so that a person cannot inadvertently enter the area.
SAFETY MONITORING SYSTEM:

A safety monitoring system used in conjunction with a warning line system is not considered a “passive system” because it takes active employee involvement and, as such, both the Safety Monitor and the employee(s) being monitored must be alert for fall hazards.

A competent person will perform the duties of Safety Monitor. These duties include:

a. Recognizing fall hazards,

b. Warning the employee when it appears the employee is unaware of a fall hazard or is acting in an unsafe manner,

c. Remaining on the same walking/working surface and within visual sighting of the employee being monitored, and

d. Remaining close enough to communicate orally with the employee being monitored.

The Safety Monitor shall have no other responsibilities which could take the monitor’s attention from the monitoring function.

Only the employee engaged in roofing work on low-sloped roofs or an employee covered by a fall protection plan [29 CFR 1926.502(k)] is allowed in the area being protected by the Safety Monitor.

When a safety monitoring system is being used, mechanical equipment will not be used or stored in that controlled zone.

Of course, the employee being monitored is required to comply promptly with the fall hazard warnings from the Safety Monitor.
POSITIONING DEVICE SYSTEM:
A positioning device system consists of a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning. It is used during formwork and steel reinforcing.

Positioning device systems must be inspected prior to each use for wear, damage, and other deterioration. Defective components must be removed from service. Components of positioning device systems must never be used for purposes other than that for which they were designed -- specifically fall protection and/or positioning on a vertical surface.

CONTROLLED ACCESS ZONE (CAZ):
A controlled access zone is an area in which certain work activity may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

Specific controlled access zone criteria are found in 29 CFR 1926.502(g). A controlled access zone will be created when appropriate.

Controlled access zones will only be used as part of a fall protection plan (reference 29 CFR 1926.502(k) and Fall Protection Plan, below) or when an employee is performing overhand bricklaying and related work. Persons performing overhand bricklaying or related work that requires reaching more than 10 inches below the walking/working surface may not be afforded fall protection by working in a controlled access zone.

Controlled access zones are work areas that have limited access to only authorized personnel by means of control lines or other means that restrict access.
COVERS:
Covers can prevent an employee from stepping into a hole, tripping over a hole, falling through a hole, or being injured by objects falling through a hole.

Note: When work is completed around a hole, the hole must be protected by guardrails on all sides of the hole or by covers.

Covers must be capable of supporting, without failure, twice the weight of the employees, equipment, and/or materials that may be imposed upon them.

Covers, when used, must be secured to prevent accidental displacement by wind, equipment, or employees.

All covers must be color coded or marked with the word: “HOLE” or “COVER” to identify the hazard.

Note: The above does not apply to cast iron manhole covers or roadway steel grates.

Covers, and only covers, will be used on walking/working surfaces to protect employees from tripping or stepping into or through a hole (including skylights). This provision is regardless of the height of the hole above a lower surface.

Covers, and only covers, will be used to protect employees from objects falling through holes (including skylights). This provision is regardless of the height of the hole above a lower surface.

PROTECTION FROM FALLING OBJECTS:
Specific protection from falling objects criteria are found in 29 CFR 1926.502(j) and we will use that criteria to protect our employees from falling objects.

Covers are to be used to protect employees from objects falling through holes (including skylights) from upper surfaces regardless of heights.

Toeboards, used to prevent objects from falling on employees on a lower level must be at least 3½ inches high with not more than a ¼ inch clearance between the toeboard and the walking/working surface. When tools, materials, or equipment are piled higher than the top edge of the toeboard, paneling or screening will be erected from the top of the toeboard to the appropriate mid or top rail of the guardrail system to provide adequate protection to employees below.
Fall Protection Plan

The foregoing Fall Protection Program is not a Fall Protection Plan per se. However, implementing the preceding guidelines for conventional fall protection systems coupled with certified formal and hands-on training will provide appropriate fall protection for our employees.

There may be occasions where conventional fall protection systems just will not work.

When it can be shown that the use of conventional fall protection is impractical or creates a greater hazard, a fall protection plan will be prepared by a qualified person and developed specifically for the site where the construction work is being performed. A qualified person is one who by reason of training, experience or instruction has demonstrated the ability to safely perform all assigned duties.

The plan must be maintained up to date. Only a single site fall protection plan needs to be developed for sites where the construction operations are essentially identical.

The identity of the qualified person shall be documented.

A copy of the fall protection plan with all approved changes will be maintained at the job site.

The fall protection plan will document the reasons why the use of conventional fall protection systems (guardrails, personal fall arrest systems, or safety nets) are infeasible or why their use would create a greater hazard.

The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection provided by conventional fall protection systems. For example, the employer shall discuss the extent to which scaffolds, ladders, or vehicle mounted work platforms can be used to provide a safer working surface and thereby reduce the hazard of falling.

The fall protection plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones.

Where no other alternative measure (i.e. scaffolds, ladders, vehicle mounted work platforms, etc.) has been implemented, the employer will implement a safety monitoring system.

The fall protection plan must include a statement which provides the name of each employee who is designated to work in controlled access zone. No other employees may enter controlled access zones.
In the event an employee falls, or some other related, serious incident occurs (e.g., a near miss), the employer shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g., new practices, procedures, or training) and will implement those changes to prevent similar types of falls or incidents.

**Accidents and Near Accidents**

Accidents and near accidents involving fall hazards will be investigated by Darren L. Nurse to determine the cause of the incident and a method of preventing a reoccurrence. Questions to be considered are:

a. Was the fall protection system selected appropriate for the hazard?
b. Was the system properly installed?
c. Was the person involved in the accident following proper procedures?
d. Were there contributing factors such as ice, wind, debris, etc.?
e. Is retraining or a change of the Fall Protection Plan required?

**Training/Retraining**

Training, which must be certified, will include the following topics:

a. The nature of fall hazards in the work area.
b. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection to be used.
c. The use and operation of guardrail systems, personal fall arrest systems, safety net systems’ warning line systems, safety monitoring systems’ controlled access zones, and other protection to be used.
d. The role of the Safety Monitor and the role of the employee when a safety monitoring system is used.
e. The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs.
f. The correct procedures for handling and storage of equipment and materials and the erection of overhead protection.
g. The role of employees in fall protection plans.
Training will be conducted by competent person(s) using the below listed items as resource materials:

a. This Fall Protection Program.

b. The manufacturer’s instruction manuals that come with fall protection equipment.

c. The competent person’s work experiences.

Should the competent person, a supervisor, or Darren L. Nurse, our Program Administrator, suspect that an employee lacks the skills needed for proper fall protection, that employee will be retrained.

Changes in the job site, types of fall protection systems, and equipment will also necessitate retraining.

Only the latest Training Certificate will be kept on file.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

**Fall Protection at the Job Site**

Following a hazard assessment, we will select the most advantageous fall protection system that is compatible with our task needs and our protection requirements.

While time, equipment, training, and money are devoted to fall protection systems which either physically prevent persons from falling from height, control the rate of deceleration during an actual fall, prevent objects from falling onto persons below, or warn personnel of restricted areas, we must never forget that it is important not to fall in the first place.

Accidents are more likely to occur as we become “adjusted” to working at height. Most slips, trips and falls are preventable. Proper footwear, wearing hard hats when there is a possibility of falling objects, cleaning up of debris, and paying attention to footing, hand holds, and edges is as important as the fall protection systems themselves.
Nurse Stucco Inc.

Fall Protection Plan
(Required when standard fall protection systems are not feasible)

With changes: ______________________________
(If no changes, enter “None”)

This Fall Protection Plan is specific for the following project:

Project Name: __________________________________________
Location of Job: __________________________________________

Date Plan Prepared: ______________ by: ________________________
(Must be a Qualified Person)

Date Plan Modified: ______________ by: ________________________
(Must be a Qualified Person)

Date Plan Modified: ______________ by: ________________________
(Must be a Qualified Person)

Plan Approved by: ______________________________
Plan Supervised by: ______________________________

POLICY STATEMENT

Our Fall Protection Program has been developed to protect our employees from the easily identifiable danger associated with working at height: falling. While the general concept of Fall Protection is straightforward, those employees to whom this Program applies must have specific training applicable to their individual jobs. It is recognized that the nature of fall hazards may vary from project to project and even change during a specific project. Training will be on-going to reflect the various existing work situations.

A copy of our Fall Protection Program can be found in the main office at:
12030 Short Street
Lakeside, CA 92040
619-561-7429

A copy of our Fall Protection Plan will be found on every applicable Job Site.
FALL PROTECTION SYSTEMS TO BE USED ON THIS JOB

All employees on this job/project will be protected from fall hazards by the use of one or more conventional fall protection systems. These systems include guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, warning line systems, controlled access zones, safety monitoring systems, covers, and protection from falling objects.

Further, the conventional fall protection system used in each required circumstance will be in compliance with 29 CFR 1926.502 which addresses which systems are appropriate (allowed) for specific types of work.

TRAINING

All our personnel working on this job/project have received training in our Fall Protection Program and are able to recognize fall hazards and understand procedures to minimize these hazards. Further, they have been trained, as necessary, by a competent person qualified in the following areas using both formal and hands on training:

a. The nature of fall hazards in the work area.

b. The procedures for erecting, maintaining, disassembling, and inspecting the fall protections to be used.

c. The use and operation of guardrail systems, personal fall arrest systems, safety net systems’ warning line systems, safety monitoring systems’ controlled access zones, and other protection to be used.

d. Their role in the safety monitoring system when this system is used.

e. The limitations on the use of mechanical equipment during the performance of roofing work on low sloped roofs.

f. The procedures for handling and storage of equipment and materials and the erection of overhead protection.

g. The roll of employees in fall protection plans.

ENFORCEMENT

Awareness of and respect for fall hazards, and compliance with all safety rules are of great importance. Appropriate disciplinary action will be taken should an employee disregard our safety guidelines.
ACCIDENT INVESTIGATION

All accidents that result in injury to employees, regardless of their nature, will be investigated and reported. It is important that documentation of accidents take place as soon as possible so that the cause may be determined and steps may be taken to prevent a reoccurrence.

CHANGES TO THIS PLAN

Changes to this plan, specifically a deviation from conventional fall protection systems, will be documented by a qualified person whose name appears on the front of this fall protection plan.

Changes will be limited to:

a. Leading edge work

   Note: Leading edge work involves construction which moves the location of the edge forward (backward). Working at the edge of a walking/working surface (such as a roof) is not leading edge work - it is (roofing) work at an unprotected side or edge.

b. Precast concrete construction work

c. Residential construction work

The criteria for determination that a conventional fall protection is infeasible is that it is impossible to perform construction work with a conventional fall protection system or it is technologically impossible to use a conventional fall protection system. Inconvenience and cost are not acceptable considerations.

Specific Fall Protection Plan criteria are found in 29 CFR 1926.502(k) and we will, if necessary, create a Fall Protection Plans that comply with the cited criteria.

A separate change will be made for each situation where conventional fall systems cannot be used.
Changes to Fall Protection Plan

CHANGE NUMBER: __________

This change to the Fall Protection Plan for the below listed project will be attached to the original Fall Protection Plan and a copy will be available at the job site.

Project Name: _____________________________________________________________

Location of Job: ___________________________________________________________

Date Change Prepared: _____________ by: ________________________________
(Must be a Qualified Person)

Date Change Modified: _____________ by: ________________________________
(Must be a Qualified Person)

Change Approved by: ________________________________

Change Supervised by: ________________________________

Reference the above.

Changes to this Fall Protection Plan for this specific project are required for the following reason(s):

Specific work that requires fall protection other than conventional fall protection:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

1 of 3
Specific work areas where the above work will take place:

____________________________________________________________
____________________________________________________________
____________________________________________________________
____________________________________________________________
____________________________________________________________

Before any non-conventional fall protections are used as part of the work plan, a controlled access zone (CAZ) shall be clearly defined by the competent person _________________________________ as an area where a recognized hazard exists. The demarcation of the CAZ will be communicated by the competent person in a recognized manner such as:

Circle one or more of the below:

a. signs  
b. wires  
c. tapes  
d. ropes  
e. chains  
f. other: __________________

All access to the CAZ will be restricted to authorized entrants. Those entrants will be identified by  

______________________________________________  
(Color hard hats; arm bands, etc.)

and are listed below:

__________________________________  __________________________________ 
__________________________________  __________________________________ 
__________________________________  __________________________________ 

2 of 3
The competent person will ensure the protective elements of the CAZ are implemented prior to the beginning of work.

Specific reasons why conventional fall protection is either infeasible or creates a greater hazard:

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

Specific measures to be taken to reduce or eliminate fall hazards for personnel who cannot be provided conventional fall protection:

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

In the above CAZ, a safety monitoring system will be implemented in conformance with 29 CFR 1926.502(h).
Safety Net Installation Certification

This is to certify that the Safety Net identified below was installed with sufficient clearance under it to prevent contact with the surface or structures below when subjected to an impact force equivalent to the drop test specified in 29 CFR 1926.502(c)(4)(i).

SAFETY NET MAKE: _____________________
SAFETY NET MODEL: _____________________
SAFETY NET LOCATION: _____________________

It was found to be unreasonable to perform the below listed drop test for the following reasons:

____________________________________________________________
____________________________________________________________
____________________________________________________________
____________________________________________________________
____________________________________________________________

Drop Test (Circle appropriate drop test to which the certification applies):

  a. After initial installation and before using drop test.
  b. After relocation drop test.
  c. After major repair drop test.
  d. After remaining in the same location for 6 months drop test.

____________________________________________________________
(Competent Person)                                       (Date)
Forklifts

§3650. Industrial Trucks. General
§3657. Elevating Employees with Lift Trucks
§3661. Brakes and Warning Devices
§3668. Powered Industrial Truck Operator Training

Overview

This program has been developed to make our truck operators aware of the hazards associated with motorized truck use as well as to provide guidance for safe truck operations.

Persons will be authorized to operate our forklifts only after they have successfully demonstrated their understanding of proper procedures for truck inspection, use, and refueling/recharging. Operators will demonstrate their truck knowledge and abilities by passing a written test and performing designated truck maneuvers. All truck operators will be evaluated by Darren L. Nurse, our Forklift Program Administrator, or a designated competent person.

Because of their power, weight, size, restricted visibility, and, often, high center of gravity, operation of industrial trucks takes skill and attention to detail. One moment of inattention can lead to a major mishap in an instant. Additionally, the load presents potential hazards if not properly secured, balanced, and/or properly placed on the truck.

In accordance with 29 CFR 1910.178(b)12, Darren L. Nurse, or other competent person, will determine whether the atmosphere or location in which our industrial trucks will operate is hazardous or non-hazardous and, after further assessing our needs, will determine which types of trucks are appropriate and allowed for our specific operations.

In the unlikely event that unsafe industrial motor truck operations are observed, retraining will be given with emphasis on correcting the improper behavior. To prevent the possibility of severe injury to the operator (or a bystander), our forklifts must be operated in a professional manner and anything less will not be tolerated.

All truck operators will have ready access to this program, appropriate OSHA standards, and the truck owner/operator manuals.
Forklifts

Forklifts are designed to move items quickly, safely, and cleanly. Forklift training would also apply to numerous types of powered industrial trucks such as: tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines.

While many safety features are designed into forklifts, accidents still happen and they are generally the result of operator error. According to Modern Materials Handling, pg. E-18, Jul 97, powered industrial vehicles are involved in approximately 68,000 accidents annually, causing 90,000 injuries and 100 deaths.

There is a general agreement among safety professionals, as well as OSHA, that requiring training for all persons (including part-time, seasonal, and temporary employees) who operate forklifts will significantly reduce the accident and injury rates.

General Requirements

All truck operators must be thoroughly familiar with the truck, itself. This includes knowing:

a. Instinctively, what each and every control does.

b. How to perform a truck safety check.

c. The truck’s limitations such as maximum load, height and width, visibility, stability, and surface requirements.

d. The truck’s stopping and turning ability and its effect on loads.
The below safety rules and guidelines to which one must adhere while operating a forklift have been established. These rules are designed to protect the operator and/or persons adjacent to truck operations.

Specifically:

1. No person shall operate one of our trucks unless authorized in writing.
   a. Prior to authorization, the operator will have read this program, received training, passed a quiz on truck operations, and been evaluated on operational skills.
   b. Authorization to operate one type of truck does not automatically authorize a person to operate all trucks. Different power sources, visibility restrictions, controls, and capacities may dictate, in the judgment of Darren L. Nurse, that a separate certification process may be required for a different type of truck. There may be instances where a new vehicle does not necessitate new training and a demonstration of proficiency. A newer model of a currently used truck may be identical to the truck the operator is qualified on as far as safety and operations are concerned. As a general rule, each type of truck has its own characteristics, limitations, and idiosyncrasies -- each model of a type of truck may or may not be unique.

2. No riders are allowed on our forklift unless:
   a. The truck is specifically designed for such use.
   b. The rider is authorized by Darren L. Nurse.

Note: Forklifts are generally designed to move product, supplies and equipment, not personnel.

3. Darren L. Nurse will revoke the authority to operate a truck if unsafe acts are observed or it is apparent that the operator has not retained the knowledge and job skills necessary to safely perform truck operations.
   a. An operator who has lost his authorization to operate a truck will be retrained, reevaluated, and, if appropriate, re-certified.

4. At the beginning of each shift, the operator will inspect the truck using our Forklift Daily Checklist.
   a. If deficiencies relating to safety are found, the deficiencies will be noted on the Checklist and reported to Darren L. Nurse or other designated person. The vehicle will not be used until safety defects are repaired.
   b. If cosmetic damage is discovered during the daily check, it will be noted on the Checklist, but the truck will be used. Cosmetic faults will not delay our operations.
Hazards

The major personal safety hazards involved in truck operation include:
  a. Physically hitting a person/object with the truck or load.
  b. Having a load fall and hit the operator or other person.
  c. Having the truck tip and crush the operator or other person.
  d. Fire or explosion during refueling/recharging.

Below are rules and guidelines to control the hazards identified and reduce the likelihood of accident/injury. While some of the procedures may seem too obvious to mention or just plain common sense, remember this—serious, even fatal, accidents have occurred because for one split second an operator forgot or ignored a basic safety rule.

**HITTING A PERSON OR OBJECT**

  a. Never drive up to a person standing in front of a fixed object.
  b. When possible, stay within delineated travel lanes or aisles.
  c. Be seen and/or heard.
  d. Ensure that adequate lighting is available.
  e. Maintain a clear view of travel. If the load blocks or restricts the view, the operator will drive with the load trailing (backwards).
  f. Slow down, sound horn, and do not pass where vision is restricted.
  g. Operate the truck at speeds that will allow it and the load to be stopped in a safe, smooth, manner.
  h. Be aware of floor conditions. Remove loose objects that have found their way to the truck travel lanes. Operate the truck at slower speeds on wet or slippery floors.
  i. Of course, stunt or reckless driving is prohibited.
  j. Be aware of the height of the truck and, if equipped, its mast and load. Carelessness can damage ceiling, lights, pipes, etc.
  k. Never allow anyone to stand or pass under an elevated portion of any truck at any time.
FALLING LOADS:

a. Know your load – do not “over stack.” Because practically all loads lifted or hauled by a forklift are not secured to the truck, ensure the load is properly stacked. Cartons generally should be interlaced or banded.

b. If lifting a load or pallet, get the forks (or other engaging means) as far under the load as possible.

c. Travel with the load in the lowest position for stability as well as prevention of hitting objects overhead. If using forks, tilt the load backward for stabilization.

d. Do not exceed the truck’s rated capacity or stack loads too high.

e. Do not make “jerky” movements such as slamming the brakes or high speed turns.

f. A load backrest extension will reduce the possibility of part of the load falling rearward.

g. When using a fork lift, the forks may be tilted forward only for picking up or setting down a load.
TIPPING:
Forklifts are, by design, narrow allowing them greater access within the work setting. Unfortunately, a narrow track offers less stability. Tipping or falling off an edge (or dock) is a preventable accident by following the guidelines below. If your truck tips, keep your body and limbs within the safety of the cage. Wear a seat belt if the truck is so equipped.

a. Stay within travel lanes.

b. If entering a trailer, ensure:
   1. The trailer brakes are engaged.
   2. The trailer is secured from movement by means of chocks and/or a locking mechanism.
   3. The tractor is either shut off or removed from the trailer.
   4. The trailer is squared up with the dock opening and dock plates are secure.
   5. The trailer floor is capable of supporting the forklift and its load.
   6. The lighting within the trailer is adequate.

Note: Falling off a dock edge because a trailer has moved is invariably a serious accident. Do not count on the tractor-trailer driver to lock his brakes or even trust that his brakes work. Physically check and ensure that the trailer into which you are taking your forklift is flush against the dock. If possible, the trailer should be actually attached to the dock, but in all cases, it should be chocked.

c. Travel with the load in the lowest possible position and avoid sharp turns at higher speeds as well as abrupt truck movements.

d. Be aware of the surface on which you are traveling -- its traction, ability to hold weight, slope, and surface.
**FIRE/EXPLOSION DURING REFUELING/RECHARGING:**

Refueling accidents are not common experiences, however should they occur, they would be sudden and possibly catastrophic. Follow the manufacturer’s owner’s manual and local fire laws.

- a. There is absolutely NO SMOKING or open flame during any portion of the refueling/recharging process.
- b. At least one approved portable fire extinguisher having a minimum rating of 8B:C must be readily available when refueling propane.
- c. Facilities for quick drenching of the eyes and body must be readily available.

**Other Concerns**

The program deals primarily with the personal safety of our forklift operators. However, when discussing truck operations, we would be remiss if it were not pointed out that improper truck operations could also result in physical damage to products, trucks, and/or facilities. Proper truck operation will reduce personal injury accidents, and, as an added benefit, prevent general damage.

**Operator Protection**

A hazard assessment of forklift operations will be conducted by Darren L. Nurse. Particular attention will be given to hand, head, eye, and foot protection, as well as environmental conditions such as atmospheres, heat, or cold. If the truck is equipped with a seat belt, it must be worn when the truck is moving.

Keep your limbs within the running lines of the truck and keep your hands and fingers away from moving parts -- particularly the mast on a forklift truck.

Darren L. Nurse will perform a hazard assessment of our truck operations and determine what, if any, personal protective equipment (PPE) requirements are appropriate. If PPE (examples: steel toed boots, leather gloves, hard hat, eye protection, etc.) is required, it must be worn.
Forklift Operations

In addition to safety operating practices previously identified in this manual, the following will be considered general operating procedures:

a. Fire aisles, access to stairways, and fire equipment must be kept clear.

b. Operators leaving their trucks must ensure the load is fully lowered, controls neutralized, and brakes set. On an incline, the wheels must be blocked. If the operator is 25 feet or more from the truck or does not have a clear view of the truck, the power to the truck must be shut off.

c. A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, platform, or freight car.

d. Trucks shall not be used for opening or closing freight doors.
   1. Trucks, like all items of equipment, will be used for the purpose for which they were designed.

e. Be aware that if the operator of a semi-trailer has placed the rear wheels in a far forward position, the trailer may act as a “teeter-totter” when a heavy forklift enters the trailer. When a trailer is not coupled to a tractor, fixed jacks may be necessary to support the semi-trailer during loading or unloading.

f. Be aware that the overhead guard (used as protection against falling objects) is designed to prevent injury from the impact of small packages, boxes, bagged material, etc. -- it is not necessarily designed to withstand the impact of a falling capacity load.

g. In the event persons are lifted by a truck, a lifting platform must be securely attached to the lifting mechanism and the persons on the safety platform must have means of shutting off power to the truck.

h. If more than one truck is operated, they must be separated by a safe distance (at least three truck lengths) and they may not pass each other in intersections, blind spots, or other dangerous locations. The right of way shall be yielded to other trucks in emergency situations.

i. Trucks traveling in the same direction shall not be passed at all.

j. Driving on grades:
   1. Grades shall be ascended or descended slowly.
   2. When ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.

k. Motorized hand trucks must enter confined areas with the load end forward.
**Maintenance**

While the operator is responsible for checking the truck before use, actual mechanical maintenance must be performed by an authorized person.

a. If at any time a forklift is found to be in need of repair, defective, overheating, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.

b. Forklifts should be kept reasonably clean and free of excess oil and grease.

**Duties of the Forklift Administrator**

The duties of Darren L. Nurse, our Forklift Program Administrator, include:

a. Operator training and certification.

b. Hazard assessment of our truck operations.

c. Identification of truck operators who, through their performance have demonstrated a lack of retained knowledge or ability to safely operate a powered truck. These people will receive retraining.

d. Keeping up-to-date of developments in the materials handling field with an emphasis on safety.

e. Ensure the set of operating rules, following this program, are posted when our forklifts are in use.

Additionally, the administrator will ensure that all truck operators have ready access to Cal/OSHA powered industrial truck standards and the individual truck’s Operator/Owner Manual.
Training

Darren L. Nurse will administer the training portion of this program.

Interactive training will be given by a competent (one with knowledge, training, and experience) person with ample opportunity to ask questions and clarify all aspects of truck operation relating to safety.

Prior to actual truck operation on the job, all truck operators will become familiar with the contents of this program as well as the operator’s manual applicable to the specific powered truck they will operate. Each operator will demonstrate an understanding of truck operations and complete a driving test which will include truck inspection, maneuvering, and fueling/charging.

Darren L. Nurse will ensure that all truck operators have a complete understanding of the below listed topics:

**Truck-related topics:**

a. Operating instructions, warnings, and precautions for the type of truck the operator will be authorized to operate.

b. Differences between the truck and the automobile.

c. Truck controls and instrumentation: where they are located, what they do, and how they work.

d. Engine or motor operation.

e. Steering and maneuvering.

f. Visibility (including restrictions due to loading).

g. Fork and attachment adaptation, operation, and use limitations.

h. Vehicle capacity.

i. Vehicle stability.

j. Any vehicle inspection and maintenance that the operator will be required to perform.

k. Refueling and/or charging and recharging of batteries.

l. Operating limitations.

m. Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.
**Work-related topics:**

a. Surface conditions where the vehicle will be operated.
b. Composition of loads to be carried and load stability.
c. Load manipulation, stacking, and unstacking.
d. Pedestrian traffic in areas where the vehicle will be operated.
e. Narrow aisles and other restricted places where the vehicle will be operated.
f. Hazardous (classified) locations where the vehicle will be operated.
g. Ramps and other sloped surfaces that could affect the vehicle’s stability.
h. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
i. Other unique or potentially hazardous environmental conditions in the work area that could affect safe operation.

