UDC Corporation

Injury and Illness Prevention Program

Prepared by:
UDC Corporation
in association with:
U.S. Compliance Systems, Inc.

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UDC Corporation
Policy Statements

Injury & Illness Prevention Program Policy Statement

California Title 8 Chapter 4, Subchapter 4, Construction Safety Orders, establishes minimum occupational safety & health standards that apply to all places of employment in California. Additional specific Safety Orders which, if applicable to our operations, take precedence over the Construction Safety Orders and are found in other subchapters. We will provide our supervisory staff with a copy of these orders and assure that each supervisor is familiar with those sections pertaining to the operations under their supervision. Compliance with these orders may not in itself prevent occupational injuries or diseases, but it will provide a safe environment which is a fundamental prerequisite in controlling injuries.

It is our policy to provide a work environment that is inherently safe, and our goal is an accident-free workplace with zero accidents and occupational diseases. The safety and health of our employees is of primary importance as they are our most important resource.

For that reason, we have established and will implement and maintain a written Injury and Illness Prevention Program (IIPP) in accordance with Title 8 of the California Code of Regulations, Section 3203 (T8 CCR 3203). A copy will be maintained at each workplace and/or at a central bulletin board accessible to all employees.

Our comprehensive IIPP is designed to make full provision for securing safety in places of employment. It 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 IIPP contains the eight essential elements identified in Title 8 of the California Code of Regulations, Section 3203 (T8 CCR 3202).

These elements are:

a. Responsibility
b. Compliance
c. Communication
d. Hazard Assessment
e. Accident/Exposure Investigation
f. Hazard Correction
g. Training and Instruction
h. Employee Access to The Injury Illness Prevention Program

Safety training will be interactive with an opportunity for all to actively participate, ask questions, make suggestions, and refer to our written policies and procedures. Training needs will be identified by continual reassessment of our work methods, equipment, and facilities as well as employee and management input.

Safety takes a commitment from all personnel within our organization. It 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.

Observation of unsafe acts will be addressed immediately. 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.

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Mark Sandwall

Safety Manager

New Hire Safety Orientation Policy Statement

Mark Sandwall, our Safety Manager, 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 Mark Sandwall, 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:
> 1041 Kraemer Place
> Anaheim, CA 92806
> 714-630-8580
> 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 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.

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Mark Sandwall

Safety Manager

Stop Work Authority and Workers' Right to Refuse Dangerous Work Policy Statement

As referenced in the New Hire Safety Orientation, each employee is:

a. To work in a safe manner and follow established work rules and procedures to the best of their ability.

b. To ask for clarification of safety procedures of which they are not sure prior to performing a task.

c. To report to the job site supervisor or competent person any unsafe acts or procedures and will ensure they are addressed and resolved before continuing work.

Specific procedures have been established to ensure that all employees understand the importance of **not** performing a job task if it cannot be performed safely and in accordance with appropriate standards.

Stop Work Authority Procedures training will be given during the new hire safety orientation before initial assignment to any job task. Training will be documented and include the employee's name, dates of training, and subject.

All employees not only have the authority to stop work when control of a health, safety, or environment hazard or risk is not clearly established or understood, they have an obligation to stop work.

Procedures:

a. Upon discovery or realization that control of a health, safety, or environment hazard or risk is not clearly established or understood, the employee will immediately stop work.

b. Employees with whom he/she is working will be immediately informed so a health, safety, or environment hazard or risk does not impact them or their work.

c. The supervisor/competent person will be notified as soon as possible so the situation may be addressed (corrected).

d. If the supervisor/competent person can successfully address the issue, work will resume. If it is not resolved, work will remain stopped until it is. Most stop work procedures can be resolved in a timely manner at the job site. On occasion, it may require additional investigation to determine the root cause of the problem and the proper procedures to proceed.

e. The stop work will be documented with a stop work report.

Supervisor Review:

Supervisors reviewing stop work reports can determine employee participation in the program, the quality of the interventions, trend common issues, and identify opportunities for improvement and establish new safety procedures to preclude a reoccurrence.

Follow-up:

After the stop work intervention has been initiated and closed, the supervisory review has been completed, all safety issues have been resolved in a timely manner at the job site to the satisfaction of all persons concerned prior to the resumption of work (or, if needed, after additional investigation and corrective actions required to identify and address root causes have been completed), the **importance of follow-up** can be demonstrated by:

a. providing a learning tool for developing improved training.
b. establishing new safety procedures.
c. facilitating sharing of learning.

Responsibilities:

Employee: Initiate a stop work intervention when warranted.

Supervisor/competent person: notify all affected personnel and supervision of the stop work issue, correct the issue, and resume work when safe to do so.