**New truck operators:**

New operators may operate powered trucks in a training capacity:

a. When they are under the direct supervision of persons who have the knowledge, training, and experience to train and evaluate their competence.
b. Where such operation do not endanger themselves or others.

Refresher training will be given:

a. If unsafe truck operations are observed.
b. After an accident or near-accident.
c. If the operator is to be assigned to drive a different type of truck.
d. If work area changes could affect safe operation of the truck.

d. If work area changes could affect safe operation of the truck.

e. If work area changes could affect safe operation of the truck.

**Note:** As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
Use of Forklifts to Support Scaffold Platforms

If deemed appropriate, forklifts may be used to support scaffold platforms with the following conditions:

a. The forklift will be designed for such use as indicated either:
   1. In the owner’s manual, or
   2. By a letter from the manufacturer allowing such use, or
   3. Certification by a registered engineer that the forklift is so designed.

b. The entire scaffold platform is securely attached to the forks.

c. The fork lift is not moved horizontally while the platform is occupied.

d. The platform (and machine) meets the requirements of 29 CFR 1926.451 for capacity, construction, access, use, and fall protection.
   1. If the platform is not designed by the manufacturer of the forklift, it must be designed by a qualified person.
   2. The forklift must be capable of supporting, without failure, its own weight and at least four times the maximum intended load.

e. The platform for elevating personnel must not extend more than 10 inches beyond the wheelbase of the machine in use.

f. The employees on the platform must be able to have travel and power controls at the platform level.
   1. This requirement is fulfilled by having the forklift operator remain with the forklift while personnel are on the platform.

g. The use of a forklift to support a scaffold platform will be used only after a determination that the use of other equipment such as scaffolds, scissor lifts, aerial lifts, and ladders is not practical.
Forklift Operating Rules

The below set of Forklift operating rules will be strictly enforced:

1. Only trained and authorized drivers may operate forklifts.
2. Stunt driving and horseplay are prohibited.
3. Employees must not ride on the forks.
4. Employees must never be permitted under the forks (unless forks are blocked).
5. The driver must inspect the vehicle once during a shift.
6. The operator must look in the direction of travel and must not move the vehicle until all persons are clear of the vehicle.
7. Forks must be carried as low as possible.
8. The operator must lower the forks, shut off the engine, and set the brakes (or block the wheels) before leaving the forklift unattended (that is, when the operator is out of sight of the vehicle or 25 ft. away from it).
9. Trucks must be blocked and brakes must be set before a forklift is driven onto the Truck bed.
10. Extreme care must be taken when tilting elevated loads.
11. The forklift must have operable brakes capable of stopping it safely when it is fully loaded.

____________________________________
Blaine L. Nurse
Safety Director
Hazard Communication

§3203. Injury and Illness Prevention Program.
§5194. Hazard Communication (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix A (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix B (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix C (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix D (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix F (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix G (adopted on May 6, 2013)

Purpose

The purpose of our hazard communication program is to ensure that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to our company and, most importantly, our employees. The requirements of our hazard communication program are to be consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3. The transmittal of information is to be accomplished by means of our comprehensive hazard communication program.

We shall develop, implement, and maintain at the workplace a comprehensive written hazard communication program for our employees which includes container labeling and other forms of warning, safety data sheets and employee training.

§5194. Hazard Communication (adopted on May 6, 2013) applies to any hazardous substance which is known to be present in the work place in such a manner that employees may be exposed under normal conditions of use or in a reasonably foreseeable emergency resulting from work place operations.

We will maintain a list of the hazardous substances known to be present using an identity that is referenced on the appropriate safety data sheet (SDS). This list may be compiled for the workplace as a whole or for individual work areas.

Manufacturers and importers shall obtain or develop a safety data sheet for each hazardous substance they produce or import. We will obtain from the manufacturer or seller an SDS of each hazardous substance which we use and maintain these SDS on the job site.
As a matter of course, before a new product is purchased, we will review its SDS to determine the presence of carcinogenic or other extremely hazardous chemicals. Using this information from the SDS, we will be able to inform employees how they will be protected from carcinogens at the workplace.

Prior to performing a non-routine task (for example, the cleaning of reactor vessels), an employee will be given information by a competent person or supervisor concerning the hazardous chemicals to which he may be exposed. This information will include:

a. Specific chemical hazards
b. Protective/safety measures the employee is to use.
c. Measures taken to lessen the hazards including ventilation, respirators, presence of another employee and emergency procedures.

Should work activities be performed in areas where chemicals are transferred through unlabeled pipes, the employee shall be informed by the competent person or supervisor of:

a. The chemical in the pipes.
b. Viscosity, pressure, heat.
c. Potential Hazards.
d. Safety precautions to be taken.

In multi-employer workplaces, the written hazard communication program shall include the methods employers will use to inform any employers sharing the same work area of the hazardous chemicals to which their employees may be exposed while performing their work, and any suggestions for appropriate protective measures, including the following:

The competent person on the job site will inform those with whom we work of any hazardous chemical products we are using and will provide them with the appropriate SDS for their review. SDS for all chemical products used on the job site will be readily available.

Should we introduce a new chemical product to the job site that contains a physical or health safety hazard, the product’s SDS will accompany that product and, before use, employees will be given instruction on the products hazards. This information will be shared with other contractors with whom we may be working. Employees are to be kept informed of the chemical products being used by other contractors if they pose a safety hazard.

This Hazard Communication Program is available, upon request, to employees, their designated representatives, the Chief, and NIOSH.
Labels and Other Forms of Warning

The manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked. Where the manufacturer or importer is required to label, tag or mark the following information shall be provided:

1. Product identifier;
2. Signal word;
3. Hazard statement(s);
4. Pictogram(s);
5. Precautionary statement(s); and,
6. Name, address, and telephone number of the manufacturer, importer, or other responsible party.

The manufacturer, importer or employer preparing the safety data sheet shall ensure that the information provided accurately reflects the scientific evidence used in making the hazard determination. If the manufacturer, importer, or employer become aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the safety data sheet within three months. If the chemical is not currently being produced or imported, the manufacturer or importer shall add the information to the safety data sheet before the chemical is introduced into the workplace again.

Product identifier and words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.
We may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by the above to be on a label. The written materials shall be readily accessible to the employees in their work area throughout each work shift. In construction, the employer may use such written materials in lieu of affixing labels to individual containers as long as the alternative method identifies and accompanies the containers to which it is applicable and conveys the information required to be on a label.

We are not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer.

We shall not remove or intentionally deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

We shall ensure that workplace labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.
Employee Information and Training

We shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard is introduced into their work area. Information and training may relate to general classes of hazardous chemicals to the extent appropriate and related to reasonably foreseeable exposures of the job. Chemical-specific information must always be available through labels and safety data sheets.

Information and training shall consist of at least the following topics:

1. Employees shall be informed of the requirements of §5194. Hazard Communication (adopted on May 6, 2013).

2. Employees shall be informed of any operations in their work area where hazardous chemicals are present.

3. Employees shall be informed of the location and availability of the written hazard communication program, including the list(s) of hazardous chemicals and safety data sheets required by this section.

4. Employees shall be trained in the methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.).

5. Employees shall be trained in the physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area, and the measures they can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

6. Employees shall be trained in the details of the hazard communication program developed by the employer, including an explanation of the labels received on shipped containers and the workplace labeling system used by their employer and the safety data sheet, and how employees can obtain and use the appropriate hazard information.
Documentation of Training

Documentation of safety and health training required by §5194. Hazard Communication (adopted on May 6, 2013) shall be maintained for at least one (1) year.

Documentation shall include:

1. employee name or other identifier
2. training dates
3. type(s) of training
4. training providers

Employees will be informed employees of the right:

1. To personally receive information regarding hazardous substances to which they may be exposed, according to the provisions of this section;
2. For their physician or collective bargaining agent to receive information regarding hazardous substances to which the employee may be exposed according to provisions of this section;
3. Against discharge or other discrimination due to the employee's exercise of the rights afforded pursuant to the provisions of the Hazardous Substances Information and Training Act.

Whenever the employer receives a new or revised safety data sheet, such information shall be provided to employees on a timely basis not to exceed 30 days after receipt, if the new information indicates significantly increased risks to, or measures necessary to protect, employee health as compared to those stated on a safety data sheet previously provided.

PROPOSITION 65

For all practical purposes, the provisions of this program adequately address hazard awareness of hazardous chemicals known to the state to cause cancer of reproductive toxicity.

As a matter of policy, employees will be advised through labeling or other means in this program of all hazardous chemicals known to the state to cause cancer of reproductive toxicity.
List of Hazardous Chemicals

The Safety Data Sheets for the below listed Hazardous Chemicals will follow this list. The Safety Data Sheets are arranged in the order listed below:

Chemicals
Heat Illness Prevention Program

§3395 Heat Illness Prevention

In order to lessen this threat and to comply with Heat Illness Prevention Standard T8 CCR 3395, this program has been prepared.

Our Contact Person/Program Administrator is: Darren L. Nurse

All current employees will be given instruction in this program prior to working in heat illness inducing environments or other severe environmental conditions. All new hires will be given this instruction prior to performing any job task. These written procedures, as well as all safety materials, are readily available to all employees.

Weather temperatures will be monitored in advance to know when the temperature will probably exceed 80ºF. On days when applicable environmental conditions exist, supervisors will, before the morning shift starts, remind workers of the danger of heat illness, the procedures to lessen its impact, and, in the worst case, the procedure for medical response.

Emergency Response Procedures

All persons should recognize the symptoms of heat related illness. Symptoms of heat exhaustion include: fatigue, weakness, profuse sweating, normal temperature, pale clammy skin, headache, cramps, vomiting, and fainting.

If left untreated, heat exhaustion can become heat stroke rather quickly. The symptoms for heat stroke include: dizziness, nausea, severe headache, hot dry skin, confusion, collapse, delirium, coma, and death.

The purpose of this program is to take definitive measures prior to the onset of heat exhaustion and heat stroke so that medical response will not be necessary. If the above conditions do present themselves, the supervisor, who will always have access to a mobile phone, will follow our standard emergency procedures.
Standard Emergency Procedures

1. Call 911 or the emergency response number posted on the job site.

2. Provide clear and precise directions to the work site for the emergency responders. When necessary, transport the employee safely to a place where he or she can be reached by the emergency medical providers.

3. Provide any medical assistance he/she is trained and certified to do. See basic first aid for heat illness below.

4. **DO NOT** provide any medical assistance he/she is not trained to do.

5. **DO NOT** leave the employee suffering a heat illness unattended or send the employee home without on-site first aid or providing emergency medical services.

If cell phone coverage is not adequate at a job site, a designated person will immediately contact emergency medical services on behalf of employees. The designated person will have open and direct communication with employees (such as by radio) so they can be notified of the need for emergency medical services.

If employees have means to contact emergency medical services directly, they will be permitted to do so. Employees will be expected to follow the same standard emergency procedures listed above.

Supervisors and employees will be trained to recognize symptoms of heat illness and provide basic first aid. Basic steps for treating symptoms of heat illness are addressed below.

**Heat Exhaustion**

Remove from hot area and have victim lie down and raise their feet. Apply cool wet towels and loosen or remove clothing. Allow small sips of water if victim is not vomiting.

**Heat Stroke**

Call for immediate medical assistance. Move the victim from the hot area, have them remove their clothing, and lay down. Cool the body using a shower or cool, wet towels. **Do not** give stimulants.

**Definitive measures to prevent heat related illness** includes providing workers water, shade, rest, and if necessary, modified work procedures.
Provision of Water

Water is a key preventive measure to minimize the risk of heat related illnesses. Employees will have access to adequate quantities of potable drinking water. The water must be fresh, pure, suitably cool, and will be free of charge to employees. To ensure that drinking water meets this criteria, supervisors will examine the water and pour some on their skin before it is provided to employees.

Note: During hot weather, the water must be cooler than the ambient temperature but not so cool as to cause discomfort.

Where the supply of water is not plumbed or otherwise continuously supplied, water will be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift.

Note: Water from non-approved or non-tested water sources (e.g., untested wells) is not acceptable. If hoses or connections are used, they must be governmentally approved for potable drinking water systems, as shown on the manufacturer's label.

Supervisors will encourage the frequent drinking of water. The supervisor or a designated person will monitor water consumption every 30 minutes. Employees are encouraged to report bad tasting water, bad smelling water, or low levels of water immediately so the situation can be corrected.

Supervisors will provide frequent reminders to employees to drink water, and, if needed, more water breaks will be provided. During extreme conditions, the supervisor will blow an air horn to remind workers to take a water break. Every morning during conditions where this program is applicable, there will be short tailgate meetings to remind workers about the importance of frequent consumption of water throughout the shift.

Clean water containers will be placed as close as possible to the workers. Placing water only in designated shade areas or near toilet facilities is not sufficient. If employees are working over a large area, water will be placed in multiple locations. For example, if we are working on a multi-story construction site, water will be safely accessible from every floor.

Disposable/single use drinking cups will be provided to employees. Supervisors will remind employees that personal military style canteens may be worn containing water. Employees are cautioned, however, that sharing water from a personal canteen is forbidden and, because of the health hazard to the user and the person with whom it is shared, disciplinary action will be taken against both employees if they drink out of the same container. This disciplinary action will be documented using our disciplinary enforcement form.
As a reminder of the importance of water to the human system, the following information is supplied, which was extracted from one of our safety meetings:

**Fluids**

If you heard in advance that this safety meeting was on fluids, you may well have thought that the meeting would focus on the storage, use, clean-up, and possible emergency procedures involved with the liquid chemical products used on or near work areas. You'd be wrong. While the above are important topics and questions related to them should be addressed to the competent person, this safety meeting is about your bodily fluids.

From a safety standpoint, you must not neglect your need for potable (drinkable) fluids. Water is not only the most abundant of all compounds found on the earth, it is the most abundant part of you – actually about 65% of you is water.

Drink fluids! From a life process standpoint, what fluid intake is doing is keeping you healthy by allowing your body to maintain its core body temperature at its appropriate level. When your brain senses that cooling action is needed, your body circulates blood to your skin to allow it to cool with the outside temperature. If the water used for sweat is not replaced, a water deficit starts to occur. The millions of chemical reactions taking place in your body at every moment can only occur in the presence of water. The fluids in your body transport nourishment, gases, and waste.

Imagine your body as a water based chemical factory that functions only within a narrow temperature range. An average healthy person at rest has an oral temperature of between 98.6ºF and 100.4ºF. If your body temperature reaches 105.8ºF, convulsions may occur. Your whole central nervous system is impaired when your body temperature raises 9ºF above normal. At 106.0ºF, the thermo-regulatory center in your brain fails and, because of damage to your central nervous system, the sweating (cooling) mechanism cuts off when you need it most. It is a vicious circle – the hotter you get, the more heat you generate through metabolism. In fact, at 107.6ºF, cellular metabolism is 50% higher than at normal temperatures.

Without getting too graphic, here are some of the problems associated with extreme water loss: cells will shrink; the skin will lose its elasticity; skin and mucous membrane cells will dry out; eyeballs will become soft; weight loss will occur; the body temperature will rise; apprehension, restlessness, and even coma may occur; urine will become concentrated; renal (kidney) shutdown will occur; red blood cells will shrink; death.

Stay healthy! Drink water! Water is truly the stuff of life.
Provision of Shade

The supervisor will ensure that employees have access to shade to minimize the risk of heat related illnesses. If natural shade is not available, the supervisor will ensure that sun umbrellas or portable canopies are provided in adequate number. These umbrellas or canopies will be placed in close proximity to the work activity (i.e., no more than 50-100 yards).

Note: “Shade” means block of direct sunlight. Shade is insufficient if the heat underneath the shade is so extreme as to defeat the purpose of allowing the body to cool. Employees should not encounter any obstacles, hazards, or unreasonably unpleasant conditions in order to reach shaded areas or while resting in shaded areas.

At or below temperatures of 80°F, the supervisor will ensure that employees have timely access to shade upon request. Any employee who feels the need for shade is encouraged to protect himself/herself from the sun for a period of not less than 5 minutes.

Note: “Temperature” means the dry bulb temperature in degrees Fahrenheit obtainable by using a thermometer to measure the outdoor temperature in an area where there is no shade. While the temperature measurement must be taken in an area with full sunlight, the bulb or sensor of the thermometer should be shielded while taking the measurement, e.g., with the hand or some other object, from direct contact by sunlight.

Supervisors will monitor (by radio, television, Internet, or on-site thermometer) whether the temperature is in fact exceeding 80°F at the work site. For temperatures above 80°F, one or more areas with shade will be provided at all times while employees are present. Shade areas will accommodate all employees on a recovery, rest, or meal period at any one time. Breaks may be staggered if necessary to provide adequate shade to a large number of employees on-site.

Lastly, but importantly, persons must provide personal shade in the form of shirts (preferably light colored to reflect the sun). Shirts are required to prevent sunburn, another health hazard.
Provision of Rest (Recovery Period)

While shade and rest often go hand in hand, they are two distinct activities. Any employee who, due to heat, humidity, or exertion under the provisions of this program, may rest for a period of not less than 5 minutes if that employee believes a preventative recovery period is required.

If an employee opts to take a preventative recovery period, he or she will be monitored by a supervisor and asked if he or she is experiencing symptoms of heat illness (listed on page 1 of this program), will be encouraged to remain in the shade and drink water, and will not be ordered back to work until any signs or symptoms of heat illness have been abated, but never less than a full 5 minutes of recovery in shade.

Modified Work Procedures

The supervisor will make every effort, consistent with our effort to properly perform our job tasks, to modify work procedures. Examples would include performing work requiring heavy exertion during the cooler hours of the day, assigning more persons to a job task to lessen the effort required of each, and the use of machinery in lieu of physical effort.

All employees, but new employees in particular, should be allowed to acclimate to hotter weather. It takes a body four to fourteen days to acclimate to hotter weather. Careful attention to employees is required during heat waves and during 2-week break-in periods for new hires. Reducing workloads during these times is considered a best practice.
**Procedures for Extremely High Heat**

When the temperature exceeds 95ºF, the following high heat procedures will be employed by the supervisor:

1. Establish effective communication by voice, observation or electronic means.

2. Observe employees for alertness and signs/symptoms of heat illness. Depending on the work site and the number of employees present, a supervisor can use any of the following means of observation:
   a. Supervisor or designee observation of 20 or fewer employees
   b. Buddy system
      
      **Note:** If the buddy system is deemed by a supervisor to be an appropriate means of observation, employees will be trained to stay in contact, observe each other throughout the day, and immediately report any signs or symptoms of heat illness.
   c. Regular communication via radio or cell phone with an employee who is working alone in a distant area
   d. Any other effective means of observation

3. Designate at least one employee on each work site to call for emergency medical services
   
   **Note:** If no designated employee is available, other employees are allowed to call for emergency services.

4. Remind employees to drink water throughout the shift.

5. Conduct pre-shift meetings that cover the following:
   a. Staying hydrated and taking preventative cool-down rests
   b. Identifying the employees who should call for emergency services when needed
   c. Observing employees for signs of heat illness
   
   **Note:** Pre-shift meetings can take place via phone or radio for employees who work remotely.
Training

Employee Training
All employees will read this program and be given interactive training in its provisions. A copy of this program will be kept in our project manual during applicable periods of heat and humidity. Training will be provided before any work involving a risk of heat illness and refresher training will be provided as needed.

Employee training will focus on:

1. Environmental and personal risk factors for heat illness, as well as additional factors like exertion, clothing, and personal protective equipment
2. Our procedures for complying with the Heat Illness Prevention standard
3. The importance of drinking water frequently, up to 4 cups per hour, during hot weather or when sweating more than usual while performing work tasks
4. The importance of acclimatization
5. Different types of heat illness and their common signs and symptoms
6. The importance of reporting to a supervisor the signs and symptoms of heat illness in themselves and others
7. Our procedures for responding to symptoms of heat illness, including how emergency medical services will be provided
8. Our procedures for contacting emergency medical services and, if necessary, for transporting employees to a place where they can be easily and safely reached by emergency medical personnel
9. Our procedures for making sure that emergency medical services have clear and precise directions to the work site, including designating a person to be responsible for invoking emergency procedures as appropriate
**Supervisor Training**

All supervisors will receive heat illness training prior to supervision of employees. Darren L. Nurse will ensure that supervisors are well versed in the hazards of, and prevention of, heat related illnesses.

Supervisor training will focus on:

1. All of the information covered in employee training (see above)
2. The procedures he or she is to follow to implement applicable provisions of the program
3. The procedures to follow when an employee displays symptoms of heat illness, including emergency response procedures
4. How to monitor weather reports and how to respond to hot weather advisories

Training will include reading the below informational items prior to utilization of this program and having the opportunity for discussion and clarification of the below topics as well as the provisions of this program with Darren L. Nurse.

§3395. Heat Illness Prevention

Heat Illness Prevention Training Materials 2015

The American Red Cross Health & Safety Tips, Heat Wave Safety

Training records will be maintained as specified in the California Code of Regulations, title 8, section 3203 (Injury and Illness Prevention Program).

**Note:** As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
Lockout/Tagout - Control of Hazardous Energy

Overview

As a contractor, we would not be involved in normal production operations. We could, however, be involved in the constructing, installing, setting up, adjusting, inspecting, modifying, maintaining, or servicing with the possibility of injury due to the unexpected energization, start up, or release of stored energy. During these situations, we will comply with the provisions of §3314, The Control of Hazardous Energy for the Cleaning, Repairing, Servicing, Setting-Up, and Adjusting Operations of Prime Movers, Machinery and Equipment, Including Lockout/Tagout, the Cal/OSHA standards on which this program is based.

Coordination will be established between the client and, if appropriate, subcontractors to clearly indicate who is responsible for what function of the program, as well as the identifying characteristics of the lockout/tagout devices, shape, color, color codes for locks and tags, if used.

Coordination is required because – for example: our employee may complete lockout/tagout procedures and perform maintenance on a fixed piece of equipment while a client’s employee is affected by that work.

All our employees affected by this program will be “authorized employees” by virtue of their work (see “Definitions” below.)

Definitions

There are a number of terms and phrases which must be understood by all employees to grasp the general thrust of this Program. For those employees directly involved with this Program or affected by it, there are specific requirements and procedures which would be meaningless without an understanding of the "language" of Control of Hazardous Energy.

AFFECTED EMPLOYEE: an employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her 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 service or maintenance covered under §3314, the Control of Hazardous Energy standard.

Note: An authorized employee is authorized to service only machines and equipment with which he/she is familiar by training and/or experience.

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.

FIXED EQUIPMENT: equipment fastened in place or connected by permanent wiring methods.

HOT TAP: a procedure used in the repair, maintenance and service activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

LOCKOUT: the placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.
LOCKOUT DEVICE: a device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a 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: those employees whose work operations are or may be in an area where energy control procedures may be utilized.

SERVICING AND/OR MAINTENANCE: job site 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 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.
Applicability

The provisions of this program apply when there is a possibility of injury due to the unexpected energization, start up, or release of stored energy while constructing, installing, setting up, adjusting, inspecting, modifying, maintaining, or servicing fixed machinery. Stored energy in an electro/mechanical system can be found in rotating flywheels, weights and counter-weights, hydraulic and pneumatic pressure, thermal and chemical energy, springs, and unbalanced loads.

This program does not apply to:

a. Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or startup of the equipment is controlled by unplugging the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.

b. Hot tap operations provided:
   1. Continuity of service is essential.
   2. Shut down of the system is impractical.
   3. Documented procedures are followed and special equipment is used which will provide proven effective protection for employees.

Procedures for Control of Hazardous Energy

The general procedures for lockout, tagout, or lockout and tagout are quite similar. Below are instructions which apply to all control of hazardous energy procedures. Exceptions and specific requirements for lockout without tagout; tagout without lockout; and lockout used in conjunction with tagout are noted in their own subchapters.
General Procedures

Note: Throughout this section, lockout/tagout refers to lockout without tagout; tagout without lockout; and lockout used in conjunction with tagout.

**PURPOSE AND SCOPE:** Effective hazardous energy control procedures will protect employees during machine and equipment servicing and maintenance where the unexpected energization, start up or release of stored energy could occur and cause injury. Further, effective hazardous energy control procedures will protect employees when working near or on exposed de-energized electrical conductors and parts of electrical equipment. Hazards being guarded against include, but are not limited to, being cut, struck, caught, crushed, thrown, mangled, and/or shocked by live electrical circuits caused by the unexpected release of hazardous energy. One (1) piece of machinery can have more than one (1) real or potential source of hazardous energy that must be guarded against.

These procedures for the control of hazardous energy will ensure that machines and equipment are isolated properly from hazardous or potentially hazardous energy sources during servicing and maintenance and properly protected from re-energization.

When any employee is exposed to contact with parts of fixed electrical equipment or circuits which have been deenergized, the circuits energizing the parts will be locked out and/or tagged in accordance with the requirements of §2320.9, Backfeeding or Interconnection, and/or §2940, General Provisions.

**PREPARATION FOR SHUTDOWN:** Prior to lockout/tagout, all energy isolating devices must be located which apply to the specific machine in question. There may be more than one energy source. While electrical is most common, other sources could be: hydraulic, pneumatic, chemical, thermal, rotational, spring, etc. All must be isolated. The Energy Source Evaluation Form and the Control Procedures Form must be completed prior to isolation. These forms must be completed by an authorized employee. Once completed, it is recommended that these evaluations remain on file for future use. Any changes in design or energy hazard will require an update of these forms. Not only the energy source hazard, but its magnitude must be recorded on the Energy Source Evaluation Form.


Before an authorized or affected employee turns off the piece of equipment, the authorized employee must have knowledge of the type and magnitude of the energy to be controlled and the methods or means to control the energy. Refer to the Control Procedures Form for specific energy control procedures.
MACHINE OR EQUIPMENT SHUTDOWN: Before lockout/tagout controls are applied, all affected employees will be notified and given the reasons for the lockout/tagout.

If a machine or equipment is operating, it will be shut down by normal stopping procedures by either the affected or authorized employee.

LOCKOUT/TAGOUT DEVICE APPLICATION: Authorized employees will lockout/tagout the energy isolating devices with assigned individual locks. Locks or other lockout/tagout devices will be color coded and shall be used for no other purpose. Lockout/tagout devices will indicate the identity of the authorized employee applying the device.

Lockout/tagout devices will be durable and capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected. They shall be standardized in color and be substantial enough to prevent their removal without the use of excessive force or unusual techniques such as bolt cutters or other metal cutting tools. Key or combination locks are acceptable. Tagout device attachments shall be non-reusable, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds. The tagout attachment will have the general design and basic characteristics of, at a minimum, a one-piece, all environmental tolerant nylon cable tie.

Lockout/tagout devices will be applied so that they will hold the energy isolating devices in a "Neutral" or "Off" position. Protective materials and hardware shall be provided for isolating, securing or blocking of machines or equipment from energy sources. These protective materials and hardware include, but are not limited to, locks, tag chains, wedges, key blocks, adapter pins, self-locking fasteners, etc.

RELEASE OF STORED ENERGY: All stored energy will be blocked or dissipated. Types of stored energy include flywheels, springs, hydraulic or pneumatic systems, etc. Should there be a possibility of re-accumulation of stored energy, verification of isolation must be continued until servicing is complete.
VERIFICATION OF ISOLATION: Prior to starting work on machines or equipment that have been locked out and after ensuring that no personnel are exposed to the release of hazardous energy, the authorized employee shall operate the normal operating controls to verify that the machine or equipment has been de-energized and that it will not operate.

After the above test, the operating controls will be returned to the "NEUTRAL" or "OFF" position.

At this point, the machine/equipment is now locked out. The work may proceed.

RELEASE FROM LOCKOUT/TAGOUT: Before the lockout/tagout devices are removed and energy is restored to the machine or equipment, the following procedures will be implemented to ensure the safety of everyone involved:

a. The work area will be inspected to ensure that nonessential items have been removed and to ensure that the machine or equipment components are operationally intact.

b. The work area will be checked to ensure that all employees have been safely positioned or removed.

After the lockout/tagout devices have been removed and before the machine or equipment is started, affected employees will be notified that the lockout/tagout devices have been removed.

Each lockout/tagout device must be removed by the authorized employee who applied it.

Note: The one exception to the above is when the authorized employee who applied the lockout/tagout device is not available to remove it. That device may be removed under the direction of the competent person provided that the below specific procedures are followed:

a. Verification by the competent person that the authorized employee who applied the lockout/tagout device is not at the job site.

b. All reasonable efforts will be made to contact the authorized employee to inform him/her that his/her lockout/tagout device has been removed.

c. Ensuring that the Authorized employee has been informed of the above before resuming work.
The person who removes the device must be an authorized employee.

Each type of control of hazardous energy procedure shall be documented using the Energy Source Evaluation Form and the Control Procedures Form except when all the below listed conditions exist:

a. 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

b. The machine or equipment has a single energy source which can be readily identified and isolated; and

c. The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment; and

d. The machine or equipment is isolated from that energy source and locked out during servicing and maintenance; and

e. A single lockout device is under the exclusive control of the authorized employee performing the servicing and maintenance; and

f. The servicing and maintenance does not create hazards for other employees; and

g. No accidents have occurred involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.

The above exceptions apply to documentation only. Whether using lockout, tagout, or lockout and tagout, the general procedures are the same.
Device Selection Criteria for Non-Electrical Hazardous Energy

A lock, color coded with either paint or tape and identifiable with the name of the employee who applied it, shall be placed on each energy-isolating device where feasible. Lockout is the primary means of non-electrical hazardous energy isolation and, where possible, will always be used in lieu of tagout. In the event a machine or piece of equipment will not accept a lock on its energy isolating device(s), it will be modified to do so whenever it is replaced, renovated, or undergoes a major repair.

There are occasions where lockout cannot be accomplished and in those instances, tagout alone may be used as long as it provides full employee protection as explained below:

   a. A tag may be used without a lock if a lock cannot be physically applied. This procedure must be supplemented with at least one additional safety measure providing a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include, but are not limited to the:

      2. Blocking of a controlling switch.
      3. Opening of an extra disconnecting device.

Note: A tag may be used without a lock if it can be demonstrated that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock. This demonstration must be documented. This is an allowable, but not preferred, option.
All affected persons must be fully aware of the fact that tags used in tagout procedures are essentially a warning device affixed to energy isolating devices. Unlike locks, tags do not physically restrain. Tags will:

a. Be capable of withstanding the environment to which they have been exposed for the maximum period of time that exposure is expected.

b. Be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.

c. Be standardized in at least one (1) of the following:
   1. Color
   2. Shape
   3. Size

d. Be standardized in print and format.

e. In their method of attachment, be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment methods and means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum strength of no less than 50 pounds and have the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

f. Indicate the identity of the employee applying the tag.

g. Warn against the hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: *Do Not Start, Do Not Open, Do Not Close, Do Not Operate*, etc.
Control of Electrical Hazardous Energy on Fixed Equipment

Electrical hazards associated with fixed equipment present a special hazard class and, in each case, a determination must be made whether lockout, tagout, or lockout used in conjunction with tagout is to be utilized.

Per §2320.2, Energized Equipment or Systems, live parts that operate at less than 50 volts to ground need not be deenergized if there will be no increased exposure to electrical burns or to explosion due to electric arc as determined by a qualified person. Fixed equipment is defined as: "equipment fastened in place or connected by permanent wiring methods."

Before circuits and/or equipment are de-energized, safe procedures will be determined before the fact. At a minimum:

a. The circuits and equipment to be de-energized will be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, may not be used as the sole means for de-energizing circuits or equipment. Interlocks for electric equipment may not be used as a substitute for lockout and tagging procedures.

b. Stored electric energy which might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded if the stored electric energy might endanger personnel. Be aware of the shock potential of capacitors and associated equipment. If they are handled in meeting this requirement (discharging), they shall be treated as energized until they have been totally discharged.

c. Stored non-electrical energy in devices that could reenergize electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.
Device Selection Criteria for Electrical Hazardous Energy

Note: When dealing with safety related work practices to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, the following definitions apply:

Qualified Electrical Worker: A qualified person who by reason of a minimum of two years of training and experience with high-voltage circuits and equipment and who has demonstrated by performance familiarity with the work to be performed and the hazards involved.

Qualified Person: A person who by reason of experience or instruction is familiar with the operation to be performed and the hazards involved.

Qualified Person, Attendant or Operator (as per T8CCR 3207): A person designated by the employer who by reason of his training and experience has demonstrated his ability to safely perform his duties and, where required, is properly licensed in accordance with federal, state or local laws and regulations.

A lock and tag shall be placed on each disconnecting means used to de-energize circuits and equipment on which work is to be performed except:

a. A tag may be used without a lock if it can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock. This demonstration must be documented. This is an allowable, but not preferred, option. A tag may also be used without a lock, if a lock cannot be physically applied. Under either of the above two circumstances that a tag is used without a lock, the procedures must be supplemented with at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include:
   1. The removal of an isolating circuit element.
   2. The blocking of a controlling switch.
   3. The opening of an extra disconnecting device.

b. A lock may be used without a tag if, and only if:
   1. Only one circuit or piece of equipment is being de-energized, and
   2. The lockout period does not extend beyond the work shift, and
   3. Employees exposed to the hazards associated with re-energizing the circuit are familiar with this procedure -- utilizing a lock without a tag.
After electrical hazards are locked out, tagged out, or locked and tagged out, a Qualified Person must verify de-energization before work can proceed on de-energized equipment. Verification by the Qualified Person will include:

a. Operation of the equipment’s operating controls, or otherwise verifying that the equipment cannot be restarted.

b. Using test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and verifying that the circuit elements and equipment parts are de-energized.

c. Using test equipment to determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been de-energized and presumed to be safe.

Note: If the circuit to be tested is over 600 volts, the test equipment shall be checked for proper operation immediately before and immediately after this test.

Re-energizing Electrical Equipment

The process of re-energizing electrical equipment, even temporarily, must be accomplished as noted below in the order listed:

a. A Qualified Person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuit and equipment can be safely energized.

b. Employees exposed to the hazards associated with re-energizing the circuit or equipment shall be warned to stay clear of circuits and equipment.

c. Each lock and tag will be removed by the authorized employee (who must also be a Qualified Person when dealing with electrical hazards).

d. If the person who applied the lock or tag is absent from the job site, the competent person may designate another Qualified Person to remove the lock and/or tag provided that:

1. It is assured that the Authorized Person who applied the lock or tag is not available at the job site, and

2. It is assured that the Authorized Person who applied the lock and/or tag is aware that the lock and/or tag has been removed before he/she resumes work at the job site.

e. A visual determination shall be accomplished to ensure all employees are clear of the circuits energized.
Special Considerations

Whether using lockout, tagout, or lockout and tagout procedures, the below special considerations apply.

There may be special circumstances where, during a lockout procedure, a machine or equipment must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine or equipment or components thereof. The below procedures will be followed to accomplish this task:

a. The machine or equipment will be cleared of tools and nonessential items and, if it is to be operated, all components will be operationally intact.

b. The work area will be checked to ensure that all employees have been safely positioned or removed.

c. The standard release from lockout procedures will be implemented.

d. The machine or equipment will be energized and testing or positioning will proceed.

e. After testing or positioning, de-energize all systems and reapply the energy control device following standard procedures.

Group Lockout and/or Tagout Procedures

In the event that servicing or maintenance is performed by more than one individual, the following shall be implemented:

a. One person will be designated as Group Leader and that person will have overall responsibility for a set number of employees working under his/her control.

b. The Group Leader will have exclusive control of a Master Group Lockout and/or Group Tagout device.

c. The Group Leader will ascertain the exposure status of individual group members with regard to the lockout and/or tagout of the machine or equipment.

d. Each authorized employee within the group shall affix his personal lockout/tagout device to a group lockout box or comparable device before beginning work and shall remove his/her personal lockout/tagout device upon completion of work.

If there is more than one group of personnel working a machine or piece of equipment, an employee shall be designated to coordinate and take responsibility for all the individual groups.
Shift and/or Personnel Changes

In the event that Energy Control Procedures must extend into the next shift or if there are individual or group personnel changes, the procedures listed below will be implemented in the order listed:

a. If the energy isolation device will accept two lockout/tagout devices:

1. The authorized employee coming on duty will place his personalized lockout/tagout device in place, and
2. After the above step has been completed, the employee going off duty will remove his lockout/tagout device.

b. If the energy isolation device will not accept two lockout/tagout devices, both the incoming and outgoing authorized employees will:

1. Ensure that all affected employees are aware that a lockout/tagout change is about to take place, then
2. Ensure that the area is clear of tools and affected employees, then
3. The outgoing authorized employee will remove his lockout/tagout devices and immediately the incoming authorized employee will install his lockout/tagout devices, and
4. The incoming authorized employee will inform the affected employees that the change has been completed.

Following the above procedure will ensure the energy isolating device was never disturbed and that complete control of hazardous energy was maintained. The above procedure provides for continuing protection for both incoming and outgoing employees from the potential hazards of the unexpected release of hazardous energy and an orderly transfer of lockout/tagout responsibilities.
Periodic Inspections

Blaine L. Nurse, our Safety Director, will conduct periodic inspections of this Control of Hazardous Energy Program at least annually to ensure that the procedures and requirements of 29 CFR 1910.147 are being followed. The information gleaned from the periodic inspection will be used to correct any deviations or inadequacies identified. These inspections will be documented and certification will be prepared to identify the machine or equipment on which an energy control procedure was utilized, the date of the inspection, the employees included in the inspection, and the name of the person performing the inspection. It should be noted that all periodic inspections shall be conducted by a competent person designated by Blaine L. Nurse other than the person who actually used the energy control procedure being inspected.

Training

Control of Hazardous Energy training will be documented giving the name of the trainer, the name of the trainee, and the date. Authorized employees must be familiar with this program and will be trained in the following areas: recognition of all applicable hazardous energy sources, types and magnitude of energy sources, methods and means necessary for energy isolation and control, and changes to our program.

Retraining will be conducted when a periodic inspection reveals inadequacy in an authorized employee’s knowledge, there has been a deviation from established policy or procedure, or our procedures are changed.

All training will be interactive with applicable standards readily accessible.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
Energy Sources Evaluation Form

Machine/Equipment Identification: ________________________________________
Location of Machine Equipment: ________________________________________
Authorized Person Name: __________________________ Date: ___________

MACHINE OR EQUIPMENT NAME: __________________ LOCATION: ___________

MODEL: _______________ SERIAL NUMBER: _______________
PROCEDURE NUMBER: __________

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<tr>
<th>ENERGY SOURCE</th>
<th>MAGNITUDE (Volts; Amps; Phase; HP; Lbs.; RPM; Ft-lbs.; psi.; F/C; Highly Reactive)</th>
<th>LOCATION OF ISOLATING DEVICE</th>
<th>MEANS OF ISOLATION</th>
<th>COMMENTS</th>
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NOTE: This form must be completed by an Authorized Employee.

EVALUATION CONDUCTED BY:
NAME: ____________________________ DATE: ________________
(MUST BE AN AUTHORIZED EMPLOYEE)
Nurse Stucco Inc.

Control Procedures Form

Machine/Equipment Identification: ____________________________________________

Location of Machine Equipment:______________________________________________

Authorized Person Name:_____________________________  Date:  ___________

These Procedures must be accomplished in the order listed.

1. PREPARATION FOR SHUTDOWN:  The Authorized Employee will be totally familiar with the first page of this form. The Affected Employees will be notified that the piece of equipment is about to be shut down and locked out.

   Specific Instructions:____________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

2. SHUTDOWN: Affected Employees will be given the reason(s) for the lockout/tagout procedures. If the machine is running, it will be turned off using normal procedures. It may be shut down by either the Authorized Employee or the Affected Employee.

   Specific Instructions:____________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

3. MACHINE ISOLATION: All real or potential hazardous energy listed on the first page of this form will be isolated from their source. The location of the isolation devices and the methods used are also found on the first page of the form.

   Specific Instructions:____________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

4. LOCKOUT/TAGOUT DEVICE APPLICATION: Authorized Employees will (circle appropriate procedure):  [lockout] [tagout] [lockout and tagout]  the energy isolating devices. Lock and tag devices will be color coded and they will contain the identity of the Authorized Employee actually performing this procedure. The lockout/tagout devices will be applied so that they hold the energy isolating device in a "Neutral" or "Off" position.

   Specific Instructions:____________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

   1 of 2
4a. If a tag is used in lieu of a lock because the energy isolating device will not accept a lock, the following additional safety precautions will be taken [29 CFR 1910.147 c(3)(ii) & 29 CFR 1910.333(2)(b)(iii)((D)]:

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
Specific Instructions:____________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

5. RELEASE OF STORED ENERGY: All stored energy will be blocked or dissipated. Reference page one (1) of this form to ensure real or potential stored energy in a system is identified and controlled.

Specific Instructions:____________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

6. VERIFICATION OF ISOLATION: Prior to starting work on the piece of equipment and after ensuring that no personnel are exposed to the release of hazardous energy, the Authorized Employee shall operate the controls to verify that there has been de-energization and that the equipment will not operate. After this verification, the operating controls will be returned to the "Neutral" or "Off" position.

Specific Instructions:____________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

7. RELEASE FROM LOCKOUT/TAGOUT: The Authorized Employee shall 1.) Ensure that all Employees have been safely positioned or removed and the work area will be cleared of non-essential items, 2.) Ensure the equipment or equipment components are operationally intact; 3.) Ensure machine guards have been replaced; 4.) Inform the Affected Employees that lockout and or tagout devices are going to be removed; 5.) Remove the lockout and or tagout devices including all energy restraints such as blocks; and 6.) Inform the Affected Employees that the equipment is ready for operation.

Specific Instructions:____________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
Group Leader Documentation Form

One (1) person shall be designated as Group Leader. The Group Leader will have overall responsibility for a set number of employees.

The Group Leader shall have exclusive control of a Master (Group) Lockout and/or Group Tagout device.

The Group Leader will ascertain the exposure status of individual group members with regard to the lockout and/or tagout of the machine or equipment.

Each individual authorized employee within the group shall affix his personal lockout/tagout device to a group lockout box or comparable device before beginning work and shall remove his/her personal lockout/tagout device upon completion of work.

If there is more than one group of personnel working on a machine or piece of equipment, an employee shall be designated to coordinate and take responsibility for all the individual groups.

NAME OF DESIGNATED GROUP LEADER: ______________________________________

EQUIPMENT REQUIRING CONTROL OF HAZARDOUS ENERGY

NAME: _________________________      SERIAL NUMBER: _______________________
DATE: _________________________       MODEL NUMBER: _______________________

AUTHORIZED (QUALIFIED) EMPLOYEES OF THE GROUP

(Name) ______________________________  (Signature) _____________________________

(Name) ______________________________  (Signature) _____________________________

(Name) ______________________________  (Signature) _____________________________

(Name) ______________________________  (Signature) _____________________________

(Name) ______________________________  (Signature) _____________________________

__________________________________________________
Darren L. Nurse
Program Administrator

SIGNATURE OF GROUP LEADER: ________________________________________________
Periodic Inspection Documentation Form

EQUIPMENT ON WHICH CONTROL OF HAZARDOUS ENERGY PROCEDURES WERE UTILIZED

NAME: _________________________      SERIAL NUMBER: _______________________
DATE: _________________________       MODEL NUMBER: _______________________

WERE ALL THE CORRECT PROCEDURES CORRECTLY APPLIED?   YES          NO

If yes, sign the form and return to Blaine L. Nurse, our Safety Director.
If no, complete the below section, sign the form and return to Blaine L. Nurse, our Safety Director.

EMPLOYEES PERFORMING THE PROCEDURE

(Name) ___________________________     (Signature) ___________________________

(Name) ___________________________     (Signature) ___________________________

(Name) ___________________________     (Signature) ___________________________

(Name) ___________________________     (Signature) ___________________________

(Name) ___________________________     (Signature) ___________________________

(Name) ___________________________     (Signature) ___________________________

IMPROPER PROCEDURES NOTED

___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________

(SIGNATURE OF INSPECTOR) ___________________________     (Date) ___________________________

NOTE: If improper procedures are noted, the above employees must have retraining or the Program must be modified
Permit-Required Confined Space Program

§5156. Scope, Application and Definitions.
§5157. Permit-Required Confined Spaces.
§5158. Other Confined Space Operations.
§5155. Airborne Contaminants.

Table AC-1, Permissible Exposure Limits for Chemical Contaminants

Overview

All employees required to enter into confined or enclosed spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required. We are to comply with any specific regulations applying to this potentially dangerous situation.

Confined Spaces

Confined spaces are dangerous because of their configuration, their actual or potential atmosphere, and other hazards that may present themselves such as engulfment.

This Program is designed to:

a. Identify and evaluate permit space hazards before entry.

b. Provide a system of testing conditions before entry and monitoring conditions during entry.

c. Provide a system of preventing unauthorized entry.

d. Provide a method of eliminating or controlling hazards for safe permit-space entry operations.

e. Provide a method of ensuring at least one (1) Attendant is stationed outside the permit space for the duration of the entry operations.

f. Provide a method of coordinating and monitoring entry operations when employees of more than one employer are to be working in the permit space.

g. Provide appropriate procedures for emergency rescue.

h. Establish a written procedure for preparation, issuance, use, and cancellation of entry permits.

i. Provide a system for review and revision of our Program.

j. Provide a complete understanding of Cal/OSHA standards relating to confined space entry.
After all is said and done, the bottom line is this:

a. A confined space is a space that:
   1. Is large enough and so configured that an employee’s body can enter and perform assigned work and
   2. Has limited or restricted means for entry or exit. On the job site, these spaces may include: ventilation or exhaust ducts, bins and tanks, boilers, sewers, tunnels and open top spaces more than 4 feet in depth such as pits, tubs, and vessels and
   3. Is not designed for continuous employee occupancy.

b. A Permit-Required Confined Space is:
   1. A confined space that contains any recognized serious safety or health hazards.

Definitions

The Permit-Required Confined Space standard contains terms which must be understood by all those involved with entry to confined space, permit-required or not. These terms should be known to avoid miscommunication:

ACCEPTABLE ENTRY CONDITIONS: the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can enter safely 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 Attendant’s duties identified and assigned in our permit-required confined space program.

AUTHORIZED ENTRANT: denotes an employee who is authorized to enter a permit space.

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 is capable of withstand ing the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

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.

EMERGENCY: any occurrence (including any failure of hazard control or monitoring equipment) or event, internal or external, to the permit space that could endanger entrants.
ENGULFMENT: the 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, or crushing.

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 (PERMIT): the document that is prepared to allow and control entry into a permit space and that contains the below listed information:

- a. The permit space to be entered.
- b. The purpose of the entry.
- c. The date and authorized duration of the entry permit.
- d. The authorized entrants listed in a manner that will allow the attendant to determine, for the duration of the permit, quickly and accurately which entrants are inside the confined space.
- e. The names of personnel currently serving as attendants.
- f. The name of the individual serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry.
- g. The hazards of the permit space to be entered.
- h. The measures used to isolate the permit space and to eliminate or control permit space hazards before entry, i.e., lockout or tagging of equipment, as well as procedures for purging, inerting, ventilating, and flushing permit spaces.
- i. The acceptable conditions.
j. The results of initial and periodic tests accompanied by the names or initials of the testers and by an indication of when the tests were performed. Permit space conditions will be evaluated as follows:

1. Testing of conditions in the permit space to determine if acceptable entry conditions exist before entry is authorized to begin. If isolation of the space is not feasible because the space is large or is part of a continuous system (such as a sewer), pre-entry testing shall be performed to the extent feasible before entry is authorized. If entry is authorized, entry conditions shall be continuously monitored in the areas where Authorized Entrants are working.

2. Testing and/or monitoring the permit space as necessary to determine if acceptable entry conditions are being maintained during the course of entry operations.

3. Testing for atmospheric conditions will be conducted in this order: 1) oxygen; 2) combustible gases and vapors; and 3) toxic gases and vapors.

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 as required.

HAZARDOUS ATMOSPHERE: an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (i.e., escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

a. Flammable gas, vapor, or mist in excess of 10% of its lower flammable limit.

b. Airborne combustible dust at a concentration that meets or exceeds its lower flammable limit.

c. Atmosphere oxygen concentration below 19.5% or above 23.5%.

d. Atmospheric concentration of any substance for which a dose or permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or Table AC-1, Permissible Exposure Limits for Chemical Contaminants, and which could result in employee exposure in excess of its dose or permissible exposure limit.

e. Any other atmospheric condition that is immediately dangerous to life or health.
HOT WORK PERMIT: the written authorization to perform operations capable of providing a source of ignition, i.e., riveting, welding, cutting, burning, and heating.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): any condition that poses an immediate or delayed threat to life, causes irreversible adverse health effects, or interferes with an individual's ability to escape unaided from a permit space.

INERTING: The displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Note: This procedure produces an IDLH oxygen-deficient atmosphere.

ISOLATION: the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of line, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources or energy; or blocking or disconnecting all mechanical linkages.

LFL: lower flammable limit.

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.

NON-PERMIT CONFINED SPACE: a confined space that does not contain or, with respect to atmospheric hazards, have 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.

PEL: Permissible Exposure Limit.
PERMIT-REQUIRED CONFINED SPACE: a confined space that has one or more of the following characteristics:

a. Contains or has a potential to contain a hazardous atmosphere.

b. Contains a material that has the potential for engulfing an entrant.

c. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.

d. Contains any other recognized serious safety or health hazard.

PERMIT SYSTEM: our written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

PROHIBITED CONDITION: any conditions in a permit space that is not allowed by the permit during the period when entry is authorized.

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 if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

STRATIFIED ATMOSPHERE: layered atmosphere.

TESTING: the process by which the hazards confronting entrants of a permit space are identified and evaluated. Testing includes specifying the tests to be performed in the permit space.
Job Site Evaluation

The Entry Supervisor will evaluate the job site to determine if any spaces are permit-required spaces. Should a permit-required confined space(s) be identified, all exposed employees will be informed of the location and danger by posting a sign that reads:

**DANGER-PERMIT-REQUIRED CONFINED SPACE**

**DO NOT ENTER**

Personnel are not allowed in the Permit-Required Confined Space except under the provisions of this Program. The above sign shall remain in place unless the space is reevaluated and re-designated a non-permit confined space. By the same token, non-permit confined space(s) shall be reevaluated as configurations, uses, and changes in hazards are identified, and, if necessary, re-classified as a permit-required confined space.

In the absence of other guidelines, this Program will be used for all Permit-Space Entry by our employees. When working with a client that has permit spaces, we will:

a. inform the client that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit-required confined space program meeting the requirements of §5157. Permit-Required Confined Spaces.

b. inform the client of reasons that make the confined space a permit-required confined space.

c. seek information from the client concerning their experience with the space in question and the hazards associated with it.

d. seek any information from the client concerning any precautions or procedures they have implemented for the protection of employees in or near permit spaces where our employees will be working.

e. should our employees and a client’s employees be working near or in the same permit-required confined space, one person will be designated Senior Attendant and have authority over the other Attendants. This authority will be in writing.
A decision flow chart will be used to identify permit-required confined spaces.