Management: Establish a culture where stop work authority is exercised freely.

Employees, while fulfilling their obligation to stop work when warranted, are reminded that under no circumstances will fulfilling this obligation result in any form of retribution or intimidation from our company or the company for whom we are working.

This Policy Statement will be conspicuously posted.

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Mark Sandwall

Safety Manager

UDC Corporation
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:

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

Do not remove or disable any safety device. Always keep guards in place on operating machinery, equipment, and power tools.

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

Never operate a piece of equipment unless trained and authorized.

Use your personal protective equipment whenever it is required.

Obey all safety warning signs.

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

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

Horseplay, running, and fighting is prohibited.

Clean up spills immediately.

Replace all tools and supplies after use.

Do not allow debris to accumulate. Practice good housekeeping.

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

Inspect all welding equipment before starting work.

Tow-behind welding machines must have a minimum of 2 wheels properly chocked to prevent trailer movement when not hooked up to a vehicle.

Welders must wear appropriate PPE like helmet, goggles, respirator, etc. to protect themselves from sparks, slag, welding arc, fumes etc. Gloves are always required when handling sharp or hot metal.

When welding or creating sparks during hot work activities on jobsites, welders are required to have a fire watch nearby with an extinguisher close at hand. Fire extinguishers must be in good condition, must have the inspection tag and pin in place, as well as fully charged. Fire watches are required to remain at the location of hot work activities for a minimum of 30 minutes or longer if the customer requires it.

Welders must remove all combustible materials or chemicals in their immediate area during hot work activities in the shop and while in the field. If necessary, use a fire blanket and cover all material or equipment that cannot be moved.

Before attaching gauges to compressed gas cylinders, crack open the valve briefly (away from you) to remove or blow out any dirt or debris that might have accumulated inside it.

Welders must shut off all compressed gas cylinders when not in use. Compressed gas cylinders must have caps securely attached before being transported. Gauges must be removed at the end of day and properly stored.

Welders must use a welding screen to prevent other workers from being exposed to intense light generated during welding activities. If necessary, a fire blanket can be used to block the intense light from reaching others.

Injury and Illness Prevention Program Overview

This comprehensive Injury and Illness Prevention Program (IIPP) has been developed to address our specific safety concerns and to provide guidance for the performance of individual job tasks within the framework of California Title 8 Chapter 4, Subchapter 4, Construction Safety Orders. These orders establish minimum occupational safety & health standards that apply to all places of employment in California.

Safety demands a commitment from all personnel within UDC Corporation. We have an obligation to ensure that all our employees are afforded the protection of an appropriate IIPP.

Hazard assessment, pre-planning, and engineering controls, where feasible, will be the preferred method of providing a safe workplace. Hazards that remain will be minimized or eliminated through training which provides our employees the ability to recognize workplace hazards and understand the proper procedural and/or personal protective equipment requirements.

Each employee is encouraged to contact their supervisor immediately should a safety or health risk exist so that corrective action may be taken to eliminate the hazard entirely or deal with the hazard in a safe manner through modified work procedures, PPE, and/or other appropriate action.

Mark Sandwall, our Safety Manager, or a designated competent person will make routine and random inspections to both identify new hazards and to monitor the effectiveness of our IIPP.

In the final analysis, the success of our safety effort depends on all employees from senior management to the newest hire demonstrating a commitment to safety by working in a safe manner. Safe job performance is how our safety effort is ultimately measured.

Accident/Injury Prevention

Our Injury and Illness Prevention 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 workplace-related hazards and follow procedures to eliminate these hazards by using 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 workplace 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, and a fire extinguisher is not to hold open doors!

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

Company Personnel

All levels of management are responsible for ensuring that all appropriate safety and health policies and procedures are clearly communicated to and understood by all employees. This includes California Title 8 Chapter 4, Subchapter 4, Construction Safety Orders which establishes minimum occupational safety & health standards that apply to all places of employment in California and any additional specific Safety Orders found in other subchapters which take precedence over the Construction Safety Orders applicable to our operations. We will provide our supervisory staff with a copy of these orders and assure that each supervisor is familiar with those sections pertaining to the operations under their supervision. Compliance with these orders may not in itself prevent occupational injuries or diseases, but it will provide a safe environment which is a fundamental prerequisite in controlling injuries and illnesses.

Our Injury and Illness Prevention Program (IIPP) is designed to protect our employees' safety in all places of employment. Managers and supervisors are expected to enforce the rules established in our IIPP fairly and uniformly.

All employees, including supervisors, are responsible for using safe and healthful work practices, for following all directives, policies, and procedures, and for assisting in maintaining a safe work environment.