**Permit-Required Confined Space Decision Flow Chart**

As a general policy, no employee shall enter any confined space, permit-required or not, unless entry is dictated by work assignment. Entry of permit-required confined spaces will be made under the provisions of this Program.
Standard Procedures for Permit-Required Confined Space Entry

MEASURES TO PREVENT UNAUTHORIZED ENTRY

Unauthorized entry will be prevented by:

a. Posting of the below sign:

   DANGER--PERMIT-REQUIRED CONFINED SPACE
   DO NOT ENTER

b. Posting of Attendants outside the permit-required confined space to ensure that unauthorized personnel are not allowed in.

c. Ensuring that the Entry Supervisor is aware of his authority to remove unauthorized individuals who enter or attempt to enter the permit space during entry operations.

d. Ensuring the Authorized Entrants are aware of the provisions which requires an immediate evacuation in the event of the detection of a prohibited condition. An unauthorized entrant is a prohibited condition.

A roster system which allows the Attendant to keep track of the Authorized Entrants within the permit space will be used. The times in and out are recorded. This system accomplishes two major safety goals and one time-management goal:

a. Identifies who is actually in the permit-required space.

b. Records the time of exposure to the hazardous condition(s).

c. Documents the time required for accomplishing the assigned task.
ATMOSPHERIC TESTING

Note: Entrants, or their representatives, will have the opportunity to observe the pre-entry atmospheric testing as well as any periodic testing that may be deemed necessary for employee safety. Employees or their representative may request additional air monitoring at any time.

Atmospheric testing is required for two (2) distinct purposes: evaluation of the hazards of the permit space and verification that acceptable conditions exist for entry into that space.

a. **Evaluation testing** - The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres existing or arising so that appropriate permit entry procedures can be developed and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data and development of the entry procedure should be reviewed by a technically qualified professional (e.g., OSHA consultation service, certified industrial hygienist, registered safety engineer, or certified safety professional) based on evaluation of all serious hazards.

b. **Verification testing** - The atmosphere of a permit space which may contain a hazardous atmosphere should be tested for residues of all contaminants identified by evaluation testing using permit specified equipment to determine that residual concentration at the time of testing and entry are within the range of acceptable entry conditions. Testing order should be oxygen, flammables, and then toxics. Results of testing (i.e., actual concentration) should be recorded on the permit in the space provided adjacent to the stipulated acceptable entry condition.

**Duration of testing**

Measurement of values for each atmospheric parameter should be made for at least the minimum response time of the test instrument specified by the manufacturer.

**Testing stratified (layered) atmospheres**

When monitoring for entries involving a descent into atmospheres which may be stratified, the atmospheric envelope should be tested at a distance of approximately four (4) feet in the direction of travel and to each side. If a sampling probe is used, the entrant’s rate of progress should be slowed to accommodate the sampling speed and detector response.

Periodic re-testing will verify the atmosphere remains within acceptable entry conditions.
PROCEDURES AND PRACTICES FOR PERMIT SPACE ENTRY

The confined space will be evaluated to determine if, in fact, it is a Permit-Required Confined Space. The decision process will be aided by using the Permit-Required Confined Space Decision Flow Chart. The Entry Supervisor will make this determination.

Questions to be answered in the decision making process includes:

a. Does the atmosphere have an oxygen content of between 19.5% and 23.0% by volume?
b. Does the atmosphere contain or have a potential to contain a hazardous atmosphere?
c. Does the confined space contain a material with a potential for engulfing the entrant?
d. Does the confined space have an internal configuration capable of entrapping or asphyxiating the entrant?
e. Does the confined space contain any other recognized hazards?

Once it has been determined that the procedures for Permit-Required Confined Space operations will be implemented, the following actions will be taken:

a. The space will be secured and isolated to prevent non-authorized entry. Barriers, or some other protection as dictated by circumstance, will be erected or installed to protect entrants from external hazards such as pedestrians, vehicles, falling objects, etc.
b. The Pre-Entry Check List will be prepared.
c. A check will be made of the records of all personnel involved with the operations to insure they have had appropriate training for the hazards involved. Safety Data Sheets will be made available.
d. Before entry, a comprehensive rescue plan will be written and a check of the rescue team's qualifications will be made.
e. All feasible engineering controls will be implemented. The atmosphere will be purged, ventilated, inerted, and/or flushed to control or eliminate the hazardous atmosphere.
f. Before entry, all personnel involved will review the Pre-Entry Check List and have a complete understanding of what the operations are to accomplish, the safety measures available, and the rescue plan.
g. All available data will be sought from our client concerning the space including its history, its hazards, their experience with the space and, if applicable, problems encountered. At the completion of the project, all information pertinent to the confined space operation will be provided to the client. Coordination of work and the assignment of one (1) Senior Attendant will be made.

Throughout the duration of an authorized entry into a permit confined
space, conditions will be continually verified for acceptability.

After all measures listed above are met: training; testing; identification of hazards; evaluation; specifying acceptable entry conditions; controlling the atmospheric hazards and other identified hazards through engineering controls, such as forced air ventilation, isolation, and control of hazardous energy (lockout/tagout); preparing a rescue plan; barricading; equipping the appropriate employees with personal protective gear and notifying them of all hazards involved with the entry, etc., the Entry Permit will be issued and signed by the Entry Supervisor.

The duration of the Entry Permit may not exceed the time required to complete the assigned task identified on the permit and will be terminated:

   a. When the assigned task is completed.
   b. When a condition that is not allowed under the entry permit arises in or near the permit space.

During Permit-Required Confined Space entry, employees will be provided, at no cost, the following:

   a. Testing and monitoring equipment to test conditions in the permit space to determine if acceptable entry conditions exist before entry is authorized to begin and, if acceptable conditions exist, to continually monitor conditions during the entry process to ensure that acceptable conditions are maintained.
   b. Ventilating equipment, if required, to maintain acceptable atmospheric conditions.
   c. Communications equipment, or a method of communicating, between the entrant(s) and the Attendant.
   d. Personal protective equipment, should feasible engineering controls not adequately protect the entrants.
   e. Adequate lighting to provide safe working conditions and enhance the ability of entrants to safely and quickly evacuate the permit-required confined space in an emergency.
   f. Required equipment, such as ladders, for safe entry and exit for the Authorized Entrants.
   g. Rescue equipment, such as wristlets, life lines, and harnesses to extricate entrants in the event of an emergency. The Emergency Rescue Plan will be implemented so that rescue personnel are either on call or on station with adequate medical resources.
RESCUE AND EMERGENCY SERVICES PLAN

One of the most important elements of any Permit-Required Confined Space Program is the Rescue and Emergency Services Plan. There shall be, as a matter of policy, at least one Attendant for each applicable confined space. Regardless of the emergency, if only one Attendant is on duty, he shall not enter a Permit-Required Confined Space to attempt a rescue until replaced by a second Attendant.

Should an employee be assigned to be a member of a Rescue Team, that employee must have had documented training in:

- a. Proper use of personal protective equipment and rescue equipment.
- b. The same training as required of the entrant.
- c. A simulated rescue within at least twelve (12) months in the same type of confined space (i.e., representative space of the same general dimensions, opening size, hazard type, and accessibility.)

At least one member of the Rescue Team must be trained and certified in basic first aid and cardiopulmonary resuscitation (CPR) and that documentation will be on file. This person must also have training in bloodborne pathogens and exposure control.

The attendant will ensure that only authorized rescue personnel identified on the entry permit be allowed to attempt a rescue.

The Attendant will notify the rescue service before permit-required confined space entry is made to coordinate a possible rescue. The rescue service will be informed of the exact location of the project, the hazards involved, the number of entrants, the types of protective equipment worn by the entrants, etc. If needed, a practice rescue will be accomplished. If a rescue effort is required, the attendant will call the rescue service immediately by phone.

If the entry involves a possible IDLH situation, the rescue service will be on-site while work is being performed.
Non-entry rescue will be used by retrieval systems, where possible, in lieu of actual entry unless the retrieval system would contribute to the overall risk of the entrant.

Retrieval systems to be considered include:
   a. A chest or full body harness with a retrieval line attached at the center of the entrant's back near shoulder level.
   b. Wristlets if they create a lesser danger to the entrant than the above.
   c. A retrieval line attached to a mechanical lifting (pulling) device fixed to an anchorage outside the permit space.

Should a potential rescue be required to retrieve an entrant from a five (5) foot vertical drop, a mechanical retrieval device will be employed.

The Attendant will have on site the SDS for all chemical substances to which the entrant will be exposed. The emergency responders as well as the treating hospital will be provided this information.

The rescue procedure to be used will be noted on the Entry Permit before entry.

Confined Space Entry Using Forced Air Ventilation
For Control of Hazardous Atmosphere
(NO OTHER HAZARDS ARE IDENTIFIED)

IF it can be demonstrated that the only hazard posed by the permit space is an actual or potential hazardous atmosphere; and

IF it can be demonstrated that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry; and

IF monitoring and inspection data supports the above; and

IF the initial entry of the permit space is necessary to obtain the above data, it is carried out by the complete Permit-Required Confined Space Program; and

IF the determinations and supporting data for the above are documented and made available to each employee who enter the permit space; then

ENTRY may be made provided:

THAT any conditions making it unsafe to remove an entrance cover have been eliminated before the cover is removed; and

THAT when the entrance covers are removed, the openings shall be promptly guarded by a railing, temporary cover, or other temporary barrier preventing an accidental fall through the opening, and protecting each employee working in the space from foreign objects entering the space; and
THAT before entering the space, the internal atmosphere shall be tested, with a calibrated direct-reading instrument, for the following conditions in the order given:
   a. Oxygen content
   b. Flammable gasses and vapors
   c. Potential toxic air contaminants, and

THAT there be no hazardous atmosphere within the space whenever any employee is inside the space, and

THAT continuous forced air ventilation shall be used, as follows:
   a. No employee may enter the space until the forced air ventilation has eliminated any hazardous atmosphere; and
   b. The forced air ventilation will be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees have left the space; and
   c. The air supply for the forced air ventilation shall be from a clean source and may not increase the hazards in the space; and

THAT the atmosphere within the space shall be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere; and

THAT if a hazardous atmosphere is detected during entry:
   a. Each employee shall leave the space immediately; and
   b. The space will be evaluated to determine how the hazardous atmosphere developed; and
   c. Measures will be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place; and
THAT all the above is verified with a written certification that contains the date, location of the space, and the signature of the person providing the certification before entry and made available to each employee entering the space.

THEN, per 29 CFR 1910.146(c)(5)(i) & (c)(5)(ii), we may use an alternate procedure for Confined Space Entry which does not require compliance with the following provisions of 29 CFR 1910.146:

- a. Permit-Required Confined Space Program
- b. Permit System
- c. Entry Permit
- d. Duties of Authorized Entrants
- e. Duties of Attendants
- f. Duties of Entry Supervisors
- g. Rescue and Emergency Services

In spite of the above, this type of confined space is still a Permit-Required Confined Space. We are only talking about authorized entry here. Remember, when the forced air ventilation has been removed, the hazardous atmosphere will return.

At first glance, this may seem like a way to avoid much of the paperwork and compliance requirements. To a small degree, it is. However, the confined space which falls under these provisions of the OSHA standard do require documented evaluation, training of employees, barricading of the area, a plan for emergency contingencies, and record keeping. Adherence to all applicable safety standards and practices must be maintained.

This is an alternate set of procedures which may or may not be used. If they are used, all employees should be aware that their safety is first and foremost and that provisions of 29 CFR 1910 (5)(c)(i) & (5)(c)(ii) will be adhered to. Specifically, what we are dealing with is a space with only one hazardous condition (atmosphere) before any action (i.e., forced air ventilation) is taken. Before entry is made, the hazardous atmosphere is made acceptable through continuous forced air ventilation, and the safety of the atmosphere is periodically checked to ensure that the atmosphere remains safe whenever an employee is within the space in question.
Training

Training will be given to all employees whose work is regulated by this plan. Training will ensure that these persons have the knowledge and skills necessary for the safe accomplishment of their assigned jobs with a confined space. Training will include the duties and responsibilities of each Permit-Required Confined Space position: Authorized Entrant, Attendant, Entry Supervisor, and Rescue Team Member.

Training will be certified with the trainee's name and signature; the trainer's name and signature; and the date of the training. This will be available for inspection by the employees and their authorized representatives.

Training will be accomplished before any assignment involving permit-required confined space operations and when there is a change in assigned duties. Further training will be given at the introduction of a new hazard for which the employee has not been trained.

Should actual job experience indicate a lack of knowledge or proficiency, training will be re-accomplished.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

Training for the various Permit-Required Confined Space job positions is noted below.

**AUTHORIZED ENTRANTS:**

Authorized Entrants will be trained in:

a. An awareness of the hazards that may be encountered during entry, including: information on the mode, signs or symptoms, and consequences of the exposure.

b. 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.

c. The skills necessary to communicate with the Attendant should a reason for evacuation be present.
d. The requirement to alert the Attendant whenever:
   1. The entrant notices a warning sign or symptom of exposure to a dangerous situation. An example of this may be a tingling of the skin, dizziness, or a headache. Consult the SDS for information on specific chemical hazards.
   2. A prohibited condition is detected.

e. Exit procedures which include the need to exit the permit space as quickly as possible whenever:
   1. An order to evacuate is given by the Attendant or the Entry Supervisor.
   2. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
   3. A prohibited condition is recognized.
   4. An evacuation alarm is activated.

ATTENDANTS:

Attendants will be trained in:

a. An awareness of the hazards that may be encountered during entry, including the mode, signs or symptoms, and consequences of the exposure.

b. An awareness of possible behavioral effects of hazard exposure in Authorized Entrants.

c. 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.

d. The requirement that, while an external rescue attempt may be attempted (such as the use of an external retrieval system), they may not attempt to enter a permit-required confined space to attempt a rescue under any circumstances unless:
   1. They are relieved by a second Attendant.
   2. They are thoroughly trained and certified in appropriate rescue techniques as required by the Rescue and Emergency Services Plan of this Program.
e. Communication procedures, as necessary, with Authorized Entrants to monitor entrant status and alert entrants of the need to evacuate if one of the following conditions presents itself:

1. A prohibited condition is detected by the Attendant.
2. The Attendant detects the behavioral effects of hazard exposure in an Authorized Entrant.
3. The Attendant detects a situation outside the space that could endanger the Authorized Entrants.
4. The Attendant realizes that he/she cannot perform all the required duties of this Plan.

f. 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.

g. Taking the following steps when unauthorized persons approach or enter a permit space while entry is underway:

1. Warn the unauthorized persons that they must stay away from the permit space.
2. Advise the unauthorized persons they must exit immediately if they have entered the permit space.
3. Inform the Authorized Entrants and the Entry Supervisor if unauthorized persons have entered the permit space.

h. The procedures for safe non-entry rescues as specified by our rescue procedure.

i. 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.
ENTRY SUPERVISOR:
The Entry Supervisor will be trained in:

a. An awareness of the hazards that may be encountered during entry including information of the mode, signs, symptoms, and consequences of the hazard exposure.

b. 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.

c. Termination procedures. Operations will terminate when:
   1. The entry operations covered by the entry permit have been completed, or
   2. A condition arises in or near the permit space that is not allowed.

d. Verifying that rescue services are available and that means for summoning them are operational.

e. An awareness that unauthorized personnel who enter or attempt to enter the permit space must be removed.

f. 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.
RESCUE AND EMERGENCY SERVICES:

Rescue and Emergency Services (Teams and/or Personnel) will be trained and knowledgeable in all areas applicable to Authorized Entrants as well as:

a. The use of personal protective equipment and rescue equipment.
b. Rescue duties consistent with the permit space involved and the identified hazards or potential hazards.
c. First aid -- at least one (1) member of a rescue team will be certified in basic first aid and CPR.
d. Providing an effective means of communication between employees inside a confined space and a standby employee(s) when:
   1. The use of respiratory protective equipment, or
   2. When employees inside a confined space are out of sight of the standby employee(s).

All affected employees shall be trained in the use of such communication system and the system shall be tested before each use to confirm its effective operation.

Assigned rescue personnel must complete permit space simulated rescues at least once every twelve (12) months from representative permit spaces similar to the permit space in question with regard to size, configuration, hazards involved, accessibility, and opening size.

Review of Program

Canceled entry permits will be retained for at least one (1) year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation will be noted on the appropriate permit so this program may be revised to correct deficiencies before subsequent entries are authorized.

This Permit-Required Confined Space Program will be reviewed and altered, if appropriate, at the following times:

a. When there is reason to believe the measures taken under this program may not protect employees such as: unauthorized entry; detection of a permit space hazard not covered by the permit; occurrence of an injury or near injury; change in the use or configuration or a permit space; or employee complaints about the effectiveness of this Program.
b. Within one year of each entry to ensure employees participating in entry operations are protected from permit space hazards.

Note: A single review may be conducted covering all entries during a twelve (12) month period.
Re-Designation of Confined Spaces

Confined spaces will be reevaluated and re-designated as appropriate. If all hazards, both atmospheric and non-atmospheric, are eliminated from a confined space, it shall be re-classified as a Non-Permit Confined Space. This will be accomplished provided that actual and potential hazards are eliminated.

By the same token, should a space that is classified a Non-Permit Confined Space be found to have a hazard, it shall be reclassified as a Permit-Required Confined Space.

Should a Non-Permit Confined Space, by virtue of altered configuration, use, addition, or identification of hazards become a Permit-Required Confined Space, its designation will change accordingly.

A confined space is one of the following:

a. A non-permit confined space not falling under the Confined Space standards.

b. A confined space whose one and only hazard is atmospheric and can be controlled by forced air ventilation. The Pre-Entry Check List provides this information.

c. A permit-required confined space; all hazards must be identified. The Pre-Entry Check List and Entry Permit provide this information.

Controlling and eliminating hazards are two distinct concepts. Controlling an atmosphere to make it acceptable (i.e., forced air ventilation) does not eliminate the hazard. Stop the forced air ventilation, and the hazard returns.

Summary

All employees who, by virtue of their work assignments, fall under the provisions of this standard should have a comprehensive understanding of confined spaces and the potential dangers involved when working in them. Certain items cannot be overemphasized; safety is so important. Most accidents are sudden and unexpected. It is much wiser to plan ahead for possible courses of action in response to potential danger than wait until an accident happens and find, for example, there is no external retrieval system or method of summoning qualified medical response.
Some of the provisions of this program may, on first review, seem unnecessary and/or harsh. One item is the requirement forbidding the Attendant trained in rescue, CPR, and First Aid, and having the proper safety equipment on site to enter a Permit-Required Confined Space to rescue a fellow worker until he/she is replaced by another Attendant. Another item is the requirement to evacuate the Permit-Required Confined Space immediately at the first sign of a problem.

An explanation of these two items might help to clarify the importance of the whole program.

In the first case, the worker has succumbed to a hazard in a Permit-Required Confined Space. The following information is assumed: the Authorized Entrant entered the space in question after the Pre-Entry Check List and Permit were issued; he/she is aware of the dangers and trained and qualified for entry; he/she has all the required personal protective gear and it is properly worn and functioning. The worker is down! The Attendant would, at the time of the emergency, have no additional information. Therefore whatever hazard fell the first worker would certainly fall the Attendant, if the Attendant were to enter the space. No one would know there are now two people to rescue. Even if they did, by the time the Emergency Response Team arrived, they would now be dealing with two people instead of one. The time lost could be critical to the survival of the Authorized Entrant and to the unwitting Attendant who, while trying to save his friend, actually put his life at greater risk.

Let’s analyze the second case concerning immediate evacuation. Suppose you are in a smoke-free environment such as an office, a house, or room and someone lights a cigarette. Even a smoker can detect the odor in a few moments. This gives an indication of how fast the gases in an atmosphere mix even at room temperature (it would be faster at higher temperatures). Immediate evacuation means just that – immediate. If an Authorized Entrant has just a few seconds to complete a work assignment in a permit-required confined space and is told by the Attendant to evacuate; a warning sign or symptom of exposure is noticed; a prohibited condition is observed; or an evacuation alarm is activated, the entrant must stop work at once and evacuate. Time is of the essence – hazardous atmospheres may spread quickly. Other hazards (such as engulfment) can happen instantly with little or no warning. It is much easier to re-assess a situation and re-group from outside the permit-required confined space.
Emergency Phone Numbers
(To be accessible to attendant)

Main Office: 619-561-7429

Police: 911 [_________________]  
(If no 911 Service Available)

Fire: 911 [_________________]  
(If no 911 Service Available)

Ambulance: 911 [_________________]  
(If no 911 Service Available)

Hospital Name:

EMERGENCY RESCUE SERVICE NAME: ______________________
PHONE: ______________________

Blaine L. Nurse  
Safety Director  
Work: 619-561-7429  
Cell: ______________________

Other:

(Name/Title)  
Work: ______________________  
Cell: ______________________

(Name/Title)  
Work: ______________________  
Cell: ______________________

(Name/Title)  
Work: ______________________  
Cell: ______________________

(Name/Title)  
Work: ______________________  
Cell: ______________________

When calling for EMERGENCY RESPONSE, this location is:
Nurse Stucco Inc.

Confined space/permit space evaluation survey

Name/Description of this space: __________________________________
Location of this space: _________________________________________
Person performing this survey: ___________________________________
Date of this survey: ____________________________________________

Section 1 – Use this section to determine if the space is a Confined space.

Yes □ No □ Is the space large enough and so configured that an employee can enter and perform assigned work?

Yes □ No □ Does the space have restricted means for entry or exit? Doorways and other portals through which a person can walk are normally not considered restricted means for entry or exit.

Yes □ No □ Is the space not designed for continuous occupancy?

If all three answers above are yes, this is a confined space. Proceed to Section 2.

Section 2 – Use this section to determine if the space is a Permit space.

Yes □ No □ Does the space contain or have a potential to contain a hazardous atmosphere? Examples: combustible dust, flammable mixtures, or oxygen deficiency that may expose employees to risk of death, incapacitation, or acute illness.

Yes □ No □ Does the space contain a material that has the potential for engulfing an entrant? Examples: liquids or granular solids.

Yes □ No □ Does the space have an internal configuration such as inwardly converging walls or a sloping floor that could trap or asphyxiate an entrant?

If any answer is yes, this is a permit space. An entry permit is required for entry.
Nurse Stucco Inc.

Permit-Space Information & Attendant Designation

CONFINED SPACE

DATE: _____________

SPACE IDENTIFICATION: _____________________________________________

SPACE LOCATION: _____________________________________________

CLIENT: _____________________________________________

1. Reasons the above confined space is designated a Permit-Required Confined Space:
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

2. Special precautions taken to protect personnel in or around the above space:
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

3. Specific hazards and experience with the above confined space:
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

CLIENT UNDERSTANDING

I, _________________________________________, have been provided the above information and understand that permit space entry is allowed only through compliance with a Permit Space Program meeting the requirements of 29 CFR 1926.1204. In the event that employees from Nurse Stucco Inc. and your company’s employees are working near or in the same Permit-Required Confined Space, the below listed person is designated as the one and only Senior Attendant. The person, listed below, will have authority over other Attendants.

________________________________________
(Designated Senior Attendant)

________________________________________ __________________________
(Client Representative Signature/Title) (Date)

_______________________________________ __________________________
Blaine L. Nurse (Date)
Safety Director

[A copy of this form will be kept at the job site during all operations.]
## Entry Roster

**CONFINED SPACE**

**DATE:** ________________

**SPACE IDENTIFICATION** __________________________________________

**SPACE LOCATION:** __________________________________________

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Nurse Stucco Inc.

Entry Permit

Permit-Required Confined Space

Note: This Entry Permit must be used with the attached Pre-Entry Checklist. Additional pages may be added as necessary.

CONFINED SPACE-HAZARDOUS AREA: 

PERMIT VALID FOR ________ HOURS

CONFINED SPACE IDENTIFICATION: ________________________

DATE: __________________

SPACE LOCATION: _____________________________________

TIME: ___________________

PURPOSE OF ENTRY: 

SUPERVISOR(S) in charge of crew: 

AUTHORIZED ATTENDANTS:

___________________________________  _____________________________________

___________________________________  _____________________________________

___________________________________  _____________________________________

___________________________________  _____________________________________

ATMOSPHERE (GAS) TESTER’S SIGNATURE & INITIALS: ______________________   __________

ATMOSPHERE TESTING EQUIPMENT USED:

<table>
<thead>
<tr>
<th>Type</th>
<th>(Model and/or Serial Number)</th>
<th>(Calibration date)</th>
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</table>

(Signature of Entry Supervisor/Date) (Darren L. Nurse/Date)

REVIEWED BY: (Confined Space Operations Personnel)

Note: The below listed persons, or their representative, have had the opportunity to observe the pre-entry atmospheric testing as well as any periodic testing that may be deemed necessary for employee safety.

<table>
<thead>
<tr>
<th>Print Name</th>
<th>Signature</th>
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<th>Signature</th>
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# Pre-Entry Checklist

This checklist is an integral part of our Permit System and MUST be maintained with the Entry Permit.

All items on the Pre-Entry Checklist must be completed before entry, for items that do not apply enter N/A.

**Initial Atmospheric Check (before ventilation)**

<table>
<thead>
<tr>
<th>Date:</th>
<th>Time:</th>
<th>Oxygen: %</th>
<th>Acceptable Parameters</th>
<th>Tester's Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&gt;19.5% &lt;23.5%</td>
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</table>

**Flammable Gases & Vapors Present:**

Name

1. ___________________ % LEL <10.0%
2. ___________________ % LEL <10.0%
3. ___________________ % LEL <10.0%

**Potential Toxic Air Contaminants:**

Name

1. ___________________ PPM <____ PPM
2. ___________________ PPM <____ PPM
3. ___________________ PPM <____ PPM

Note: mg/m$^3$ may be substituted for PPM. For further reference see 1926.57(f)-(i)

Method of Isolation (atmospheric conditions): ____________________________________________________________________________________

Means of Ventilation (to control atmospheric conditions): ____________________________________________________________________________________

**Atmospheric Check (after ventilation & isolation and immediately prior to initial entry)**

<table>
<thead>
<tr>
<th>Time:</th>
<th>Acceptable Parameters</th>
<th>Tester's Initials</th>
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<tbody>
<tr>
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<td>&gt;19.5% &lt;23.5%</td>
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</table>

**Flammable Gases & Vapors Present:**

Name

1. ___________________ % LEL <10.0%
2. ___________________ % LEL <10.0%
3. ___________________ % LEL <10.0%

**Potential Toxic Air Contaminants:**

Name

1. ___________________ PPM <____ PPM
2. ___________________ PPM <____ PPM
3. ___________________ PPM <____ PPM

Note: mg/m$^3$ may be substituted for PPM. For further reference see 1926.57(f)-(i)
**OTHER HAZARDS:**

<table>
<thead>
<tr>
<th>(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)</th>
<th>(Engineering controls to control or eliminate the hazard to the extent feasible.)</th>
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HAZARDS NOT COMPLETELY ELIMINATED BY ENGINEERING CONTROLS AND SAFETY GEAR REQUIRED (i.e., respirators (specific type), special boots, gloves, suits, eye protection, etc.):

<table>
<thead>
<tr>
<th>(HAZARD)</th>
<th>(SAFETY GEAR)</th>
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COMMUNICATIONS PROCEDURES:

Note: Acceptable, non-electrical, suggestions include, but are not limited to, predetermined rapping sounds, tugs on a rope or line, air horn signals, voice communications.
**BELOW LISTED ITEMS MUST BE COMPLETED AND REVIEWED PRIOR TO ENTRY:**

**NOTE:** For items that do not apply, enter N/A.

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<thead>
<tr>
<th>REQUIREMENT COMPLETED</th>
<th>DATE</th>
<th>TIME</th>
<th>REQUIREMENT COMPLETED</th>
<th>DATE</th>
<th>TIME</th>
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<tbody>
<tr>
<td>Lock Out/De-energize/Try Out</td>
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<td>Full Body Harness w/“D” ring</td>
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<td>Lines Broken/Capped/blanked</td>
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<td>Emergency Escape Retrieval</td>
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<td>Purge-Flush &amp; Vent</td>
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<td>Lifelines</td>
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<td>Ventilation</td>
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<td>Fire Extinguishers</td>
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<td>Secure Area (Post &amp; Flag)</td>
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<td>Lighting (Explosion Proof)</td>
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<td>Breathing Apparatus</td>
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<td>Respirator(s) (Air Purifying)</td>
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<td>Direct reading gas monitor</td>
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<td>Non-Sparking Tools</td>
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<td>Powered Communications</td>
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<td>Class I, Division I, Group D</td>
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<td>Burning &amp; Welding Permit</td>
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<td>SCBA’s for entry &amp; standby</td>
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**EMERGENCY AND RESCUE PROCEDURES**

Rescue Procedures will be implemented by Company Employees.

Company Rescue Personnel have had training in:

- Use of Personal Protective Equipment.
- Use of Rescue Equipment.
- Practiced simulated permit space rescue within the past 12 months for a space representative of the space for which this permit is issued.

Each member of the Rescue Team has had training in basic First Aid and cardiopulmonary resuscitation (CPR) and at least one (1) member is currently certified.

NAME OF CERTIFIED PERSON (CPR): ______________________________________

NAME OF CERTIFIED PERSON (1st AID): __________________________________

Appropriate Safety Data Sheets are at the job site.

The retrieval line is affixed to the entrants and a fixed point outside the space or a mechanical device should the space be a vertical type more than five (5) feet deep.

All entrants will wear a chest or full body harness with a retrieval line attached at the center of the entrant’s back neat shoulder level, or above the entrant’s head.

Entrants will wear wristlets, in lieu of the above, should they create a lesser danger to the entrants.
Rescue procedures will be implemented by a rescue service consisting of persons who are not employees.

This rescue service has been provided with:

a. information on all hazards or potential hazards they may confront.

b. access to all permit spaces from which rescue may be necessary to enable the rescue service to develop appropriate rescue plans and practice rescue procedures.

SPECIFIC RESCUE PLAN FOR AN EMERGENCY IN THIS CONFINED SPACE:

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# Record of Continuous Monitoring

[The results of continuous monitoring, if applicable, are to be recorded below every two (2) hours.]

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<th>TESTS TO BE TAKEN</th>
<th>Permissible Entry Level</th>
<th>TIME/RESULTS</th>
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<th>TESTER'S INITIALS</th>
<th>DATE</th>
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<td>PERCENT OF OXYGEN</td>
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<td>LOWER EXPLOSIVE LIMIT</td>
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</tbody>
</table>

*8 Hour Time Weighted Average: Employee can work in area 8 hours (longer with appropriate protection).

**Short term exposure limit: Employee can work in area up to 15 minutes.

This six (6) page Entry Permit and Pre-Entry Checklist as been prepared by the Entry Supervisor and reviewed by all personnel involved in this Permit-Required Confined Space Entry Operation.

ENTRY SUPERVISOR: ________________________ (Name) ________________________ (Signature) ________________________ (Date)

6 of 6
Nurse Stucco Inc.

Pre-Entry Checklist Using Forced Air Ventilation pt. 1
and
Certification of Compliance with 29 CFR 1910.146(c)(5)(ii)
for
Confined Space Entry Using Forced Air Ventilation
for Control of Hazardous Atmosphere
(NO OTHER HAZARDS ARE IDENTIFIED)

I certify that the below listed confined space falls under the
Permit-Required Confined Space Standard, 29 CFR 1910.146(c)(5)(i) &
entry will be performed under the provisions of 29 CFR 1910.146(c)(5)(ii).

CONFINED SPACE IDENTIFICATION: __________________________ DATE: ______________
SPACE LOCATION: ______________________________________ TIME: ______________
WORK TO BE ACCOMPLISHED IN CONFINED SPACE: __________________________________

PRE ENTRY CHECKLIST

INITIAL ATMOSPHERIC CHECK (BEFORE VENTILATION): TIME: ______________

Acceptable Parameters

Oxygen: ________% ________% > 19.5 % < 23.5 %

Flammable gases and vapors:
___________________: ________% LEL < 10.0 %
(NAME)

___________________: ________% LEL < 10.0 %
(NAME)

___________________: ________% LEL < 10.0 %
(NAME)

Potential toxic air contaminants:
___________________: ________ PPM < ________PPM
(NAME)

___________________: ________ PPM < ________PPM
(NAME)

___________________: ________ PPM < ________PPM
(NAME)


METHOD OF ISOLATION: ___________________________________________________________

_________________________________________________________________________________

MEANS OF VENTILATION: ___________________________________________________________

_________________________________________________________________________________

1 of 2
### Atmospheric Check (After Ventilation & Isolation)

**Time:** ____________

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Acceptable Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen: % %</td>
<td>&gt; 19.5 % &lt; 23.5 %</td>
</tr>
<tr>
<td>Flammable gases and vapors:</td>
<td>&lt; 10.0 %</td>
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<tr>
<td>(NAME) % LEL</td>
<td>&lt; 10.0 %</td>
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<td>(NAME) % LEL</td>
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<tr>
<td>(NAME) % LEL</td>
<td>&lt; 10.0 %</td>
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<td>Potential toxic air contaminants:</td>
<td>&lt; _________PPM</td>
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<tr>
<td>(NAME) PPM</td>
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<tr>
<td>(NAME) PPM</td>
<td>&lt; _________PPM</td>
</tr>
</tbody>
</table>

**Note:** mg/m³ may be substituted for PPM. See Table Z-1 to Z-3, Subpart Z 29 CFR 1910. Reference Subpart G, 29 CFR 1910.

### Permit and Check

**List Prepared By:** _________________________________________________

(Entry Supervisor/Date)

**Approved By:** _________________________________________________

(Darren L. Nurse/Date)

**Reviewed By:** (Confined Space Operations Personnel)

**Note:** The below listed persons, or their representative, have had the opportunity to observe the pre-entry atmospheric testing as well as any periodic testing that may be deemed necessary for employee safety.

<table>
<thead>
<tr>
<th>(Print Name)</th>
<th>(Signature)</th>
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<th>(Signature)</th>
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</thead>
<tbody>
<tr>
<td>(Print Name)</td>
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<tr>
<td>(Print Name)</td>
<td>(Signature)</td>
<td>(Print Name)</td>
<td>(Signature)</td>
</tr>
</tbody>
</table>

The atmosphere within the space shall be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere.

If conditions are in compliance with the above requirements and there is no reason to believe conditions may change adversely, then proceed to the permit space pre-entry check list. Complete and post with this form. Maintain this form and supporting documentation for a period of one (1) year.

This permit and supporting documentation shall be kept at the facility. At completion of the job, this copy will be forwarded to Darren L. Nurse.

2 of 2
Pre-Entry Checklist Using Forced Air Ventilation pt. 2

For
Confined Space Entry Using Forced Air Ventilation
for Control of Hazardous Atmosphere
(NO OTHER HAZARDS ARE IDENTIFIED)

PART 2

I certify that the below listed confined space falls under the Permit-Required Confined Space Standard, 29 CFR 1910.146(c)(5)(i) & (c)(5)(ii):

CONFINED SPACE PRE-ENTRY CHECK LIST

A confined space either is entered through an opening other than a door (such as a manhole or side port) or requires the use of a ladder or rungs to reach the working level. Test results must be satisfactory. This check list must be filled out whenever the workplace meets this criteria.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>1.</td>
<td>Did your survey of the surrounding area show it to be free of hazards such as drifting vapors from any source?</td>
</tr>
<tr>
<td>2.</td>
<td>Does your knowledge of industrial or other discharges indicate this area is likely to remain free of dangerous air contaminants while occupied?</td>
</tr>
<tr>
<td>3.</td>
<td>Are you certified in the operation of the gas monitor to be used?</td>
</tr>
<tr>
<td>4.</td>
<td>Has a gas monitor functional test (Bump Test) been performed this shift on the gas monitor to be used?</td>
</tr>
<tr>
<td>5.</td>
<td>Did you test the atmosphere of the confined space prior to entry?</td>
</tr>
<tr>
<td>6.</td>
<td>Did the atmosphere check as acceptable (no alarms given)?</td>
</tr>
<tr>
<td>7.</td>
<td>Will the atmosphere be continuously monitored while the space is occupied?</td>
</tr>
</tbody>
</table>

NOTE: If any of the above questions are answered "NO", DO NOT ENTER. Contact your immediate supervisor.

JOB LOCATION: ___________________________ DATE: ___________________________

COMPETENT PERSON NAME: ___________________________ SHIFT: ___________________________

COMPETENT PERSON SIGNATURE/DATE: ___________________________

EMERGENCY PHONE NUMBERS

LOCAL FIRE DEPARTMENT (RESCUE): ___________________________

LOCAL FIRE DEPARTMENT (FIRE): ___________________________

ON-SITE EMERGENCY PHONE NUMBER: ___________________________

POLICE: ___________________________
Personal Protective Equipment - General

§1520. Hand Protection
§1522. Body Protection
§3381. Head Protection
§3382. Eye and Face Protection
§3385. Foot Protection
§5096. Exposure Limits for Noise
§5144. Respiratory Protection

Overview
This Personal Protective Equipment (PPE) Program has been prepared to inform our employees of potential hazards on the job site and to identify the proper PPE to be used to reduce or eliminate these hazards. This Program relies on a cooperative effort by all personnel to understand the reasons for PPE and to protect themselves from harm.

The use of PPE does not lessen an employee’s obligation to use safe work practices and procedures. Employees are expected to be aware of the hazards within their area of responsibility and properly use prescribed PPE.

Our operations, work methods, and individual job sites present specific hazards which must be identified, analyzed, and matched with the appropriate PPE through a continuing hazard assessment process.

A Certificate of Hazard Assessment will be kept on the job site for inspection purposes.

Duties of the PPE Program Administrator
The primary duties of Darren L. Nurse, our Program Administrator include: hazard assessment; PPE selection; PPE training; and monitoring of our PPE Program. Certain types of PPE may require hands-on training before on the job use (primarily for sizing and fitting) and this training may be further delegated to competent persons.
Hazard Assessment and PPE Selection

A careful, systematic personal protective equipment selection process is used to identify what, if any, protection is required to reduce or eliminate the possibility of eye, hand, foot, limb, or head injury.

Hazard assessment, performed by Darren L. Nurse, or a designated competent person, starts with a thorough knowledge of our job sites, work procedures, and methods of operation as well as the hazards that may be created by other contractors working in the vicinity of our employees. The basic hazard categories are: impact, penetration, compression, chemical, heat, harmful dust, and light radiation.

Identifying the source of the above hazards allows for consideration of administrative or engineering controls to eliminate the hazard as opposed to providing protection against it. Examples would include: redirecting traffic flow, ventilation, temporary weather barriers, non-slip surfaces, etc.

Because administrative and engineering controls are passive – no employee involvement is required – they are preferable to PPE.

A PPE selection is made by analyzing the above information and evaluating the type of risk, the level of risk, the potential for injury and the possible seriousness of that injury. PPE, which is compatible with the above risks and work situation, is considered. Actual selection involves all the above factors plus an attempt to provide a level of protection greater than the minimum required.

In all situations where it has been determined that a particular type of PPE is to be used, it will be used. There will be no exceptions, by virtue of position or rank, to this policy. Within an area on a job site where the possibility of falling objects exists, hard hats will be worn. It follows that once an item of PPE (hard hat, in this case) is selected, it must be used by all persons in the identified area regardless of job title or function.

Having Darren L. Nurse, or designated competent person, on a job site to determine the PPE requirements allows for knowledgeable selection and consistency, and eliminates chaos that would result if each individual were to decide when, where, and if PPE should be used.
Dissemination of PPE Selection Information

Employees must understand when PPE is necessary and what type(s) of PPE are necessary.

All persons for whom PPE will provide a measure of safety will be given appropriate training on that item of PPE as well as an explanation of the importance of its use.

ANSI Standards and PPE

Most items of PPE are manufactured in accordance with a specific American National Standards Institute (ANSI) or American Society for Testing and Materials (ASTM) standard. For example, Protective helmets placed in service on or before October 30, 2004 will comply with one of the following ANSI standards, which are hereby incorporated by reference:

ANSI Z89.1-1969 Safety Requirements for Industrial Head Protection; ANSI Z89.2-1971 Industrial Protective Helmets for Electrical Workers, Class B; ANSI Z89.1-1981 Requirements for Protective Headwear for Industrial Workers; ANSI Z89.1-1986 Protective Headwear for Industrial Workers -- Requirements; or ANSI Z89.1-1997 Industrial Head Protection.

PPE safety products are tested to ensure they meet ANSI standards. Because products are tested in the manner in which they are designed to be used, ANSI certification is valid only if the user follows the manufacturer’s instructions for proper sizing, fitting, wearing, and adjusting. A review of OSHA citations reveals that fines can be levied because employees were improperly using PPE. For example, a hard hat worn with the bill toward the rear may provide adequate protection from impact; however, because it is tested with the bill toward the front, this improper use is cause for a safety violation.

Prior to purchase, items of selected PPE will be checked to ensure they were manufactured in accordance with the proper ANSI standard.

The importance of hazard assessment takes on added significance when judgments are made matching the hazard to the protection desired in cases where ANSI certification is not available. What matters most is: does the selected PPE do what it is intended to do?

Employee owned PPE must be approved for use by Darren L. Nurse. Further, such equipment must be properly maintained and cleaned in accordance with the manufacturer’s instructions.
Sizing and Fitting

The word “personal” in the phrase “personal protective equipment” correctly implies that the equipment is for a specific person. As such, sizing and fitting are important for a variety of reasons.

a. Function: An improperly fitted piece of PPE may not do its job. For example, eye protection against dust must have an excellent face seal.

b. Comfort: The likelihood of continued use is increased if the PPE selected is comfortably fitted. Example: gloves that fit poorly and, over time, make a person’s hands hot and clammy are likely to be removed exposing that person to the hazard for which the gloves were required in the first place.

c. Safety: Ill-fitting PPE may actually cause an accident. Example: loose hard hat may slip and block one’s vision.

Most PPE come in a variety of sizes and within those size groups, adjustments may be made to affect a perfect fit. It is important to understand the procedures for donning, adjusting, using, and removing PPE. Each person who is required to use any type of PPE will be taught, before initial issue, the specific procedures for properly donning, adjusting, using, and removing the specific PPE. This instruction will generally be given by the employee’s Supervisor. When available, the manufacturer’s instructions will be issued with the PPE.

Care and Maintenance of PPE

PPE will be visually inspected before each use and if defects are noticed, it will not be used. Some types of PPE are expendable (cotton gloves) and have a limited life span after which they are discarded and new PPE is reissued. Plastic safety glasses become scratched and they too must be exchanged for new ones when vision is impaired. Other types of safety equipment consist of both non-expendable and expendable components. A hard hat is non-expendable, yet the head band does wear out and becomes expendable. PPE will be maintained in accordance with the manufacturer’s instructions and, where appropriate, kept in a sanitary condition.

Cleanliness takes on an added importance when dealing with PPE designed to protect the eyes and face. Dirty or fogged lenses can impair vision and, rather than offer protection from a hazard, actually becomes a contributory factor in causing an accident.

Lastly, should PPE become contaminated with a chemical substance and decontamination is impossible, the PPE will be properly disposed of following the disposal instructions on the Safety Data Sheet for that substance.
Training

Affected employees will be given an understanding of:

a. When PPE is necessary.

b. What PPE is necessary.

c. How to properly put on, take off, adjust, and wear PPE.

d. The limitations of the PPE.

e. The proper care, maintenance, useful life and disposal of the PPE.

Retraining will be given in situations when changes in PPE requirements render the previous training obsolete or it is noticed that an employee is not following our PPE policies – specifically, not properly wearing the selected PPE in identified locations or work situations.

As a contractor, we are not required to have a PPE Program, per se, nor is the hazard assessment a specific requirement. In fact, there is no hand protection standard. Construction standards are short and to the point. The complete standard for head protection is printed below:

§3381. Head Protection.
(a) Employees working in locations where there is a risk of receiving head injuries from flying or falling objects and/or electric shock and burns shall wear approved head protection in accordance with subsections (b) and (c).
(b) When head protection is required, the employer shall ensure that approved protective helmets are selected and used in accordance with their demonstrated resistance to impact and electrical hazards as specified in subsections (b)(1) and (b)(2).
(1) Protective helmets placed in service after October 30, 2004 shall comply with American National Standards Institute (ANSI) Z89.1-1997 Industrial Head Protection, which is hereby incorporated by reference. The employer shall ensure that the appropriate class of ANSI designated helmet is selected and used in accordance with the following:
(A) When there is no risk of head injury from contact with electrical conductors, and protective helmets are only required to reduce the danger of injury from flying or falling objects, protective helmets shall be ANSI approved Class C, E, or G.
(B) When there is a risk of head injury from contact with conductors less than 600 volts, protective helmets shall be ANSI approved Class E or G.
(C) When there is a risk of head injury from contact with conductors greater than 600 volts, protective helmets shall be ANSI approved Class E.
(2) Protective helmets placed in service on or before October 30, 2004 shall comply with one of the following ANSI standards, which are hereby incorporated by reference: ANSI Z89.1-1969 Safety Requirements for Industrial Head Protection; ANSI Z89.2-1971 Industrial Protective Helmets for Electrical Workers, Class B; ANSI Z89.1-1981 Requirements for Protective Headwear for Industrial Workers; ANSI Z89.1-1986 Protective Headwear for Industrial Workers -- Requirements; or ANSI Z89.1-1997 Industrial Head Protection. The employer shall ensure that the appropriate class of ANSI designated helmet is selected and used in accordance with the following:

(A) When there is no risk of head injury from contact with electrical conductors, and protective helmets are only required to reduce the danger of injury from flying or falling objects, protective helmets shall be ANSI approved Class A, B, C, D, E, or G.

(B) When there is a risk of head injury from contact with conductors less than 600 volts, protective helmets shall be ANSI approved Class A, B, D, E, or G.

(C) When there is a risk of head injury from contact with conductors greater than 600 volts, protective helmets shall be ANSI approved Class B or E.

(c) Each approved protective helmet required by subsection (a) shall bear the original marking required by the ANSI standard under which it was approved. At a minimum, the marking shall identify the manufacturer, ANSI designated standard number and date, and ANSI designated class of helmet.

(d) Where there is a risk of injury from hair entanglements in moving parts of machinery, combustibles or toxic contaminants, employees shall confine their hair to eliminate the hazard.

Most PPE requirements are obvious and PPE wear is so simple that training is almost unnecessary.

What is important – vitally important – is actually using the proper PPE when it is required.

To ensure employee compliance with PPE requirements, we have opted to treat all employees as intelligent, responsible persons who, when reminded of what PPE actually protects, will enthusiastically endorse PPE use.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
Eye and Face Protection

Your eyes are a marvel of engineering. Most of us take them for granted as we do all our senses, until an accident, injury, or disease forces us to realize the miracle we lost or almost lost. Can you imagine a system that can take (absorb) light and convert it to electrical signals (by way of the 120 million rods and 6 million cones on the retina) and transfer these signals through an optic nerve which has about one million fibers directly into the brain?

Most of us see the world in living color and with depth perception. The body itself does much to protect the eyes. Bony eye sockets in the skull protect the eye from many mechanical injuries. Orbital fluids and tissues cushion direct blows. Eyelids close reflexively from visual or mechanical stimuli. Eyes reflexively rotate upward with the lid closing to protect the cornea. Tears can flush away chemicals and foreign bodies. We all come with these safeguards. Sometimes, they are not enough.

Eye protection is required when there is a possibility of eye injury. Eye injury is not confined to flying objects. Eye injury can be caused by bright light, dust, chemicals, heat, and, literally, anything that can reach them. Different hazards require different types of protection.

Eye (and face) protection is required when one is exposed to flying particles, chemicals, or injurious light radiation. Types of eye protection include: impact resistant safety glasses, safety glasses with side shields, goggles, goggles with a face seal, face masks, and shaded goggles with varying degrees of darkness.

Affected employees who wear prescription lenses will wear eye protection over the prescription lenses without disturbing the proper positioning of the prescription lenses, or will wear eye protection that incorporates their prescription into the design.

All prescription glasses should be made with impact-resistant lenses. Hardened lenses, through a tempering process, are extremely hard and resistant to impact and breakage. Safety lenses are similar to hardened lenses but are 1 mm thicker. Safety lenses are used in goggles where there is a danger of flying glass or chips of metal.

All employees who wear contact lenses must also wear appropriate eye and face protection in hazardous environments.

Welding helmets and face shields, if required, should be worn over primary eye protection (spectacles or goggles).

An inexpensive pair of safety glasses can save your priceless eyesight.
**Head Protection**

Talking about head protection is really talking about brain protection. Your brain, either through divine providence, evolution, or quirk of nature, is you. The brain, that soft mass of gray and white convoluted matter, is what you are all about. Destroy your brain and you no longer exist.

Your brain is naturally protected by a cranium. Your skull actually has many bones which protect your brain and support your face. Obviously, there are other parts to your head which need protecting such as your eyes, ears, nose, tongue, skin, etc., but your brain is the most important.

Head protection is required when there is a possibility of injury to the head from falling objects and when working near exposed electrical conductors which could contact the head.

Brain injury is the second most common cause of major neurologic deficits and causes more deaths than injury to any other organ.

When the skull receives an impact, it actually can indent and deform. A fracture may occur and the fracture may be distant from the point of impact. A direct blow to the head can cause the brain to actually move within the skull. Surprisingly, there is often a reverse correlation between skull damage and brain damage. Just because there is no external visible injury to the skull does not preclude the possibility of brain injury.

Wearing head protection (a hard hat) accomplishes two major objectives: it reduces the rate of energy transfer and spreads out the area of energy transfer. Just as your head should be checked out at a hospital after a head impact, so should your hard hat. A hard hat can absorb energy by destructing and this destruction may be unnoticeable.

A head injury may occur after a blow to the head and the following symptoms may be present: unconsciousness or disorientation, confusion, nausea, vomiting, and/or double vision. Get medical help immediately. Cover open wounds lightly with sterile dressing. Keep victim still, warm, and reassured. DO NOT move the victim unless he/she would be in greater danger if you did not. DO NOT apply pressure to a head wound. DO NOT try to stop blood or clear fluid coming from ears, nose, or mouth.
Hearing Protection

Wherever it is not feasible to reduce the noise levels or duration of exposures to those specified in Table 3, below, ear protective devices shall be provided and used.

Ear protective devices inserted in the ear shall be fitted or determined individually by competent persons.

Plain cotton is not an acceptable protective device.

<table>
<thead>
<tr>
<th>TABLE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sound level</strong></td>
</tr>
<tr>
<td><strong>Duration per day, hours</strong></td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1/2</td>
</tr>
</tbody>
</table>

Hearing damage is caused by noise level and duration of exposure to the noise. If, after using the formula below, the equivalent noise exposure exceeds unity (1), then a Hearing Conservation Program will be initiated.

\[
F(e) = \frac{T(1)}{L(1)} + \frac{T(2)}{L(2)} + \ldots + \frac{T(n)}{L(n)}
\]

where:

- \( F(e) \) = The equivalent noise exposure factor.
- \( T \) = The period of noise exposure at any essentially constant level.
- \( L \) = The duration of the permissible noise exposure at the constant level (from Table D-2).

If the value of \( F(e) \) exceeds unity (1) the exposure exceeds permissible levels.

A sample computation showing an application of the formula in paragraph (d)(2)(ii) of this section is as follows. An employee is exposed at these levels for these periods:

- 110 db A 1/4 hour.
- 100 db A 1/2 hour.
- 90 db A 1 1/2 hours.

\[
F(e) = \frac{(1/4\text{ divided by } 1/2)}{1/2} + \frac{(1/2\text{ divided by } 2)}{1} + \frac{(1 1/2\text{ divided by } 8)}{L(1)}
\]

\[
F(e) = 0.500 + 0.25 + 0.188
\]

\[
F(e) = 0.938
\]

Since the value of \( F(e) \) does not exceed unity, the exposure is within permissible limits.
Understanding some interesting facts about your hearing will emphasize the need for hearing protection.