To ensure that all workers comply with the rules and maintain a safe work environment we will:

a. Inform workers of the provisions of our IIPP.
b. Evaluate the safety performance of all workers.
c. Recognize employees who perform safe and healthful work practices.
d. Provide training to workers whose safety performance is deficient.
e. Discipline workers for failure to comply with safe and healthful work practices.
f. Give competent/designated persons "stop-work" authority.

The responsibilities of all employees include the following practices:

a. Reporting unsafe conditions, work practices or accidents to their supervisors or the site safety coordinator(s) immediately.
b. Following safe work practices.
c. Using appropriate personal protective equipment (PPE) as instructed by their supervisors.

Safety Manager

Our Safety Manager will ensure that each employee has appropriate safety training for the tasks to be performed.

Additionally, duties of the Safety Manager position include:

a. Ensuring trainers are qualified by training or experience to teach specific safety subjects.
b. Maintaining training records.
c. Conducting regular workplace inspections for hazard identification.
d. Conducting random inspections to verify adherence to safety rules and policies.
e. Taking action to mitigate identified hazards.
f. Investigating all accidents, injuries, illnesses, and exposures.
g. Establishing procedures for employee reporting of workplace hazards, accidents, injuries, illnesses, and general safety concerns.
h. Verifying completion of specific tasks identified within our Cal/OSHA compliance programs found in Section III of this safety program.

Our Safety Manager is Mark Sandwall.

IIPP Administrator

Our IIPP Administrator has overall authority and responsibility for the implementation of this IIPP. Our IIPP Administrator is qualified by training and experience to competently perform the tasks required by this position.

Duties of the IIPP Administrator position include:

a. Preparing and updating UDC Corporation's IIPP.
b. Implementing the provisions in our IIPP.
c. Making sure accidents, injuries, illnesses, and exposures in our workplace are investigated.

Our IIPP Administrator is Mark Sandwall

Managers and Supervisors

All managers and supervisors are responsible for implementing and maintaining the IIPP in their work areas and for answering worker questions about the IIPP. A copy of this IIPP is available for each foreman in the field.

Employees

Each individual employee is expected to actively participate in our IIPP.

With the goal of providing a safer worksite for all of us, employee suggestions for improving safety management are welcomed and encouraged.

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.

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 the Safety Manager, Mark Sandwall, or by leaving a note in the locked/secure suggestion box in the shop.

Communication

We encourage interactive communication between management and staff on health and safety issues with a goal of ensuring an injury-free, productive workplace.

The following system of communication is designed to facilitate a continuous flow of safety and health information between management and staff in a form that is readily understandable and consists of all the following below items:

a. New worker orientation including a discussion of safety and health policies and procedures.
b. Review of our IIPP.
c. Workplace safety and health training programs.
d. Regularly scheduled safety meetings.
e. Effective communication of safety and health concerns between workers and supervisors, including translation where appropriate.
f. Posted or distributed safety information.
g. A system for workers to anonymously inform management about workplace hazards.

Employee Access to Injury Illness Prevention Program

All UDC employees have the right to examine and receive a copy of the Injury Prevention plan.

UDC Corporation will provide access to the program by doing one of the following:

1. **Provide access in a reasonable time, place, and manner, but in no event later than five (5) business days after the request for access is received from an employee or designated representative.**
   a. **Whenever an employee or designated representative requests a copy of the Program, UDC Corporation will provide the requester a printed copy of the Program, unless the employee or designated representative agrees to receive an electronic copy of the Program.**
   b. **One printed copy of the Program will be provided free of charge. If the employee or designated representative requests additional copies of the Program within one (1) year of the previous request and the Program has not been updated with new information since the prior copy was provided, UDC Corporation reserves the right to charge a reasonable, non-discriminatory reproduction costs (per Title 8 Section 3204(e)(1)(E) for the additional copies. Or,**
2. **Provide unobstructed access through a company server or website, which allows an employee to review, print, and email the current version of the Program. Unobstructed access means that the employee, as part of his or her regular work duties, predictably and routinely uses the electronic means to communicate with management or coworkers. A copy of the Program is also kept in the Safety Manager's office and is available for employees to review.**

   a. **Records of scheduled and periodic inspections required by Title 8, Section 3203, subsection (a)(4) to identify unsafe conditions and work practices, including person(s) conducting the inspection, the unsafe conditions and work practices that have been identified and action taken to correct the identified unsafe conditions and work practices. These records are maintained for at least one (1) year.**
   b. **Documentation of safety and health training required by Title 8,Section 3203, subsection (a)(7) for each employee, including employee name or other identifier, training dates, type(s) of training, and training providers will be maintained for at least one**

(1) year.

As used in this "Employee Access" section:

1. The term "access" means the right and opportunity to examine and receive a copy.
2. The term "designated representative" means any individual or organization to whom an employee gives written authorization to exercise a right of access. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative for the purpose of access to the Program.
3. The term "written authorization" means a request provided to the employer containing the following information:
a. The name and signature of the employee authorizing a designated representative to access the Program on the employee's behalf
b. The date of the request
c. The name of the designated representative (individual or organization) authorized to receive the Program on the employee's behalf; and
d. The date upon which the written authorization will expire (if less than one (1) year).

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 can perform 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, but they are also documented on our enforcement forms.

Subcontractor Involvement & Responsibilities

It is the responsibility of UDC Corporation to review the safety efforts made by subcontractors who may be working with us.

The four major elements of safety management below apply to the operations of UDC Corporation and they also apply to our subcontractors:

a. Management commitment and employee involvement.
b. Worksite analysis.
c. Hazard prevention and control.
d. Safety & health training.

It is expected that our subcontractors work within the framework of Cal/OSHA Standards. One measure that will always be taken is the sharing of appropriate Safety Data Sheet information.

Prior to initiation of work on multi-employer job sites, a meeting will be held to explain to all subcontractors the protective measures we have determined to be appropriate. Input and suggestions will be solicited from subcontractors. Attention will be given to the following aspects of coordinating the management of and responsibility for any existing hazards and hazards which may arise during work:

a. Which employer's employees may be exposed to the hazard (the exposing employer);
b. Which employer created the hazard (the creating employer)
c. Which employer is responsible, by contract or through actual practice, for safety and health conditions on the worksite, i.e., the employer who has the authority for ensuring that the hazardous condition is corrected (the controlling employer)
d. Which employer has the responsibility for correcting or removing the hazard (the correcting employer); and
e. Communication and notification between employers about existing, new, or developing hazards to which the employees of other employers may be exposed.

Regardless of circumstances, UDC Corporation will always take appropriate feasible steps to protect our employees from hazards, instruct them in hazard recognition, and, where necessary, inform them how to avoid the dangers associated with hazards. If an extreme hazard is involved, appropriate feasible steps will include removing our employees from the job until the hazard can be corrected, if there is no other way to protect them from the hazard.

Hazard Assessment

Our IIPP Administrator, Mark Sandwall or Foreman, will inspect and evaluate workplace hazards in all areas when this program is initially established and at least annually thereafter.

At least weekly, inspections to identify and evaluate workplace hazards shall be performed by the following competent observer(s) in the following

areas of our workplace:

Competent Observer	Area
Mark Sandwall or Foreman	Shop or jobsites

A competent observer will identify and evaluate workplace hazards in the appropriate area when:

a. New substances, processes, procedures, or equipment which present potential new hazards are introduced into our workplace
b. New, previously unidentified hazards are recognized
c. Occupational injuries and illnesses occur
d. We hire and/or reassign permanent or intermittent workers to processes, operations, or tasks for which a hazard evaluation has not been previously conducted; and
e. In their judgment, workplace conditions warrant an inspection.

The competent observer [or Program Administrator] will use the relevant sections of the Modified California Hazard Assessment Checklist to assist with the Hazard Assessment.

Hazard Correction

Unsafe or unhealthy work conditions, practices, or procedures will be corrected in a timely manner based on the severity of the hazards, including:

a. When a hazard is observed or as soon as it is discovered
b. When an imminent hazard which cannot be immediately abated without endangering employee(s) and/or property exists, we will remove all exposed workers from the area except those necessary to correct the existing condition. Workers necessary to correct the hazardous condition will be provided with the necessary protection; and
c. All such actions taken and dates they are completed shall be documented on the appropriate forms.

Plans/policies and corrective actions for addressing the specific hazards we have identified in our workplace are found our Hazard Assessment and Correction Record.

Job Hazard Analysis

OSHA Booklet 3071 Job Hazard Analysis

The OSHA Booklet 3071, Job Hazard Analysis is available for those who are interested. 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:

a. A Certificate of Workplace Hazard Assessment will be prepared, signed, and dated, by Mark Sandwall, 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.

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

c. 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.

d. 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.

e. 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 priority for analysis.

f. 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 ensure 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.

Training

All employees, prior to assignment to perform any work, will demonstrate to Mark Sandwall, our Safety Manager, 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 have ready access to our safety program as well as employee handbooks.

All training is documented and records are maintained by the Human Resources Department. The records will include the employee's name, date of training, type 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.

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.