Your outer ears on the side of your head are the least important part of your hearing system. Should you lose your ear, you would not necessarily lose your hearing. Your outer ear, made of cartilage, includes the external auditory canal which leads to the eardrum which is only $\frac{2}{5}$" in diameter. The eardrum separates the outer ear from the middle ear. Within the middle ear are three (3) bones commonly called the hammer, anvil, and stirrup. The stirrup (stapes) is the smallest bone in your body -- thinner than a grain of rice. Also in the middle ear is the Eustachian tube which connects the middle ear to the back of the throat to maintain equal air pressure on both sides of the ear drum.

The inner ear, where sound waves are converted to electrical impulses, actually has a function unrelated to hearing. It contains the semicircular canals which completely control your balance. Also in the inner ear is the cochlea, a small spiral coil in which you would find the basilar membrane which has over 15,000 hair cells. These hair cells are the end of the auditory nerve which goes directly to the temporal lobe of the brain.

The hardest bone in your whole body is the temporal bone which protects two thirds of the auditory canal and all of the middle and inner ear. Nature, itself, seems to have placed a high priority on your hearing.

Protect your hearing. If you are issued hearing protection, use it!
Foot Protection


Specific hazards require specific types of protective footwear. Certain types of footwear can offer traction, crush protection, penetration protection, electrical protection, chemical resistance, heat and/or fire resistance, dryness, cushion, or ankle-protection. Further, certain activities may require a combination of these features.

Your foot is a remarkable piece of engineering which is composed of 26 bones, muscles, fatty tissue, nerves, tendons, skin and joints. The foot itself can absorb a tremendous amount of punishment without damage. But there are limits and it would be a shame to lose a foot, or part of a foot, because of failure to wear the prescribed protective footwear.

Hand Protection

Your hand is composed of 20 muscles, 3 major nerves, 27 bones (14 of which are in your fingers) plus skin, fatty tissue, tendons, and joints. There are 15 muscles in your forearm which provide power to your hand. Your hand is your gateway to the world. It lets you do what you think. Its function is feeling and grasping.

Try to pick up something while holding your thumb still. It is very difficult. If the nerve to the small muscles of the thumb is severed, 80% of the total hand function is lost.

There are numerous types of hand protection (gloves) available -- each with a specific purpose. The most common are general purpose cotton work gloves which provide protection from minor skin abrasions and cold. However, there are many other types of gloves. Hands need protection from chemicals, abrasions, cuts and lacerations, temperature extremes, germs, radiation, impact, punctures, electricity, and other hazards on the job site. Specific job requirements determine the type of hand protection needed. Proper hand protection must do more than protect your hand; it must allow you to accomplish your job assignment with efficiency as well as safety.

Wearing hand protection could prevent your hand and/or fingers from being severed, burned, crushed, punctured, lacerated, cut, or generally abused.
Respiratory Protection

Employees who, by nature of their work, are exposed to harmful aerosols, vapors, gases, contaminated air, or non-breathable air will be provided air purifying or air supplying respirators after training, medical evaluation, and fit testing per our Respiratory Protection Program. The one exception is dust masks worn solely for comfort and not for respiratory protection.

Miscellaneous Personal Protection

PPE immediately brings to mind eye, head, hand, and foot protective equipment. However, there may be other types of protective equipment which are readily available and which have the capability of protecting employees from identified hazards on the job site. Some of these items may not fall under a specific Cal/OSHA standard or may not be ANSI approved or disapproved; however, in the judgment of Darren L. Nurse, they may be appropriate for use in our operations.

Summary

The true beneficiary of PPE utilization is the user. The whole thrust of this Program is to protect our employees from injury. This is accomplished by, among other things, explaining the process of hazard assessment, the reasons for PPE use, and the necessity of using the PPE selected.

What possible justification could there be for maiming, losing, or even slightly injuring a body part because available (and required) PPE was not used? “I forgot”; “I was in a hurry”; “I misplaced my PPE”; “I felt silly wearing PPE”; or “I really didn’t believe PPE was necessary” will not undo what could be a lifetime of regret.
Certificate of Job Site Hazard Assessment

I certify, this date, that I have performed a hazard assessment of our job sites and our methods of operations.

This hazard assessment was accomplished to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE).

Identified hazards which cannot be eliminated through engineering controls or changes in procedures will be addressed by the use of selected PPE.

All affected employees will be informed of the required PPE for specific work locations or specific types of work to be performed and will receive initial training or retraining, if necessary, before being allowed to perform work requiring PPE.

If conditions or procedures change, a reassessment will be made.

________________________________ _______________________
Darren L. Nurse                        Date

Personal Protective Equipment
Program Administrator
Overview

This Hearing Conservation Program is designed for one purpose – to prevent hearing damage caused by occupational noise exposure.

Most forms of personal protective equipment (PPE) are a response to an obvious hazard and are easy to understand. A hard hat will protect your head from falling objects, for example.

Hearing protection is different from most other types of PPE because loss of hearing generally occurs painlessly over a period of time and, when finally realized, the damage is permanent.

Because of the above, it is vital that cooperation between all affected employees and management be established to prevent occupational hearing loss. To achieve this goal, our Hearing Conservation Program focuses on the effects of noise on hearing as well as the selection and use of hearing protectors. Information is provided on how sound is transmitted to your brain, and lastly, the actual application of our Hearing Conservation Program.

While our Hearing Conservation Program has all the elements required of a complete safety program, it is not necessary to understand all the technical formulas and procedures that are required of licensed monitors, doctors, and hygienists. Individual employees are required to wear appropriate hearing protection when so directed and to understand the importance of protecting their hearing from damage. If workplace noise bothers you and those noises are below the threshold for required ear protection, you should bring this to the attention of Darren L. Nurse, our Hearing Conservation Program Administrator for resolution.
Wherever it is not feasible to reduce the noise levels or duration of exposures to those specified in the table below, ear protective devices shall be provided and used.

Ear protective devices inserted in the ear shall be fitted or determined individually by competent persons.

Plain cotton is not an acceptable protective device.

<table>
<thead>
<tr>
<th>PERMISSIBLE NOISE EXPOSURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound level</td>
</tr>
<tr>
<td>Duration per day, hours</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>1 1/2</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1/2</td>
</tr>
<tr>
<td>1/4 or less</td>
</tr>
</tbody>
</table>

Hearing damage is caused by noise level and duration of exposure to the noise. If, after using the formula below, the equivalent noise exposure exceeds unity (1), then a Hearing Conservation Program will be initiated.

\[
F(e) = \frac{T(1)}{L(1)} + \frac{T(2)}{L(2)} + \ldots + \frac{T(n)}{L(n)}
\]

where:

- \(F(e)\) = The equivalent noise exposure factor.
- \(T\) = The period of noise exposure at any essentially constant level.
- \(L\) = The duration of the permissible noise exposure at the constant level (from Table G-12).

If the value of \(F(e)\) exceeds unity (1) the exposure exceeds permissible levels.

A sample computation showing an application of the formula in paragraph (d)(2)(ii) of this section is as follows. An employee is exposed at these levels for these periods:

\[
F(e) = \frac{1/4}{1/2} + \frac{1/2}{2} + \frac{1 1/2}{8}
\]

\[
F(e) = 0.500 + 0.25 + 0.188
\]

\[
F(e) = 0.938
\]

Since the value of \(F(e)\) does not exceed unity, the exposure is within permissible limits.

Hearing protection is different from most other types of PPE because loss of hearing generally occurs painlessly over a period of time and, when finally realized, the damage is permanent.

As one would reasonably expect, acoustic trauma to your hearing can cause instant and permanent damage.
The initial determination of excessive noise levels is generally subjective. Indications of excessive noise would include: actual information pertaining to specific machines, personal observation, complaints from employees, and noticed indications of hearing loss. It is requested that employees draw attention to work situations where there is an apparent loudness that possibly requires hearing protection.

At no cost, and replaced as necessary, hearing protectors will be provided when employees are exposed to sound levels above 85 dba on an 8 hour time-weighted average.

Appropriate hearing protectors will be available in a variety of styles from which to choose from to provide a comfortable fit; employees will be made aware of the proper use and care of the protectors selected.

In selecting appropriate hearing protectors, Darren L. Nurse will consider the below factors:

a. the hearing protector’s noise reduction rating (Subject Fit) [NRR(SF)]
   
   Note: The NRR(SF), measured in dB and found as a number on the hearing protector, can be used by subtracting that number from an A-weighted sound level or a time-weighted average noise exposure to determine the level of protection for most (84%) of the users.

   Note: The NRR(SF) is based on tests of continuous noise and may not be an appropriate indicator for protection against impulse or impact noise.

b. the user’s daily equivalent noise exposure.

c. variations in noise levels.

d. user preference.

e. communication needs.

f. hearing ability.

g. compatibility with other safety equipment.

h. user’s physical limitations.

i. climate and other working conditions.

j. replacement, care, and use requirements.
Definitions

There are certain words in our Hearing Conservation Program which are not used in everyday life. So that all may have a clearer understanding of this program, the below definitions are presented:

**ACTION LEVEL:** An 8-hour time-weighted average of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of fifty percent.

**ATTENUATE:** To lessen the intensity.

**AUDIOGRAM:** A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

**AUDIOLOGIST:** A professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners.

**BASELINE AUDIOGRAM:** The audiogram against which future audiograms are compared.

**CRITERION SOUND LEVEL:** A sound level of 90 decibels.

**DECIBEL (dB):** Unit of measurement of sound level.

**DOSIMETER:** An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.

**HERTZ (Hz):** Unit of measurement of frequency, numerically equal to cycles per second.

**MEDICAL PATHOLOGY:** A disorder or disease which should be treated by a physician specialist.

**NIHL:** Noise Induced Hearing Loss.

**NOISE DOSE:** The ratio, expressed as a percentage, of:

1. the time integral, over a stated time or event, of the 0.6 power of the measured SLOW exponential time-averaged, squared A-weighted sound pressure and
2. the product of the criterion duration (8 hours) and the 0.6 power of the squared sound pressure corresponding to the criterion sound level (90 dB).
OTOLARYNGOLOGIST:  A physician specializing in diagnosis and treatment of disorders of the ear, nose and throat.

REPRESENTATIVE EXPOSURE:  Measurements of an employee's noise dose or 8-hour time-weighted average sound level that the employers deem to be representative of the exposures of other employees in the workplace.

SOUND LEVEL:  Ten times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micropascals.  Unit: decibels (dB).  For use with OSHA standard 29 CFR 1910.95, SLOW time response is required.

SOUND LEVEL METER:  An instrument for the measurement of sound level.

TIME-WEIGHTED AVERAGE:  That sound level, which if constant over a 8-hour exposure, would result in the same noise dose as is measured.

Duties of the Program Administrator

The duties of Darren L. Nurse, our Hearing Conservation Program Administrator, include identifying work areas where the equivalent noise exposure factor exceeds unity, determining what types of noise level monitoring may be necessary, and ensuring that all personnel who are directed to wear hearing protection are trained in its proper use, cleaning, and storage.

Darren L. Nurse will also be responsible for recordkeeping, testing, and training.  Lastly, Darren L. Nurse will keep abreast of developments in the hearing conservation field and he is encouraged to seek outside professional help when needed.
Noise Monitoring Procedures

Initially, the implementation of a noise monitoring program is the result of subjective reasoning by Darren L. Nurse. Indications of excessive noise would include: actual information pertaining to specific machines, personal observation, complaints from employees, and noticed indications of hearing loss. It is requested that employees draw attention to work situations where there is an apparent loudness that possibly requires hearing protection.

The measure of a sound’s strength is referred to as “sound level” and it is measured in units called “decibels” (dB).

To provide some idea of the loudness of 85 dB, the following comparisons are provided:

<table>
<thead>
<tr>
<th>Sound of:</th>
<th>Approximate Decibels:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softest sound heard with normal hearing</td>
<td>0 dB</td>
</tr>
<tr>
<td>Ordinary speech at conversational distance</td>
<td>65 dB to 70 dB</td>
</tr>
<tr>
<td>Telephone dial tone</td>
<td>80 dB</td>
</tr>
<tr>
<td>Train whistle at 500 feet</td>
<td>90 dB</td>
</tr>
<tr>
<td>Power mower</td>
<td>107 dB</td>
</tr>
<tr>
<td>Jet engine at 100 feet</td>
<td>140 dB</td>
</tr>
<tr>
<td>Gun Shot</td>
<td>140 dB</td>
</tr>
</tbody>
</table>

Sound levels above 80 dB may become uncomfortable; sound above 125 dB may be painful.

Individual occupational sound exposures above 85 dB do not trigger the need for noise monitoring or a Hearing Conservation Program -- it is when the equivalent noise exposure factor exceeds unity. The two factors that cause occupational hearing loss are: 1) loudness and 2) the duration of time one is exposed to that loudness. In spite of the above, when information indicates employee exposure may equal/exceed the 8 hr time-weighted avg. of 85 decibels, the monitoring program will be implemented to identify employees to be included in the hearing conservation program.
Hearing loss generally occurs over a lengthy period of time. Of course, as one would reasonably expect, acoustic trauma to your hearing can cause instant and permanent damage.

Our monitoring program is designed to identify:

a. Areas where feasible administrative controls may be implemented to reduce noise exposure. Example: shorter exposure times.

b. Areas where feasible engineering controls may be implemented to reduce noise exposure. Example: soundproofing.

c. Which employees should be included in our hearing conservation program.

d. The types of hearing protection to be used.

Noise monitoring equipment and procedures will be determined by employee mobility, variations in workplace sound levels, individual types of noise such as impact, impulse, or steady stream; and/or the noise type combinations.

**Noise Level Monitoring**

The monitoring equipment and procedures will be designed to determine the actual sound levels that reach the employee’s ears and the length of time there is exposure to those levels.

Noise level monitoring is generally conducted by using a dosimeter, a sound level meter, or both. Because a sound level meter takes one measurement at one point in time, it is useful when sound is fairly constant and the employee is not moving in and out of the noise area.

A dosimeter, on the other hand, stores sound level measurements and can produce an average noise exposure which can be calculated into an 8-hour time weighted average. When using a dosimeter in an area where employees are exposed to varying sound levels or they move in and out of the noise area, the dosimeter is actually worn and the sound pick-up is placed close to the employee’s ear to get an accurate measurement of the sound level exposure. Generally, a dosimeter is the best choice for the workplace.

Noise level monitoring results, as well as §5097, Hearing Conservation Program, will be made available to affected employees and copies of these items be posted in the workplace.
Monitoring Plan

All continuous, intermittent and impulsive sound levels from 80 dB to 130 dB will be integrated into the noise measurements.

All instruments used to measure employee noise exposure will be calibrated to ensure measurement accuracy.

Representative personal sampling will be used, in lieu of area sampling, when there is high employee mobility, significant variations in sound levels, or a significant component of impulse noise.

Area sampling will be used when sound levels are relatively constant and employees have a constant exposure to them.

When there is a change in workplace activity or equipment which would likely increase noise levels, additional monitoring will be undertaken.

   a. All persons found to be exposed to sound levels at or above the action level will be notified.

   b. Affected employees or their representatives will be allowed to observe the noise monitoring process.

Noise Level Monitoring Records

All noise level monitoring records will be kept for a period of two (2) years.
Audiometric Testing Program

Audiometric testing will be made available at no cost to affected employees.

When noise exposures reach the action level, **8 hour time-weighted average of 85 dbA**, the audiometric testing will be initiated.

Audiometric tests will be performed by a licensed or certified audiologist, otolaryngologist, physician, technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining, and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist, or physician.

**Audiometric Tests - Recordkeeping**

Audiometric test records will be retained for the duration of the affected employees' employment.

These records will include:

a. The employee’s name and job classification.

b. The date of the audiogram.

c. The examiner’s name.

d. The date of the last acoustic or exhaustive calibration of the audiometer.

e. The employee’s most recent noise exposure assessment.

f. Accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

Upon request, employees may have access to these records.
Baseline Audiogram

Within 6 months of an employee’s first exposure at or above the action level, a valid baseline audiogram will be established against which subsequent audiograms can be compared. Hearing loss can occur as a result of age, trauma, drug reaction, and exposures that are not work related. However, with a baseline audiogram -- which measures the frequency (125 or 250 Hz to 8000 Hz) and loudness (-10 or 0 dB to 110 dB) -- it is possible from subsequent audiograms to determine with accuracy if hearing loss is due to occupational noise exposure or some other cause.

For the purposes of this program, audiograms must measure, in each ear, at least the frequencies of 500, 1000, 2000, 3000, 4000, and 6000 Hz.

Occupational hearing loss occurs within the inner ear in the cochlea. By using a bone-conduction vibrator, sounds can be carried directly to the inner ear and bypass the outside and middle ear areas.

An annual audiogram may be substituted for the baseline audiogram if the audiologist, otolaryngologist or physician who is evaluating the audiogram determines:

   a. The standard threshold shift revealed by the audiogram is persistent.

   b. The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

Procedure

To ensure an accurate test, employees must not be exposed to occupational noises for at least 14 hours prior to the establishment of a baseline audiogram. To meet this requirement, if needed, hearing protectors may be worn during the preceding work shifts. This procedure is to factor out temporary hearing changes from the test.
Annual Audiogram

At least annually, after obtaining the baseline audiogram, a new audiogram will be obtained for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee’s annual audiogram will be compared to that employee’s baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a standard threshold shift has occurred, the employee will be notified in writing within 21 days of this determination.

A standard threshold shift would be a change in hearing of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

While audiograms may be compared by a technician, problem audiograms will be referred to an audiologist, otolaryngologist, or physician for further evaluation.

The person performing this evaluation will be provided the following:

a. A copy of this program including all standards.

b. The baseline audiogram and most recent audiogram of the employee to be evaluated.

c. Measurements of background sound pressure levels in the audiometric test room.

d. Records of audiometer calibrations.

Note: If the annual audiogram shows that an employee has suffered a standard threshold shift, the employee will be re-tested within 30 days and these results will be considered the annual audiogram.

If the physician determines that a standard threshold shift has occurred, the following steps will take place:

1. Those employees not using hearing protectors will wear them and be trained in their use and care.

2. Those employees using hearing protectors will be re-evaluated and refitted and provided with hearing protectors that offer greater attenuation. They will also be retrained using this program with emphasis on the need for hearing protection.

3. The employee shall be referred for a clinical audiological evaluation or an otological examination if additional testing is necessary or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.

4. The employee will be informed, if necessary, of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.
Hearing Protectors

At no cost, and replaced as necessary, hearing protectors will be provided to all employees exposed to an 8-hour time-weighted average of 85 dB or greater.

Appropriate hearing protectors will be available in a variety of styles from which to choose to provide a comfortable fit and employees will be made aware of the proper use and care of the protectors selected.

In selecting appropriate hearing protectors, Darren L. Nurse will consider the below factors:

a. The hearing protector’s noise reduction rating (Subject Fit) [NRR(SF)].

Note: The NRR(SF), measured in dB and found as a number on the hearing protector, can be used by subtracting that number from an A-weighted sound level or a time-weighted average noise exposure to determine the level of protection for most (84%) of the users.

Note: The NRR(SF) is based on tests of continuous noise and may not be an appropriate indicator for protection against impulse or impact noise.

b. The user’s daily equivalent noise exposure.

c. Variations in noise levels.

d. User preference.

e. Communication needs.

f. Hearing ability.

g. Compatibility with other safety equipment.

h. User’s physical limitations.

i. Climate and other working conditions.

j. Replacement, care, and use requirements.

A competent person or an outside qualified professional will evaluate hearing protector attenuation for the environment in which the hearing protector will be used.

Specifically, hearing protectors must attenuate sound exposure at least to an 8-hour time-weighted average of 90 dB or, for those who have experienced a standard threshold shift, to an 8-hour time-weighted average of 85 dB or below.

Should noise levels increase, more effective hearing protectors will be provided to meet the above requirements.
Training

Affected employees (those exposed to action level noise) will receive training in our Hearing Conservation Program and this training will be repeated annually. Training will be updated to be consistent with changes in the PPE and work processes. An employee who is required to wear hearing protectors and fails to do so will be retrained with emphasis on the needless and permanent damage to hearing caused by careless exposure to hazardous noises in the work environment.

Interactive training will include, but not be limited to:

a. The effects of noise on hearing.

b. The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care.

c. The purpose of audiometric testing and an explanation of the test procedures.

d. A review of the program including all appropriate standards.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

Process of Hearing

Hearing involves, in its simplest terms, conducting sounds from outside your body to your brain. The ear is divided into three main sections:

a. EXTERNAL EAR collects sounds and directs them to the tympanic membrane (ear drum).

   Major Components:
   Pinna: the visible part of the ear.
   External auditory canal: approximately 1¼ inch tube to direct sound to the eardrum.
   Tympanic membrane: vibrates as it is hit with incoming sounds.
b. MIDDLE EAR  

**Major Components:**

Ossicles: three bones commonly called the “hammer”, the “anvil”, and the “stirrup”. These bones collect the sound, amplify it, and transfer it to the fluid in the inner ear.

Eustachian tube: small tube connected to the throat that brings air into the middle ear allowing pressure equalization of both sides of the ear drum.

c. INNER EAR  

**Major Components:**

Vestibule: helps maintain balance.

Cochlea: takes vibrations of the middle ear bones and transfers them into nerve impulses that go to the brain. The stirrup, in the middle ear, vibrates through a small opening in the cochlea. This opening is connected to fluid filled canals. The pressure waves in the fluid cause small hair type cells to bend. As they bend, they release a nerve impulse which is sent to the brain. The brain perceives these impulses as sound. This is where noise induced hearing loss occurs.

Semicircular canals: involved with equilibrium (balance)

Acoustic nerve:  

a. cochlear nerve: connects the cochlea to the brain.

b. vestibular nerve: connects the semicircular canals to the brain.
Noise Induced Hearing Loss (NIHL)

Moderate exposure to loud noise (over 90 dB for one or more hours) may cause **reversible** changes within the inner ear such as: subtle intracellular changes in the hair cells or swelling of the auditory nerve endings. These temporary changes present themselves as temporary threshold shifts (TTS) 10 dB or more at various frequencies in either ear. This temporary hearing loss will go away within hours -- 16 hours maximum.

How this loss may occur is as follows: continued sound may decrease the stiffness in the hair bundles at the top of the hair cells in the inner ear. This in turn would cause less vibration at a given sound level and an accompanying loss in hearing.

However, continued exposure to loud noise over time will result in permanent threshold shift (PTS) and the resultant permanent, **non-reversible** hearing loss.

Additionally, the most common cause of tinnitus (an annoying ringing in the ears) is damage to the ear from noise exposure resulting in hearing loss.

Because the loss of hearing is so gradual, so painless, so unnoticeable, there may be a tendency to not take hearing conservation seriously until it is too late and you have lost one of your major contacts with the world around you – your hearing.

**Why bother with a Hearing Conservation Program? Why not, instead, just require hearing protectors at all times, in all situations?**

This misses the point. Your hearing – just as your sight, touch, and smell – is your means of contact and placement in the world around you. By wearing hearing protectors when not needed, you lessen your ability to hear and be in touch with your environment.

You certainly wouldn’t want to save your hearing and lose your life because you didn’t hear the warning “Watch out!”, “Stop!” or you missed the sound of approaching danger.
Hearing Conservation Program Recordkeeping

The below records will be retained.

1. All noise level monitoring records.
2. All employee exposure measurements.
3. All employee audiometric test records which will include:
   a. The employee's name and job classification.
   b. The date of the audiogram.
   c. The examiner's name.
   d. The date of the last acoustic or exhaustive calibration of the audiometer.
   e. The employee's most recent noise exposure assessment.
   f. Accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

Record Retention:
The below records will be retained at least for the period indicated:
Noise exposure measurement records will be retained for two years.
Audiometric test records will be retained for the duration of the affected employee's employment.

Access to Records:
All the above records will be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary.

Transfer of Records:
If we cease to do business, we will transfer to the successor employer all above records and the successor employer will retain them for the remainder of the period noted above.
Personal Protective Equipment - Respiratory Protection

§5144. Respiratory Protection
Appendix A to Section 5144: Fit Testing Procedures (Mandatory)
Appendix B-1. to Section 5144: User Seal Check Procedures (Mandatory)
Appendix B-2. to Section 5144: Respirator Cleaning Procedures (Mandatory)
Appendix C to Section 5144 OSHA Respirator Medical Evaluation Questionnaire (Mandatory)
Appendix D to Section 5144: (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Overview

The best respiratory protection one can have is clean, breathable air. Engineering controls are our first line of defense against contaminated or oxygen deficient air. These controls include, but are not limited to, using measures such as enclosure or confinement to keep atmospheric hazards away from employees, general or local ventilation to exhaust hazardous atmospheres, and/or substitution of less toxic materials to avoid hazardous atmospheres in the first place. When effective engineering controls are not feasible, or during the time frame they are being instituted, appropriate respirators will be used.

The concept of respiratory protection is quite simple. Certain types of atmospheric hazards are simply particles that can be filtered out of the air, through the use of an air-purifying respirator. Air-purifying respirators force the harmful particles into a filter specifically designed for the hazard(s) where they are trapped or absorbed. The air reaching the employee’s lungs is essentially free of the hazard.

a. If the action of inhalation causes the ambient air to be sucked through the filter, the respirator is considered a negative pressure respirator.

b. If the ambient air is forced through the respirator filter (with a blower, for example), the respirator is considered a positive pressure respirator.
A respirator that removes harmful contaminants is of no value in an oxygen deficient (less than 19.5% oxygen) or oxygen enriched (more than 23.5 % oxygen) atmosphere.