Recordkeeping

UDC Corporation maintains critical records that reflect implementation of the IIPP including:

1. **Records of hazard assessment inspections, including the person(s) conducting the inspection, the unsafe conditions and work practices that have been identified and the action taken to correct the identified unsafe conditions and work practices, are recorded on a hazard assessment and correction form; and**
2. **Documentation of safety and health training for each worker, including the worker's name or other identifier, training dates, type(s) of training, and training providers are recorded on a worker training and instruction form.**

   Inspection records and training documentation will be maintained for one year, except for training records of employees who have worked for less than one year which are provided to the employee upon termination of employment

Housekeeping

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. Listed below are general housekeeping rules:

a. All areas of the workplace: passageways, storerooms, service rooms, and walking-working surfaces will be kept in a clean, orderly, and sanitary condition
b. Walking-working surfaces will be maintained free of hazards such as sharp or protruding objects, loose boards, corrosion, leaks, spills, snow and ice, and unnecessary holes and openings.
c. All spilled materials and liquids will be cleaned up immediately.
d. Stored materials will be neatly stacked.
e. Containers, when not in use, will be sealed.
f. No objects will be left unattended on stairways.
g. Entrances and exits will be properly marked and not blocked.

h. Tools and equipment will be properly cleaned and put away after use.

i. Cleaning and sweeping will be done to minimize the contamination of the air and avoid harmful exposures.

j. All sweepings, decayable waste, trash, and garbage will be disposed of in a timely manner.

k. Combustible scrap, debris, and waste will be stored safely and removed from the worksite promptly.

l. Enclosed workplaces, storerooms, and service rooms will be maintained free of insects, rodents, or other vermin. An effective program of extermination and control will be instituted whenever their presence is detected.

m. At least the minimum number of toilets and washing facilities will be provided and maintained in a clean and sanitary condition.

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 Mark Sandwall, our Injury and Illness Prevention Program Administrator.
2. Report all incidents, injuries and illnesses to their supervisor or Mark Sandwall 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 always clear.

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 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 to 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 Mark Sandwall, our Safety Manager, for inclusion in weekly safety meetings.

Sanitation

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, but also the most abundant part of you is about 65% 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.
cups.

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

Specific steps/procedures will be utilized to eliminate the probability of an incident or injury due to manual lifting.

Causes of Manual Lifting Injuries

Some obvious causes of manual lifting injuries could include, but are not limited to:

a. Lifting an item that is too heavy.
b. Lifting an item that is too bulky.
c. An item blocking the line of sight.
d. A sharp item cutting the hands or body.
e. Working on a slippery surface.
f. Bending 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 item that is obviously too heavy or awkward without seeking assistance or a mechanical lifting device.)
d. Lack of exercise
e. Excessive body weight

Hazard Controls for Manual Lifting

Hazard controls will be used to prevent manual lifting injuries. The order of precedence and effectiveness of hazard control for manual lifting is as follows:

a. Engineering controls.
b. Administrative controls.
c. Personal protective equipment.

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

Engineering controls include the use of mechanical devices such as:

a. Dollies
b. Hand trucks
c. Lift assist devices
d. Jacks
e. Carts
f. Conveyors
g. Lift tables
h. Increasing the heat - muscles are less likely to cramp in warmer temperatures.

Administrative controls include the use of work practices such as:

a. Using two (2) persons to perform a lift.
b. Increasing the time between lifts.
c. Lifting training.

Personal protective equipment includes, but is not limited to:

a. Using gloves to prevent cuts and promote a firm grip and warmth.
b. Appropriate steel toed footwear to prevent slips and protect feet from falling items.

c. Eye protection to prevent items from hitting eyes.
d. Back braces for additional support.

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

Ergonomics & Manual Lifting

Ergonomics is the science of fitting a job to a person to help lessen muscle fatigue, increase productivity, and reduce the number and severity of work-related injuries and musculoskeletal disorders. We will employ the following ergonomic principles to prevent manual lifting injuries in our workplace:

Correct Neutral Postures

Correct neutral posture is 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

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 and 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

The Safety Manager will investigate all injuries caused by improper lifting and, as part of that investigation, incorporate those finding into work procedures to prevent a reoccurrence.

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

Slips, Trips, & Falls

Slips, trips, and falls are among the most common occupational accidents and they are easily preventable.

Causes of Slips, Trips, and Falls

Below are some of the causes of slips, trips, and falls:

a. Running.

b. Engaging in horseplay.

c. Working off a ladder that is not firmly positioned.

d. Carrying an object that blocks the line of vision.

e. Work boots that are 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.

This list could go on and on, but all the above are easily preventable by

adherence to safety and housekeeping procedures, common sense, and awareness of potential hazards.

Prevention of Slips, Trips, and Falls

The following specific procedures will be followed on our worksites to prevent slips, trips, and falls:

a. Where aisles or walkways are required, machinery equipment, parts, and stock will be arranged and spaced to provide clear walkways or aisles of not less than 24 inches in width and 6 feet 8 inches clear headroom to a safe means of egress from the building.

b. Permanent aisles, ladders, stairways, and walkways will be kept reasonably clear and in good repair, and free of dangerous depressions, obstructions, and debris. Where, due to lack of proper definition, aisles or walkways become hazardous, they will be clearly defined by painted lines, curbs, or other method of marking.

c. Whenever aisles, walkways, or crawlways become slippery, high-friction surfaces, cleats, coverings, or other equivalent protection against slipping will be used.

d. Permanent floors and platforms will be free of dangerous projections or obstructions, maintained in good repair, and kept reasonably free of oil, grease, or water.

e. Where the type of operation necessitates working on slippery floors, these surfaces will be protected against slipping by using mats, grates, cleats, or other methods which provide equivalent protection. Where wet processes are used drainage will be maintained and false floors, platforms, mats, or other dry standing places provided.

f. Guardrails will be provided on all open sides of unenclosed elevated work locations, such as: roof openings, open and glazed sides of landings, balconies or porches, platforms, runways, ramps, or working levels more than 30 inches above the floor, ground, or other working areas of a building as defined in Section 3207 of the General Industry Safety Orders. Where overhead clearance prohibits installation of a 42-inch guardrail, a lower rail or rails will be installed.

g. Ladders will be carefully selected for the job at hand, regularly inspected, and properly maintained in accordance with Cal/OSHA's Portable Ladder Standard, Section 3276. All employees using ladders will receive training and understand proper procedures for ladder use before using a ladder in a work situation.

h. Our established housekeeping procedures will always be followed.

Investigation of Injuries

The Safety Manager will investigate all injuries caused by slips, trips, and falls, and, as part of that investigation, incorporate those finding into work procedures to prevent a reoccurrence.

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

Drug, Alcohol, & Smoking

Drug Free Workplace

It is the policy of UDC Corporation to hire only persons free from any evidence of illegal use of controlled substances or other drugs including alcohol.

Except for over-the-counter drugs such as aspirin or drugs prescribed by a physician, there will be no drugs or alcohol within our facility. 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 work area by the competent person and further disciplinary action will be taken by Curt Schendel, UDC President.

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

Employees' drug use may affect their job performance (e.g., by causing dizziness or drowsiness.

It is the employee's responsibility to determine from his or her physician whether a prescribed drug may impair safe job performance.

Employees are to notify human resources of any job restrictions that should be observed as a result of taking prescription medication.

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. The Human Resources Manager will assist any employee in finding appropriate treatment should they voluntarily come forward.

Smoking

There will be no smoking except in designated smoking areas. Designated smoking areas will not be in enclosed spaces, including lobbies, lounges, waiting areas, elevators, stairwells, or restrooms that are a structural part of the building.

Under no circumstances will there be smoking during refueling of vehicles,

within 50 feet of flammable materials, or in any location where flammable vapors in concentrations greater than 25 percent of the lower explosive limit may reasonably be expected.

To prevent smoking by a nonemployee, we will post clear and prominent signs, as follows:

Where smoking is prohibited throughout the building or structure, a sign stating, “No smoking” will be posted at each entrance to the building or structure.

Where smoking is permitted in designed areas of the building or structure, a sign stating, “Smoking is prohibited except in designated areas” will be posted at each entrance to the building or structure.

Prohibited Behaviors

All employees are strictly prohibited from using, bringing onto company property, possessing, concealing, transporting, promoting, or selling any of the following substances or items:

a. Illegal drugs, unauthorized controlled substances, look-a-likes, designer, synthetic or any other drug which may affect an employee's motor functions or alter a person's working perception.
b. Prescription drugs/over-the-counter medication, except under the following conditions:
    1. The employee must inform his/her supervisor prior to using any prescription drug or over-the-counter medication and receive written permission to possess such drug while working.
    2. The prescription vial must be labeled by the dispensing pharmacy and the label must show the employee’s name, physician, prescription number, date the prescription was filled, and the dosage rate.
    3. The over-the-counter medication will be in its original package or container.
c. Alcoholic beverages.
d. Firearms, weapons, explosives, and ammunition.
e. Unauthorized items such as stolen property.

Workplace Violence

Although Cal/OSHA does not yet have any standards concerning workplace violence to comply with Section 5(a)(1) of the Occupational Safety and Health Act (OSHA) of 1970, which requires us to provide our employees with a place of employment that is free from recognizable hazards that are causing or are likely to cause death or serious harm to our employees, we are employing this Workplace Violence Prevention Plan.

Workplace violence can be defined as “any act of violence or threat of violence that occurs at the work site.” The term workplace violence does not include lawful acts of self-defense or defense of others.