An atmosphere-supplying respirator will be used in oxygen deficient atmospheres or in atmospheres where a filter cannot reduce the particulate hazard to an acceptable level. This type of respirator provides clean, breathable air from a source independent of the ambient atmosphere.

Different types of respirators provide different levels of protection. Never may an air-purifying respirator be substituted for a required atmosphere-supplying respirator.

Unfortunately, respiratory protection is more complicated than it first appears. Because of the variety and severity of respiratory hazards, the types of respirators and their limitations, the methods for fitting and testing, and, most importantly, the detrimental ramifications of respirator misuse, this respiratory protection program is required.

Proper respirator selection and use can prevent occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, and vapors. In atmospheres that are immediately dangerous to life or health, proper respirator selection and use will save your life.

When required, employees will be supplied appropriate respirators and all incidental costs associated with respirator use (fit testing, repair parts, filters, medical examinations, cleaning supplies, etc.) will be borne by the company.
Duties of the Program Administrator

Darren L. Nurse, our Respiratory Protection Program Administrator, will keep abreast of developments in the respiratory protection field and ensure that our personnel are provided safe respiratory working conditions.

Additionally, Darren L. Nurse will:

a. Measure, estimate, or review data on the concentration of airborne contaminants in the work area prior to respirator selection.

b. Select the appropriate type of respirator that will provide adequate protection from the airborne contaminants or provide clean, breathable air.

c. Maintain applicable records including:

1. Fit test record
2. Medical records
3. Inspection records
4. Evaluation records
5. Training records

Definitions

There are a number of terms and phrases, not used in ordinary everyday life, which must be understood by affected employees.

**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.

**ATMOSPHERE-SUPPLYING RESPIRATOR**: a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

**CANISTER OR CARTRIDGE**: a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

**DEMAND RESPIRATOR**: an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

**EMERGENCY SITUATION**: any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.
EMPLOYEE EXPOSURE: exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

END-OF-SERVICE-LIFE INDICATOR (ESLI): a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

ESCAPE-ONLY RESPIRATOR: a respirator intended to be used only for emergency exit.

FILTER OR AIR-PURIFYING ELEMENT: a component used in respirators to remove solid or liquid aerosols from the inspired air.

FILTERING FACEPIECE (DUST MASK): a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

FIT FACTOR: a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

FIT TEST: the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

 HELMET: a rigid respiratory inlet covering that also provides head protection against impact and penetration.

HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER: a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

HOOD: a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

LOOSE-FITTING FACEPIECE: a respiratory inlet covering that is designed to form a partial seal with the face.

NEGATIVE PRESSURE RESPIRATOR (TIGHT FITTING): a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

OXYGEN DEFICIENT ATMOSPHERE: an atmosphere with an oxygen content below 19.5% by volume.

PHYSICIAN OR OTHER LICENSED HEALTH CARE PROFESSIONAL
(PLHCP): an individual whose legally permitted scope of practice allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required medical evaluation.

**POSITIVE PRESSURE RESPIRATOR:** a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

**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.

**PRESSURE DEMAND RESPIRATOR:** a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

**QUALITATIVE FIT TEST (QLFT):** a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

**QUANTITATIVE FIT TEST (QNFT):** an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

**RESPIRATORY INLET COVERING:** that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

**SELF-CONTAINED BREATHING APPARATUS (SCBA):** an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

**SERVICE LIFE:** the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

**SUPPLIED-AIR RESPIRATOR (SAR) OR AIRLINE RESPIRATOR:** an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

**TIGHT-FITTING FACEPIECE:** a respiratory inlet covering that forms a complete seal with the face.

**USER SEAL CHECK:** an action conducted by the respirator user to determine if the respirator is properly sealed to the face.
Respirator Selection

Respirators will be selected on the basis of hazards to which the employee will be exposed. Using an inappropriate respirator is just as bad, if not worse, than using no respirator at all because it can evoke a false sense of security while offering no protection to the hazard at hand.

All respirators will be NIOSH approved.

Work area surveillance will be made by Darren L. Nurse taking into consideration the actual work area conditions, the degree of exposure and employee stress.

Respirator selection will take into consideration the air quality, the contaminant, the amount of the contaminant, the time exposure to that contaminant, and the work area surveillance.

Oxygen-deficient atmospheres as well as atmospheres in which the respiratory hazard exposure cannot be determined are considered immediately dangerous to life or health and the use of one of the below listed respirators is required:

a. A full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or

b. A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

Note: Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

Generally, but not always, work area atmospheres that require respiratory protection are not IDLH and in these cases respirator selection offers more options. The respirator selected will be 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. Of course, the respirator selected will be appropriate for the chemical state and physical form of the contaminant.

For protection against gases and vapors, the respirator provided will be:

a. Atmosphere-supplying.

b. Air-purifying, provided that:

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

2. If there is no ESLI appropriate for conditions in respiratory hazard area, a change schedule for canisters and cartridges will be used that is based on objective data that will ensure that canisters and cartridges are changed before the end of their service life.
Darren L. Nurse will rely on past experience and cartridge manufacturer recommendations. If the competent person on site or any respirator user notices that breathing becomes more strained, the change schedule will be modified.

For protection against particulates, the respirator provided will be:

a. Atmosphere-supplying; or

b. Air-purifying equipped with a filter certified by NIOSH under 30 CFR part 11 like a HEPA filter; or

Note: Filters manufactured under 30 CFR part 11 standards may continue to be used, however, as of July 10, 1998, other than PAPR’s, they are not to be purchased. Only 42 CFR part 84 type filters will be used.

c. Air-purifying equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or

Note: These respirators and filters, other than PAPR’s are identified on the packaging with numbers that take the form: TC-84A-XXX.

a) Filters will have an “N”, “R”, or “P” designation followed by “100”, “99” or “95.”

Examples: N100 or R99

1. “N” indicates the filter is for any solid or non-oil containing particulate contaminant.

2. “R” indicates the filter is for any particulate contaminant. If used for an oil containing particulate, a one shift use limit applies. “P” indicates the filter may be used with any particulate contaminant.

b) The number indicates the filter efficiency -- the higher the number, the more efficient. 100 = 99.97% efficiency; 99 = 99% efficiency; and 95 = 95% efficiency.

1. Air-purifying equipped with any filter certified for particulates by NIOSH for contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers.

Often, the permissible exposure limit (PEL) and suggested respirator is listed on a SDS. Published exposure limits for the contaminant at hand will assist in determining respirator selection.

Darren L. Nurse will select respirators based on:

a. The nature of the hazardous operation or process.

b. The type of respiratory hazard including permissible exposure limits.

c. The period of time for which respiratory protection must be worn.

d. The activities of workers in the hazardous area.

e. The respirator’s characteristics, capabilities, and limitations.
Particulate Respirator Selection

Prior to respirator selection, the following factors must be known:

a. The identity and concentration of the particulates in the work area air.

b. The permissible exposure limit (PEL), the NIOSH recommended exposure limit (REL) or other occupational exposure limit.

c. The hazard ratio (HR). The (HR) is obtained by dividing the airborne particulate concentration by the exposure limit.

d. The assigned protection factor (APF) for the type of respirator to be used. The (APF) is the minimum anticipated level of protection provided by each type of respirator worn in accordance with an adequate respiratory protection program. For example, an APF of 10 means that the respirator should reduce the airborne concentration of a particulate by a factor of 10, or to 10% of the work area concentration.

e. The immediately dangerous to life or health (IDLH) concentration, including oxygen deficiency.

The APF should be greater than the HR and multiplying the occupational exposure limit by the APF gives the maximum work area concentration in which the respirator may be used.

All filters will have a 99.97% efficiency rating indicated by the number 100.

Approved Disposable Filters

The below outlines the types of approved disposable filters and their description.

N95  Filters at least 95% of airborne particles.  Not resistant to oil.
N99  Filters at least 99% of airborne particles.  Not resistant to oil.
N100 Filters at least 99.7% of airborne particles.  Not resistant to oil.
R95  Filters at least 95% of airborne particles.  Somewhat resistant to oil.
P95  Filters at least 95% of airborne particles.  Strongly resistant to oil.
P100 Filters at least 99.7% of airborne particles.  Strongly resistant to oil.
Service Life of Filters

If the selected filters have an end-of-service-life indicator (ESLI), the filters will be used until the indicator shows that it is time to be replaced.

In the absence of an ESLI, the following is our policy of service life of filters:

All HEPA filters manufactured under 30 CFR part 11 (for PAPR’s) will be replaced at least daily (once each work shift) or if breathing resistance becomes excessive or if the filter suffers physical damage (tears, holes, etc.) If PAPR filters become available under 42 CFR part 84 standards, they will be used and fall under the below schedule:

All filters will be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance.

N-series filters may be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance. If the competent person determines the work area to be exceptionally dirty, the filters will be changed each work shift.

R-series filter will be changed every work shift if oil is present. If oil is not present, they may be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance. If the competent person determines the work area to be exceptionally dirty, the filters will be changed each work shift.

P-series filters will be used and reused in accordance with the manufacturer’s time-use limitations when oil aerosols are present. P-series filters can be used and reused subject only to consideration of hygiene, damage, and increased breathing resistance if oil aerosols are not present.
Medical Approval for Respirator Use

Before respirator use – even before fit testing – it must be determined that one is physically capable to wear the type of respirator to be assigned. Wearing negative pressure respirators can place an increased strain on one's respiratory system, and, depending on the task and the environmental conditions (especially heat and cold), respirators can put an additional strain on your whole body. Prior to respirator use, an employee must have a medical examination. The actual medical tests, if any, depend on the hazards involved, the condition of the employee, and the judgment of the physician or other licensed health care professional (PLHCP). If respirators are used to prevent exposure to certain toxic and hazardous substances (for example, lead or asbestos), then additional medical tests and surveillance procedures are required appropriate for the hazard.

A PLHCP will be identified to perform medical evaluations using the medical questionnaire with this program. The PLHCP will be given a copy of this program as well as the appropriate standards.

A follow-up medical examination will:

a. Be given to an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C, or whose initial medical examination demonstrates the need for a follow-up medical examination.

b. Include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

The medical questionnaire and examinations will be given confidentially during normal working hours or at a time and place convenient to the employee. The employee will be given the opportunity to discuss the questionnaire and examination results with the PLHCP.

The PLHCP will be provided the following information to be used in determining an employee's ability to use a respirator:

a. The type and weight of the respirator to be used by the employee.

b. The duration and frequency of respirator use.

c. The expected physical work effort.

d. Additional protective clothing and equipment to be worn.

e. Temperature and humidity extremes that may be encountered.
An annual review of medical status is not required and additional medical evaluations are required only if:

a. An employee reports medical signs or symptoms that are related to ability to use a respirator.

b. a PLHCP, supervisor, or Darren L. Nurse determines that the employee needs to be reevaluated.

c. Fit testing and work area program evaluation indicates a need.

d. A change occurs in work area conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.

A negative pressure respirator may place an undue burden on an employee’s system and the PLHCP may recommend a PAPR be used instead.

Medical records will be retained for 30 years.

Once medical approval is received allowing the respirator use, fit testing may proceed. The employee will be provided with a copy of this determination.

**Respirator Fit Test**

There are various protocols for fit testing respirators and they can be found in Appendix A, §5144. Respiratory Protection. One (1) of the four (4) qualitative protocols listed below will be used:

<table>
<thead>
<tr>
<th>Protocol/Fit Test Procedure</th>
<th>Appendix A to 29 CFR 1910.134</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Isoamyl Acetate</td>
<td>Paragraph B2</td>
</tr>
<tr>
<td>Fit Test Procedure</td>
<td>Paragraph B2(b)</td>
</tr>
<tr>
<td>b. Saccharin Solution Aerosol</td>
<td>Paragraph B3</td>
</tr>
<tr>
<td>Fit Test Procedure</td>
<td>Paragraph B3(b)</td>
</tr>
<tr>
<td>c. BitrexTM Solution Aerosol</td>
<td>Paragraph B4</td>
</tr>
<tr>
<td>Fit Test Procedure</td>
<td>Paragraph B4(b)</td>
</tr>
<tr>
<td>d. Irritant Smoke (Stannic Chloride)</td>
<td>Paragraph B5</td>
</tr>
<tr>
<td>Fit Test Procedure</td>
<td>Paragraph B5(c)</td>
</tr>
</tbody>
</table>

The purpose of fit testing is to ensure that the respirator selected will actually do the job for which it was intended. Different manufacturers make different sizes of each model. Fit testing, following the OSHA approved protocols, will ensure that the specific make, model and size are appropriate for the user. An employee may only use the specific respirator(s) on which he/she has passed a fit test.
Eye glasses and contact lenses pose special problems when dealing with respirators. Contact lenses will not be worn during the fit test or during respirator use. Normal eye glasses, while they do not interfere with the skin to facepiece seal of a ½ face respirator, will prevent a proper seal on a full face respirator and thus will not be worn. If glasses are needed, special adapters can be provided to hold lenses within the respirator.

Upon successful completion of respirator fit testing, a Record of Respirator Fit Test form will be completed and maintained with the employee’s records. Only the latest fit test record need be retained. The Respirator Fit Test will be repeated at least annually or when:

a. A different respirator facepiece (size, style, model or make) is used.
b. There has been a weight change of at least 20 pounds.
c. There has been significant facial scarring in the area of the face piece seal.
d. There has been significant dental changes; i.e., multiple extractions without prosthesis or acquiring dentures.
e. Reconstructive or cosmetic surgery.
f. Any other condition that may interfere with facepiece sealing.

As explained in the protocols, the fit tests shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface. Further, there shall not be mustaches that are so long as to interfere with the inlet or exhaust valves in the respirator. Of course, these requirements apply not only to fit testing procedures, but they also apply to actual on the job use where the seal between face and respirator must be maintained.

**User Seal Check**

A user seal check, performed in accordance with the manufacturer's instructions or Appendix B-1 to §5144. See program index page. This check will be made prior to each use by the wearer of a tight-fitting respirator.

A user seal check is solely for respiratory protection of the employee and without this check there is no way of knowing if the selected respirator is actually working. Failure to perform a seal check may result in the use of a respirator which is of little or no value.
Hazard Communication & Emergency Procedures

One would not be wearing a respirator in the first place if there were not some detrimental health consequences of non-use. Often, these consequences are chronic (long term) and immediately unnoticeable.

If respirator failure would lead to noticeable physical or mental impairment, then, in these situations, two (2) employees will be assigned in the same area and in view of each other. If one employee presents symptoms of physical or mental distress, the second employee will remove the first employee from the area. If there is not an immediate, total recovery, the affected employee will be provided medical care by emergency responders.

In the event work is being performed in an IDLH atmosphere, a safety harness and safety lines will be used so that the employee may be pulled to safety. Suitable rescue equipment will be available and a standby man or men with suitable self-contained breathing apparatus shall be at the nearest fresh air base for emergency rescue.

All personnel should be aware of the appropriate SDS for the products they are working with, and particular attention should be given to health hazards; both acute and chronic, symptoms of overexposure, first aid measures, emergency procedures, and exposure limits.

Work Area Surveillance

The competent person at the work area where respirator use is required will maintain appropriate surveillance of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, Darren L. Nurse, or competent person, will reevaluate the continued effectiveness of the respirator.

Employees are to leave the respirator use area:

a. To wash their face and respirator facepiece as necessary to prevent eye or skin irritation associated with respirator use.

b. If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece.

c. To replace the respirator or the filter, cartridge, or canister elements.

Defective respirators will be repaired or replaced before returning to the respirator use area.
Air Quality

Atmosphere-supplying respirators, depending on the type (supplied-air or SCBA) use compressed air, compressed oxygen, liquid air or liquid oxygen. Compressed and liquid oxygen must meet the requirements of the United States Pharmacopoeia for medical or breathing oxygen. Compressed breathing air must meet the requirements of Grade "D" breathing air including: oxygen content (v/v) of 19.5-23.5%; hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less; carbon monoxide content of 10 ppm or less; carbon dioxide content of 1,000 ppm or less; and lack of noticeable odor. Compressed oxygen shall not be used in supplied-air respirators or open circuit self-contained breathing apparatus that have previously used compressed air. Oxygen must never be used with airline respirators.

Breathing air may be supplied to respirators from cylinders or air compressors. If cylinders are used, they will be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 178).

If a compressor is used for supplying breathable air by way of airline hoses to a respirator mask, it is a Type "C" system. The hose couplings used on these systems must not be compatible with any other gas systems. Breathable air -- not pure oxygen -- is used in these systems. All safety and standby devices will be maintained in working order such as alarms to warn of compressor failure or overheating. Compressors will be located so that contaminated air does not enter the system and suitable in-line filters will be installed. A receiver of sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere in the event of a compressor failure shall be in place. If an oil lubricated system is used, it shall have a high temperature and carbon monoxide alarm.
Additionally, we will ensure that compressed air does not have oxygen concentrations that are greater than 23.5%.

Compressors used to supply breathing air to respirators must be constructed and situated so as to:

1. Prevent entry of contaminated air into the air-supply system;
2. Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg.C) below the ambient temperature;
3. Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions.
4. Have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag shall be maintained at the compressor.

For compressors that are not oil-lubricated, we will ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.

For oil-lubricated compressors, we will use a high temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply will be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

If cylinders are used to supply breathing air to respirators, they will meet the following requirements:

a. cylinders will be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178);

b. cylinders of purchased breathing air will have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air; and

c. the moisture content in the cylinder will not exceed a dew point of -50 deg.F (-45.6 deg.C) at 1 atmosphere pressure.
Cleaning, Inspection, and Maintenance

Respirators issued for the exclusive use of one worker will be cleaned and disinfected after each day's use or more often, if necessary. A respirator used by more than one person will be cleaned and disinfected after each use by the employee who used it. Cleaning should be done using the manufacturer’s recommendations or the guidelines in Appendix B-2 to §5144. See program index page. Remove or protect the filters/cartridges before cleaning because moisture can defeat the effectiveness of a filter. During cleaning, an inspection of the respirator will be made to ensure it retains its original effectiveness. Valves, straps, canisters, elasticity, facepieces, if applicable, will be inspected per the manufacturer’s instructions. Defective parts will be replaced before reuse.

Employees who use respirators will be instructed in the replacement of parts as allowed by the manufacturer (such as valves and straps). Respirators that require a higher level of repair will be returned to the manufacturer. All replacement parts will be of the same manufacture as the respirator and all replacement parts will be NIOSH approved. Maintenance will be limited to replacing parts (straps, filters, valves, etc.) allowed by the manufacturer. Only respirators in 100% working order will be used.

Cleaning supplies and replacement parts will be provided at no cost. In the event a respirator is not used for thirty (30) days, it will be inspected by a competent person. Particular attention will be paid to SCBA apparatus and Type "C" connections. SCBA apparatus shall be inspected monthly and air and oxygen cylinders will be fully charged according to the manufacturer's instructions. All warning devices will be checked to ensure they are properly functioning.
**Maintenance of Emergency/Unassigned Respirators**

Emergency and unassigned respirators (respirators used by more than one person) will be cleaned and inspected for defects every thirty (30) days and after each use. Particular attention will be given to the elasticity of the respirator and ensuring that the respirator is defect free. Only the latest record of this inspection will be maintained. A tag showing the name of inspector, the date, and condition of the respirators will be attached to the respirator.

**Storage of Respirators**

Respirators will be stored in a convenient, clean, and sanitary location in such a manner as to protect them from dust, heat, sunlight, extreme cold, excessive moisture, and damaging chemicals. In the work area, a plastic bag can help protect a respirator from dust and moisture. Respirators will not be stored in lockers or tool boxes unless they are in cases or cartons. Respirators will be stored with the facepiece and exhalation valve resting in a normal position. This will also prevent the soft, pliable material of which respirators are made from setting in an abnormal position, changing shape, and reducing face to mask seal.

**Program Evaluation**

This Program will be evaluated on a continual basis and updated if the need arises. Reasons for upgrading would include new atmospheric hazards; new respiratory protection equipment; new or altered work procedures; the introduction of new engineering controls; the failure of employees to follow standard operating procedures.

Often, the effects of breathing contaminated atmospheres are chronic in nature and thus some employees may tend to become lax in using their respirators properly. Supervisors must be on alert for this tendency.

Employees must realize that they must use the provided respiratory protection in accordance with the instructions and training received.
Training

Training will be given by a competent person, prior to use, to ensure each affected employee can demonstrate knowledge of at least the following:

a. Why a respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.

b. What the limitations and capabilities of the respirator are.

c. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.

d. How to inspect, put on and remove, use, and check the seals.

e. The procedures for maintenance and storage of the respirator.

f. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.

g. The general concepts of this program.

Retraining will be given annually and when:

a. Changes in the work area or the type of respirator render previous training obsolete.

b. Inadequacies in the employee’s knowledge or use of the respirator indicate that the employee lacks the required understanding or skill.

c. A situation arises in which retraining appears necessary to ensure safe respirator use.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.
Dusk Masks – Use of Respirators when not Required

Darren L. Nurse, or competent person in the work area, will determine when respirator use is required. Dust masks may be used at any time to reduce annoying particles in the air in the work area.

An employee who wants to wear an actual respirator in the work area for comfort or an additional level of safety that is not required for health reasons according to standards, must obtain medical approval for respirator use according to the procedures outlined in this program.

Additionally, that employee should read this program (formal training is not required) and:

a. Read and heed all manufacturers’ instructions on use, maintenance, cleaning and care, and warnings regarding the respirator’s limitations.

b. Choose a respirator certified for use to protect against the contaminant of concern. The respirator must be NIOSH approved.

c. Not wear the respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. A respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

d. Not interchange the respirator with another employee.

Disposable Respirators:

Cal/OSHA requires that employees who voluntarily use disposable respirators in situations where respiratory protection is not specifically required by Cal/OSHA standard (in atmospheres where exposures are below the permissible exposure limit) essentially for personal comfort or additional, though not required, respiratory protection be informed of Appendix D to Section 5144: (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard, printed below.

All disposable respirators, such as Moldex, 3M, Wilson, North Safety, etc. must be marked with the manufacturer’s name, the part number, the protection provided by the filter, and “NIOSH”.

Disposable filters are actually negative pressure respirators. They protect the user by filtering particles out of the air breathed.

Though disposable filters cannot be fit-tested in the traditional sense, they must be fit-tested in accordance with the manufacturer’s instructions.

Under no circumstances may any respirator other than the above disposable respirators be used without compliance with a respiratory protection program.
Appendix D to Section 5144: (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

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 respirators 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 designated 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.
Respiratory Protection Program Evaluation Form

Darren L. Nurse, our Respiratory Protection Program Administrator or a designated competent person will conduct work area and administrative evaluations to ensure the provisions of our respiratory protection program are being properly implemented. Discrepancies noted will be immediately corrected.

A random sampling of affected personnel addressed the below listed concerns and the responses are indicated below:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the respiratory protection program understood?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem areas:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrective action:</td>
<td></td>
<td></td>
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<tr>
<td>Do respirators fit without interfering with job performance?</td>
<td></td>
<td></td>
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<tr>
<td>Problem areas:</td>
<td></td>
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<tr>
<td>Corrective action:</td>
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<tr>
<td>Are respirators being properly maintained?</td>
<td></td>
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<tr>
<td>Problem areas:</td>
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<tr>
<td>Corrective action:</td>
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<tr>
<td>Are appropriate respirators selected for the hazard?</td>
<td></td>
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<tr>
<td>Problem areas:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrective action:</td>
<td></td>
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</tbody>
</table>

(Signature of Person performing evaluation) (Date)

Note: Retain only the latest evaluation.
Report of Medical Examination

____________________________________________
(Date)

____________________________________________
(Applicant's Name)

____________________________________________
(Applicant's SSN)

Job for which person is being examined: ________________________________

Reason for medical examination: Respirator use.

Type(s) of respirator to be used: _______________________________________

Atmospheric hazards for which the above respirators will be used: _________________________

NOTE: Circle the appropriate paragraphs and subparagraphs.

1. Based on the information available to me, it is my opinion that the above named person may be placed in the job position with no restrictions in work assignments.

2. Based on all the information available to me, it is my opinion that the above named person has a detected medical conditions(s) or finding(s) which:
   a. Places this person or others at increased risk of material impairment of health from anticipated or potential occupational exposures or activities.
   b. May be aggravated by occupational exposures or activities.
   c. May interfere with safe and/or effective performance.
   d. Needs follow-up. This includes changes which may be with "normal limits" based on the current assessment and/or comparison with previous results. Based on available data, the casual relationship of these findings to occupational exposures appears to be positive/negative/ill defined.
   e. Other: (Explain) ______________________________________________________________
3. On the basis of the above, I recommend:
   a. No restrictions in work assignments for the above job.
   b. Restricted activities: (List) ________________________________________________
   c. Limited exposure: (Note) ____________________________________________________
   d. Special protective measures: (Note) __________________________________________
   e. Medical follow-up: (Note) __________________________________________________
   f. Limitation on the use of a negative pressure or air purifying respirator: (Explain) __________
   g. Other: (Note) ______________________________________________________________

4. I have advised the employee of any detected medical condition of finding which dictates further medical examination or treatment and have appropriate recommendations regarding medical follow-up and exposure. This will be documented in writing.

5. Additional comments: __________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

6. I understand that a copy of this report will be given to the examinee by the person receiving it.

DATE: _____________________________ (Physician's Signature)

____________________________________________ (Address)

____________________________________________ (City, State, ZIP)

____________________________________________ (Telephone Number)

Return this form to:

Nurse Stucco Inc.
Darren L. Nurse
12030 Short Street
Lakeside, CA 92040
619-561-7429
Nurse Stucco Inc.

Medical Opinion for Respirator Wear

____________________
(Date)

_______________________________
(Applicant's Name)

_______________________________
(Applicant's SSN)

Return this form to:

Nurse Stucco Inc.
Darren L. Nurse
12030 Short Street
Lakeside, CA 92040
619-561-7429

RE: Medical Opinion for Respirator Use

On this date, based on the employee medical questionnaire and/or further medical examination, the above named applicant is found to be:

a. Eligible to use a respirator.