Workplace violence includes the following:

a. The threat or use of physical force against an employee that results in, or has a high likelihood of resulting in, injury, psychological trauma, or stress, regardless of whether the employee sustains an injury.

b. An incident involving the threat or use of a firearm or other dangerous weapon, including the use of common objects as weapons, regardless of whether the employee sustains an injury.

Cal/OSHA identifies four types of workplace violence:

Type 1 violence: is workplace violence committed by a person who has no legitimate business at the work site and includes violent acts by anyone who enters the workplace with the intent to commit a crime.

Type 2 violence: is workplace violence directed at employees by customers, clients, or visitors.

Type 3 violence: is workplace violence against an employee by a present or former employee, supervisor, or manager.

Type 4 violence: is workplace violence committed in the workplace by someone who does not work there but has or is known to have had a personal relationship with an employee.

<u>Implementation</u>

Our Safety Manager will be responsible for implementing our Workplace Violence Prevention Plan and, if applicable, coordinating implementation of our plan with other employers whose employees work in same workplace.

Our Safety Manager will identify and evaluate workplace violence hazards by conducting scheduled periodic inspections to identify unsafe conditions and work practices and investigating whenever we are made aware of a new or previously unrecognized hazard.

Employees will be consulted and are encouraged to actively participate in developing and implementing our plan; identifying, evaluating, and correcting workplace violence hazards; designing and implementing training; and reporting and investigating workplace violence incidents.

Controls

When possible and applicable, we will implement recommended engineering and administrative controls to prevent or reduce the likelihood of all types of workplace violence. Some of these controls may include, but are not limited to:

a. Lighting controls
b. Surveillance (e.g., cameras, mirrors)
c. Establishing a good relationship with local police
d. Training on specific workplace violence events, such as responding to an active shooter.
e. Performing appropriate background checks and reference verification on new hires
f. Locking exterior doors to prevent unwanted entry; never propping open locked doors.

Workplace Violence Response

If our employees are exposed to workplace violence instigated by acts of our employees or others, employees are instructed to take the following steps immediately:

a. If you are not directly threatened or exposed to the violent acts, immediately warn others, and remove yourself from the area. Call 911, or local police authorities, when you have reached a point of safety.
b. If you feel you are about to become a victim of workplace violence and you do not have the opportunity to flee, try to remain calm. Do nothing threatening. At the first opportunity, seek safety and call 911 or local police authorities.

Any employee who is a victim of any type of workplace violence, physical or verbal, is to immediately notify his or her supervisor. If an employee's direct supervisor is the offender, the employee should go to the next level of management. Violent actions that result in injury will be reported to the police without exception.

An internal investigation will begin immediately and will include interviews with involved parties, including potential witnesses. When possible, we will do our best to maintain privacy during the investigation and follow-up response.

Our company expressly prohibits retaliation of any kind against any employee bringing a complaint or assisting in the investigation of a complaint. Such employees may not be adversely affected in any manner related to their employment. Retaliation is also illegal under federal law.

Any breach of workplace behavior that leads to a violent action against another employee will be treated as a serious safety violation subject to extreme corrective action, up to and including termination.

Training

We will provide employees with effective training that addresses the workplace violence risks that employees are reasonably anticipated to encounter in their jobs. Training material will be appropriate in content and vocabulary to the educational level, literacy, and language of our employees.

All employees will be provided initial training when our plan is first established and when an employee is newly hired or newly assigned to perform duties for which the training was not previously provided.

Initial training will address the following topics:

a. Workplace violence hazards identified at the workplace and the corrective measures we have implemented
b. An explanation of our Workplace Violence Prevention Plan
c. How to seek assistance to prevent or respond to violence
d. Strategies to avoid physical harm; and
e. How to report workplace violence incidents or concerns without fear of reprisal.

Additional training will be provided when a new or previously unrecognized workplace violence hazard has been identified.

Recordkeeping

Workplace violence hazard identification, evaluation, and correction will be documented using our Identified Hazards and Correction Record, found on page 6 of Appendix A: Forms. These records will be maintained.

Training will be recorded using our Worker Training and Instruction Form, found on page 2 of Appendix A: Forms. Records will be maintained for a minimum of one year.

Records of workplace violence injury investigations will be maintained for a minimum of five years. These records will not contain “medical information” as defined by Civil Code Section 56.05(j).

All workplace violence records will be made available on request to the Chief of the Division of Occupational Safety and Health of the Department of Industrial Relations and his/her representatives, and employees and their representatives for examination and copying.

COVID-19 Policy Statement

The health of our employees is of utmost importance, as they are our most valued assets. The following policy has been implemented to protect our employees to the greatest of our ability from the spread of Coronavirus Disease 2019 (COVID-19).