_______________________________
(Respirator type, i.e., ½ face; full face; PAPR; SCBA)

_______________________________
_______________________________

b. Eligible to use a respirator with the following restrictions:

________________________________________________________________________

________________________________________________________________________

_______________________________
(Respirator type, i.e., ½ face; full face; PAPR; SCBA)

c. Not eligible to use a respirator.

____________________________________
(Signature of physician or licensed healthcare professional)

____________________________________
(Typed or Printed Name)

____________________________________
(Street Address)

____________________________________
(City, State, ZIP)
# Respirator Fit Test Summary

Name of employee: _______________________  SSN: _______________________

Date of Testing: ______________   Test Conducted By: _______________________

Respirator(s) Selected: ___________________  _______________________

<table>
<thead>
<tr>
<th>Pass</th>
<th>Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Manufacturer)</td>
<td>(Model/Series)</td>
</tr>
<tr>
<td>(Respirator Size)</td>
<td>(NIOSH Certification #)</td>
</tr>
</tbody>
</table>

Respirator(s) Selected: ___________________  _______________________

<table>
<thead>
<tr>
<th>Pass</th>
<th>Fail</th>
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<td>(Model/Series)</td>
</tr>
<tr>
<td>(Respirator Size)</td>
<td>(NIOSH Certification #)</td>
</tr>
</tbody>
</table>

Testing Agent (Protocol):  Circle One

a. Isoamyl Acetate Protocol.  (Banana Oil)
b. Saccharin Solution Aerosol Protocol.  (Saccharin Taste)
c. Bitrex™ Solution Aerosol Protocol (Denatonium Benzoate)
d. Irritant Smoke Protocol.  (Irritant Smoke)

Signature of Person Conducting the Test: ________________________________

Signature of Employee: _______________________________________________

The Respirator Fit Test will be repeated at least annually or when:

a. A different respirator facepiece (size, style, model or make) is used.
b. There has been a weight change of at least 20 pounds.
c. There has been significant facial scarring in the area of the face-piece seal.
d. There has been significant dental changes; i.e., multiple extractions without prostheses or acquiring dentures.
e. Reconstructive or cosmetic surgery.
f. Any other condition that may interfere with facepiece sealing.
All emergency and unassigned respirators were inspected and cleaned on the date indicated. Any defects found were corrected or the respirator was removed from service. This inspection was performed after each use and/or monthly.

<table>
<thead>
<tr>
<th>DATE</th>
<th>SIGNATURE OF INSPECTOR</th>
<th>NOTES</th>
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</thead>
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</table>

Note: Only the latest record must be retained.
Scaffolds

§1637. General Requirements. (Scaffolds)
§1644. Metal Scaffolds.
§1645. Outrigger and Bracket Scaffolds.
§1646. Tower Scaffolds and Rolling Scaffolds, Wood or Metal.
§1647. Horse Scaffolds.
§1648. Ladder-Jack Scaffolds.
§1654. Window Jack Scaffolds.
§1658. Suspended Scaffolds -- General.
§1660. Suspended Scaffolds for Loads of 425 Pounds or Less.
§1661. Suspended Scaffolds for Loads Between 425 and 1000 Pounds.
§1667. Suspended, Power-Driven Scaffolds.

Overview

Scaffolds are everyday items on most construction sites and their use presents specific hazards – the most common being electrical shock, falls, and falling objects. This program addresses these hazards and provides safety rules for the use of this type of equipment.

Affected individuals must be aware of the specific hazards applicable to their work situation and the proper safety procedures for avoiding these hazards.

All scaffold applications require knowledge of: equipment inspection, load capacities, ground conditions, effects of weather, fall protection, potential electrical hazards, and protection from falling objects. It is expected that all personnel understand how to perform work in a safe manner while on a scaffold, recognize unsafe work situations, and effectively deal with them.

If you are aware of a scaffold hazard (or any safety hazard), immediately bring it to the attention of your immediate Supervisor or the competent person on the job site.
Scaffold Safety

A scaffold, by definition, is any temporary elevated platform and its supporting structure used for supporting employees or materials or both. Because of the numerous types of scaffolds, the infinite possible combinations of uses, the various surface features on which the scaffold may rest, and the varying conditions in which scaffolds may be used, it would be impossible to detail what to do in every situation. The goal of any safety program – including scaffold safety – is to eliminate the possibility of harm to employees while they are performing their duties.

Only safety harnesses, not belts, will be used in fall protection.

Leading causes for scaffold accidents and injuries are plank slippage, being struck by falling objects, and the actual collapse of the support structure or plankage.

Definitions

There are a number of terms and phrases which must be understood by all employees when dealing with scaffolds. Below are listed important definitions to aid in the understanding of this Program, however they are not all-inclusive. A complete list of definitions, including the many types of scaffolds and their individual components is found in 29 CFR 1926.450.

BODY HARNESS: a design of straps which may be secured about the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a personal fall arrest system.

COMPETENT PERSON: one who is capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

EXPOSED POWER LINES: electrical power lines which are accessible to employees and which are not shielded from contact. Such lines do not include extension cords or power tool cords.

FAILURE: load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

GUARDRAIL SYSTEM: a vertical barrier consisting of, but not limited to, toprails, midrails, and posts erected to prevent employees from falling off a scaffold platform or walkway to lower levels.

LANDING: a platform at the end of a flight of stairs.
LIFELINE: a component consisting of a flexible line that connects to an anchorage at one end to hang vertically (vertical lifeline), or that connects to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

LOWER LEVELS: areas below the level where the employee is located and to which an employee can fall. Such areas include, but are not limited to, ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, materials, water, and equipment.

MAXIMUM INTENDED LOAD: the total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.

OPEN SIDES AND ENDS: the edges of a platform that are more than 14 inches 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.

PERSONAL FALL ARREST SYSTEM: a system used to arrest an employee’s fall. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or combinations of these.

PLATFORM: a work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.

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 his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

RATED LOAD: the manufacturer’s specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold equipment.

SCAFFOLD: any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage) used for supporting employees or materials or both.

UNSTABLE OBJECTS: items whose strength, configuration, or lack of stability may allow them to become dislocated and shift and therefore may not properly support the loads imposed on them. Unstable objects do not constitute a safe base support for scaffolds, platforms, or employees. Examples include, but are not limited to, barrels, boxes, loose brick, and concrete blocks.
Guidelines for Scaffold Use

**ALL SCAFFOLDS:**

Employees who work on any type of scaffold must follow the below listed guidelines:

a. Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

b. Scaffolds and scaffold components will be inspected for visible defects by a competent person before each work shift and after any occurrence which could affect a scaffold’s structural integrity.

c. Damaged or weakened parts will be immediately replaced.

d. Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling, or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.

e. Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and these employees are protected by a personal fall arrest system or wind screens.

f. Personnel may not work on scaffolds covered with snow, ice or other slippery material except to remove the material with extreme care.

g. Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.

h. Debris shall not be allowed to accumulate on platforms.

i. Make-shift devices on top of scaffold platforms shall not be used to increase the working level height of employees.

j. Guardrails should have smooth surfaces to prevent puncture, laceration, or snagging injuries.

k. Make-shift parts will not be used. A nail is not a substitute for a pin.
SUPPORTED SCAFFOLDS:

Employees who work on supported scaffolds must follow the below listed rules and guidelines. These guidelines cover most, but not all situations. The competent person will address unusual situations.

a. Each platform unit on all working levels of a scaffold shall be fully planked or decked between the front uprights and the guardrail supports and each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch wide (where feasible.)

b. Supported scaffolds must have a height to base (including outrigger supports, if used) width ratio of no more than 4:1 unless restrained from tipping by guying, tying, bracing, or equivalent means. The competent person will direct the procedures for prevention of tipping.

c. Supported scaffold poles, legs, posts, frames, and uprights must rest on base plates AND mud sills or other adequate firm foundation.

Note: Base plates must always be used on supported scaffolds

1. Footings must be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.

2. Unstable objects cannot be used to support scaffolds or platform units.

3. Unstable objects shall not be used as working platforms.

4. Front-end loaders and similar pieces of equipment shall not be used to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.

5. Fork-lifts shall not be used to support scaffold platforms unless the entire platform is attached to the fork and the fork-lift is not moved horizontally while the platform is occupied.
d. Supported scaffold poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement.

e. Scaffolds shall not be moved horizontally while employees are on them unless they have been designed by a registered professional engineer specifically for such movement or, in the case of mobile scaffolds:

1. The surface on which the scaffold is being moved is within 3 degrees of level and free of pits, holes, and obstructions.

2. The height to base width ratio of the scaffold during movement is two to one or less.

3. Outrigger frames, when used, are installed on both sides of the scaffold.

4. When power systems are used, the propelling force is applied directly to the wheels and does not produce a speed in excess of 1 foot per second.

5. No employee is on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.

6. Before the scaffold is moved, each employee on the scaffold must be made aware of the move.
SUSPENDED SCAFFOLDS:

Employees who work on suspended scaffolds must follow the below listed rules and guidelines. These guidelines cover most, but not all situations. The competent person will address unusual situations.

a. All suspension scaffold devices shall rest on surfaces capable of supporting at least 4 times the load imposed on them by the scaffold operating at the rated load of the hoist (or at least 1.5 times the load imposed on them by the scaffold at the stall capacity of the hoist, whichever is greater).

b. Direct connections on suspension scaffolds must be evaluated before use by a competent person who shall confirm that the supporting surfaces are capable of supporting the loads to be imposed.

c. Counterweights shall be made of non-flowable material. Sand, gravel and similar materials that can be easily dislocated may not be used as counterweights.
   1. Only items specifically designed as counterweights shall be used as counterweights. Construction material shall not be used as counterweights.
   2. Counterweights shall not be removed from an outrigger beam until the scaffold is disassembled.

d. The use of repaired wire rope as suspension rope is prohibited.

e. Wire ropes shall not be joined together except through the use of eye splice thimbles and secured by eye splicing or equivalent means.
f. Wire ropes shall be inspected for defects by a competent person prior to each work shift and after every occurrence which could affect a wire rope’s integrity. Wire ropes will be replaced if any of the following conditions exist:

1. Any physical damage which impairs the function and strength of the rope.
2. Kinks that might impair the tracking or wrapping of rope around the drum(s) or sheave(s).
3. Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay.
4. Abrasion, corrosion, scrubbing, flattening or peeling causing loss of more than one third of the original diameter of the outside wires.
5. Heat damage caused by a torch or any damage caused by contact with electrical wire.
6. Evidence that the secondary brake has been activated during an overspeed condition and has engaged the suspension rope.

g. Gasoline-powered equipment and hoists shall not be used on suspension scaffolds.

h. Gears and brakes of power-operated hoists used on suspension scaffolds shall be enclosed.

i. Manually operated hoists shall require a positive crank force to descend.
Guidelines for the Control of Electrical Hazards

To prevent the possibility of electrical shock, neither the scaffold nor any conductive material handled on the scaffold shall come closer to exposed and energized power lines as noted below:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Minimum Distance</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 300 volts</td>
<td>3 feet</td>
<td></td>
</tr>
<tr>
<td>300 volts to 50 kv</td>
<td>10 feet</td>
<td></td>
</tr>
<tr>
<td>More than 50 kv</td>
<td>10 feet plus 0.4” for each 1 kv over 50 kv</td>
<td>2 X’s the length of the line insulator, but never less than 10 feet</td>
</tr>
</tbody>
</table>

UNINSULATED POWER LINES

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Minimum Distance</th>
<th>Alternatives</th>
</tr>
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<tr>
<td>Less than 50 kv</td>
<td>10 feet</td>
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<td>10 feet plus 0.4” for each 1 kv over 50 kv</td>
<td>2 X’s the length of the line insulator, but never less than 10 feet</td>
</tr>
</tbody>
</table>

Scaffolds may be closer to power lines if it is necessary to accomplish the work, but only after the utility company or electrical system operator has been notified of the need to work closer, and the utility company or electrical system operator has de-energized or relocated the lines or installed protective coverings to prevent accidental contact with the lines.

When using 110 volt electrical power tools or lights, ground fault circuit breakers must be used. Electrical extension cords must be inspected for cuts or cracks in the insulation before use.
Guidelines for the Control of Fall Hazards

Each employee working on a scaffold more than 10 feet above a lower level must be protected from falling to that lower level as noted below:

<table>
<thead>
<tr>
<th>SCAFFOLD TYPE</th>
<th>FALL PROTECTION REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boatswains’ Chair</td>
<td>Personal Fall Arrest System</td>
</tr>
<tr>
<td>Catenary Scaffold</td>
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<tr>
<td>Float Scaffold</td>
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<tr>
<td>Needle Beam Scaffold</td>
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<tr>
<td>Ladder Jack Scaffold</td>
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</tr>
<tr>
<td>Single-Point Adjustable</td>
<td>Personal Fall Arrest System</td>
</tr>
<tr>
<td>Suspension Scaffold</td>
<td>and a</td>
</tr>
<tr>
<td>Two-Point Adjustable</td>
<td>Guardrail System</td>
</tr>
<tr>
<td>Suspension Scaffold</td>
<td></td>
</tr>
<tr>
<td>Crawling Board</td>
<td>Personal Fall Arrest System;</td>
</tr>
<tr>
<td>(Chicken Ladder)</td>
<td>*Guardrail System or a ¾” diameter grabline or equivalent handhold securely fastened beside each crawling board.</td>
</tr>
<tr>
<td>Self-Contained Adjustable</td>
<td>*Guardrail System when the platform is supported by the frame structure; by both a Personal Fall Arrest System and a *Guardrail System when the platform is supported by ropes.</td>
</tr>
<tr>
<td>Scaffold</td>
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</tr>
<tr>
<td>Walkway Located within a</td>
<td>*Guardrail System installed within 9½” of and along at least one side of the Walkway.</td>
</tr>
<tr>
<td>Scaffold</td>
<td></td>
</tr>
<tr>
<td>Supported Scaffolds used</td>
<td>Personal Fall Arrest System or a *Guardrail System (except at the side next to the wall being laid.)</td>
</tr>
<tr>
<td>while performing Overhand</td>
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<tr>
<td>Bricklaying</td>
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<tr>
<td>All Other Scaffolds not</td>
<td>Personal Fall Arrest System or a *Guardrail System</td>
</tr>
<tr>
<td>specified above</td>
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<tr>
<td></td>
<td>*Guardrail Systems must have a minimum 200 pound toprail capacity.</td>
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</tbody>
</table>
Special Precautions for the Prevention of Falling

PLANKING REQUIREMENTS:
Plank slippage causes falls and falls cause injuries. Below are requirements for platforms and/or planks used on scaffolds and walkways:

a. Each platform unit (e.g., scaffold plank, fabricated plank, fabricated deck, or fabricated platform) shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch wide.

1. Exceptions to the above:
   a. When a wider space is necessary (for example, to fit around uprights when side brackets are used to extend the width of the platform). In this instance, the platform must be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 9½", or when planking or decking is used solely for walkways or solely for use by personnel erecting or dismantling the scaffold. In these instances, only the planking the competent person establishes as necessary to provide safe working conditions is required.

b. Each scaffold platform and walkway shall be at least 18 inches wide.

1. Exceptions to the above:
   a. Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold shall be at least 12 inches wide.

b. There is no minimum width for boatswain’s chairs.

c. Where working areas are so narrow that platforms and walkways cannot be at least 18 inches wide, the platforms and walkways shall be as wide as feasible. In these instances, personnel shall be protected from fall hazards by the use of guardrails and/or personal fall arrest systems regardless of the height.
c. The front edge of all platforms shall not be more than 14 inches from the face of the work unless guardrail systems are erected along the front edge and/or fall arrest systems are used.

1. Exceptions to the above:
   a. For outrigger scaffolds, the maximum distance from the face of the work shall be 3 inches.
   b. For plastering and latching operations, the maximum distance from the face of the work shall be 18 inches.

d. Each end of a platform unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support by at least 6 inches and not more than:

1. Twelve (12) inches for a platform 10 feet or less in length unless the platform is designed and installed so that the cantilevered* portion of the platform is able to support personnel and/or material without tipping, or has guardrails which block access to the cantilevered end.

2. Eighteen (18) inches for a platform greater than 10 feet in length unless it is designed and installed so that the cantilevered* portion of the platform is able to support personnel without tipping or has guardrails which block access to the cantilevered end.

Note: Cantilevered portion of the platform is the portion of the platform which extends beyond the support by 12 or 18 inches.

e. On scaffolds where scaffold planks are abutted to create a long platform, each abutted end shall rest on a separate support surface. The use of common support members such as “T” sections to support abutting planks or hook on platforms designed to rest on common support is acceptable.

f. Where platforms are overlapped to create a long platform, the overlap shall occur only over supports and shall not be less than 12 inches unless the platforms are nailed together or otherwise restrained to prevent movement.
g. At points of a scaffold where the platform changes direction, such as turning a corner, any platform that rests on a bearer at an angle other than a right angle shall be laid first; platforms which rest at right angles over the same bearer shall be laid second on top of the first platform.

h. With the exception that the edges may be marked for identification, wood platforms shall not be covered with opaque finishes. Platforms may be coated with wood preservatives, fire-retardant finishes, and slip-resistant finishes as long as the coatings allow the actual wood to be seen. This is so the wood platforms may be inspected for damage and/or deterioration.

i. Scaffold components manufactured by different manufacturers cannot be intermixed unless the components fit together without force and the scaffold’s structural integrity, as determined by a competent person, is maintained.

j. Scaffold components made of dissimilar metals shall not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component below acceptable levels.

**Fall Protection during Erection & Dismantling of Supported Scaffolds**

Supported Scaffolds: The competent person must determine the feasibility and safety of providing fall protection for employees erecting and dismantle supported scaffolds.

Suspended Scaffolds: Fall protection for those erecting and dismantling suspended scaffolds is possible because the anchorage points used for supporting the scaffold would certainly support a fall protection system. Therefore, fall protection will be utilized for personnel erecting or dismantling suspended scaffolds.
Guidelines for the Control of Falling Objects

All personnel working on a scaffold must wear hard hats. Further protection from falling objects will be provided, if needed, by toeboards*, screens, or guardrail systems; or through the erection of debris nets, catch platforms, or canopy** structures that contain or deflect the falling objects.

Objects that are too heavy or massive to be prevented from falling by the above measures will be kept away from the edge of the scaffold and secured as necessary to prevent their falling.

Where there is a possibility of falling objects (tools, materials, or equipment), the below safeguards must be implemented:

   a. The area below the scaffold to which objects can fall shall be barri
caded and employees shall not be permitted to enter the hazard area, or

   b. A toeboard will be erected along the edge of platforms more than 10 feet above lower levels for a distance sufficient to protect employees below.

When tools, material, or equipment are piled to a height higher than the top edge of the toeboard, the below listed safeguards must be implemented:

   a. Paneling or screening extending from the toeboard or platform to the top of the guardrail shall be erected for a distance sufficient to protect employees below, or

   b. A guardrail system shall be installed with openings small enough to prevent passage of potential falling objects, or

   c. A canopy structure, debris net or catch platform strong enough to prevent passage of potential falling objects shall be erected over the employees below.

Note: Toeboards must be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or horizontal direction and be at least 3½” high from the top edge of the walking/working surface. Further, toeboards must be secured to the outermost edge of the platform and not have more than ¼” clearance above the walking/working surface. Toeboards must either be solid or have openings not over 1” in the greatest dimension.

Note: Canopies used for falling object protection must be installed between the falling object hazard and the employees below.
Access

Two feet – 24 inches – is the height at which some sort of access is required to reach a scaffold platform. When a scaffold platform is two (2) feet above or below the point of access (often the ground level), portable ladders, hook-on ladders, ramps, walkways, ladder stands, etc. must be used. Never use a cross brace as a means of getting on or off a scaffold.

Hook-on and attachable ladders must:

a. Be positioned so they do not tip the scaffold.
b. Have the bottom rung within 24 inches of the supporting level.
c. Have rest platforms at least at 35-foot vertical intervals when used on supported scaffolds.
d. Be designed for use with the scaffold being used.
e. Have a minimum spacing between rungs of 16 ¾ inches and a minimum rung length of 11 ½ inches.

Stairway type ladders have essentially the same requirements except that:

a. The rest platforms must be at the 12 foot (maximum) vertical level.
b. The minimum step width is 16 inches (mobile scaffold stairway-type ladders: 11 ½ inches).
c. Slip-resistant treads are required on all steps and landings.

Stairtowers, if used, must have the bottom step within 24 inches of the supporting level and have

a. A toprail and midrail (stair rail) on each side.
b. A landing platform at least 18 inches by 18 inches at each level.
c. A width of 18 inches between stair rails.
d. Resistant surfaces on treads and landings.

Employees must be able to safely get on and off a scaffold platform and at 24 inches, you will need a specific method of access.
General versus Specific Scaffold Safety Guidelines

General safety guidelines apply to all situations. In all situations, employees must be aware of:

a. Potential electrical hazards, fall hazards, and falling object hazards and how to eliminate them.

b. The proper use of scaffolds and the proper handling methods of materials on the scaffold being used.

c. The maximum intended load and the load-carrying capacities of the scaffold being used and never exceeding these limits.

Within the broad categories of suspended and supported scaffolds, there are many specific types of scaffolds – each with its own limitations and special characteristics. Each job site has its own unique ground composition on which a supported scaffold is erected, or unique attachment points for suspended scaffolds. The competent person on the job site will instruct affected employees on any unusual or unique items that must be known about a specific circumstance.
Specific Cal/OSHA Requirements

Cal/OSHA T8 CCR 3632

Below are the requirements for mobile ladders stands and scaffolds.

All scaffolds shall be erected in accordance with the provisions of Article 21 of the Construction Safety Orders which are contained in our Scaffold and Ladder program.

Load Rating:

a. The design working load of ladder stands shall be calculated on the basis of one or more 200-pound persons together with 50 pounds of equipment each.

b. The design load of all scaffolds shall be calculated on the basis of:

1. Light -Designed and constructed to carry a working load of
   25 pounds per square foot.
2. Medium -Designed and constructed to carry a working load of
   50 pounds per square foot.
3. Heavy -Designed and constructed to carry a working load of
   75 pounds per square foot.

All ladder stands and scaffolds shall be capable of supporting at least 4 times the design working load.

The materials used in mobile ladder stands and scaffolds shall be selected to safely support the design working load and shall be maintained to protect against corrosion and deterioration.

Nails, bolts, or other fasteners used in the construction of ladders, scaffolds, and towers shall be of adequate size and in sufficient numbers at each connection to develop the designed strength of the unit. Nails shall be driven full length. All nails must be immediately withdrawn from dismantled lumber.

All exposed surfaces shall be free from sharp edges, burrs, or other laceration hazards.
Work Levels:

a. The maximum work level height shall not exceed 3 times the least base dimension below the platform. Where the basic mobile unit does not meet this requirement, outrigger frames shall be employed to achieve this least base dimension, or provisions shall be made to guy or brace the unit against tipping.

b. The minimum platform width for any work level shall not be less than 20 inches for mobile scaffolds (towers). Ladder stands shall have a minimum step width of 16 inches.

c. The supporting structure for the work level shall be rigidly braced, using cross bracing or diagonal bracing with rigid platforms at each work level.

d. The steps of ladder stands shall be slip-resistant.

e. The work level platform of scaffolds (towers) shall be the full width of the scaffold, except for necessary openings. Work platforms shall be secured in place. All scaffold platforms shall meet the requirements of the Construction Safety Orders, Section 1637.

All scaffold work levels **6 feet or higher** above the ground or floor shall have a toeboard at locations where persons are required to work or pass under the scaffold. Reference: T8 CCR 3210, Guardrails at Elevated Locations.

All scaffold work levels **30 inches or higher** above the ground or floor shall have guardrail protection that meets the requirements of T8 CCR 3209, Standard Guardrails and T8 CCR 3210, Guardrails at Elevated Locations.

A climbing ladder or stairway shall be provided for proper access and egress, and shall be affixed or built into the scaffold and so located that its use will not have a tendency to tip the scaffold. A landing platform shall be provided at intervals not to exceed 30 feet.
**Wheels or Casters:**

a. Wheels or casters shall be properly designed for strength and dimensions to support *4 times the design working load*.

b. All scaffold wheels, casters and swivels shall be provided with a positive locking device, or other effective means to prevent movement of the scaffold.

c. Ladder stands shall have at least 2 locking casters or other means of locking the unit in position. If only 2 casters are used, they shall be of the directional type and if 4 casters are used, at least 2 of the 4 shall be of the swivel type.

d. Locking devices shall be kept in the locked position when workers are climbing or working on scaffolds and ladder stands.

e. Where leveling of the elevated work platform is required, screw jacks or other similar means for adjusting the height shall be provided in the base section of each mobile unit. The screw jack shall extend into its leg tube at least 1/3 its length, but in no case shall the exposed portion of the screw jack exceed 12 inches.
Training

Interactive training will be given to all employees who will be performing work on scaffolds by a competent person; it will focus on the hazards associated with the type(s) of scaffolding used on our job site, as well as the methods to minimize or eliminate those hazards.

For those employees who will be erecting, disassembling, moving, operating, repairing, inspecting, or maintaining our scaffolds, the competent person will provide additional training applicable to their job requirements.

Retraining will be provided should new types of scaffolding be introduced, standards change, or on-the-job performance indicate that a particular employee has not retained the required proficiency in scaffold safety.

Training will be given, as necessary, to all employees who will be performing work using ladders by a competent person. Issues addressed will include:

a. the nature of fall hazards in the work area.

b. the correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used.

c. the proper construction, placement, care and handling of all ladders.

d. the maximum intended load-carrying capacities of ladders used.

e. the availability of the ladder standards which are contained within this program.

Retraining will be provided, as necessary. Observation of failure to follow established ladder safety procedures would be a cause for retraining.

Note: As a matter of policy, per §1510. Safety Instructions for Employees:

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.