COVID-19 is a respiratory disease that has spread from China to many other countries around the world, including the United States. Infection with SARS-CoV-2, the virus that causes COVID-19, can cause illness ranging from mild to severe and, in some cases, can be fatal.

Regardless of potential occupational exposures, the following Pandemic Response Plan has been implemented to limit the risk to our employees.

Prevention and Precautions

It may be possible that a person can get COVID-19 by touching a surface or object that has SARS-CoV-2 on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the primary way the virus spreads.

Our employees’ current risk of exposure will be assessed and evaluated. If appropriate, controls to prevent exposure will be selected and implemented, and workers will be required to use them.

These could include physical barriers to control the spread of the virus; no large meetings or gatherings, social distancing; and appropriate personal

protective equipment, hygiene, and cleaning supplies.

a. Workers will be discouraged from using other worker's phones, desks, offices, and other work tools and equipment, when possible.
b. Employees are encouraged to self-monitor and report when they are sick or experiencing symptoms of COVID-19. Workers will be required to stay home if they are sick.
c. Any employee exhibiting signs and symptoms of COVID-19 will be sent home immediately.

Signs and Symptoms

Symptoms of COVID-19 typically include fever, cough, and shortness of breath. Some people infected with the virus have reported experiencing other non-respiratory symptoms. Other people, referred to as *asymptomatic cases*, have experienced no symptoms at all.

According to the CDC, symptoms of COVID-19 may appear in as few as 2 days or as long as 14 days after exposure. The virus is thought to spread mainly from person-to-person, including:

a. Between people who are in close contact with one another (within about 6 feet).
b. Through respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

Procedures for a Confirmed Case

If an employee is confirmed to have COVID-19, fellow employees will be informed of their possible exposure to COVID-19 in the workplace, but confidentiality will be maintained as required by the Americans with Disabilities Act (ADA). Employees exposed to a co-worker with confirmed COVID-19 will be referred to CDC guidance for how to conduct a risk assessment of their potential exposure.

Communication/Notification Procedure

Important COVID-19 information will be communicated to our employees by small safety meetings, email, text, and/or telephone.

a. A suspected employee illness will be communicated internally by the most effective, safe means possible using emails and/or phone messages.
b. As the event evolves, we will communicate any necessary changes with our employees through workplace postings, emails, and/or phone messages.
c. We will provide information on workforce readiness and precautionary measures for personnel reporting to 3rd party sites and projects via email and phone messages.

Team Member Hygiene

Frequent and thorough hand washing will be promoted, including by providing workers, customers, and worksite visitors with a place to wash their hands.

a. If soap and running water are not immediately available, alcohol-based hand rubs containing at least 60% alcohol are provided to all employees.
b. Respiratory etiquette, including covering coughs and sneezes, will be required.

Facility Hygiene

Regular housekeeping practices, including routine cleaning and disinfecting of surfaces, equipment, and other elements of the work environment, are maintained.

a. Cleaning products with EPA-approved emerging viral pathogens claims are used where necessary.
b. Manufacturer's instructions for the use of all cleaning and disinfection products (e.g., concentration, application method and contact time, PPE) will be followed.

Sanitation Procedures

Sanitation and disinfection will need to happen after persons suspected/confirmed to have COVID-19 have been at the workplace. Areas visited by the ill persons will be closed off to all but those responsible for sanitation and disinfection.

a. Outside doors and windows will be opened where possible and ventilating fans will be used to increase air circulation in the area.
b. Cleaning staff will sanitize and disinfect all areas such as offices, bathrooms, common areas, shared electronic equipment like tablets, touch screens, keyboards, remote controls, and anything else used by the ill persons, focusing especially on frequently touched surfaces.

Return to Work

- Employees who test positive for COVID-19 must be excluded from the workplace for at least 5 days after start of symptoms or after date of first positive test if no symptoms.
- Isolation can end and employees may return to the workplace after day 5 if symptoms are not present or are resolving, and a diagnostic specimen* collected on day 5 or later tests negative.
- If an employee's test on day 5 (or later) is positive, isolation can end and the employee may return to the workplace after day 10 if they are fever-free for 24 hours without the use of fever-reducing medications.
- If an employee is unable or choosing not to test, isolation can end and the employee may return to the workplace after day 10 if they are fever-free for 24 hours without the use of fever-reducing medications.
- If an employee has a fever, isolation must continue and the employee may not return to work until 24 hours after the fever resolves without the use of fever-reducing medication.
- If an employee's symptoms other than fever are not resolving, they may not return to work until their symptoms are resolving or until after day 10.
- Employees must wear face coverings around others for a total of 10 days.
- Antigen test preferred*.

Exposed employees must test within three to five days after their last close contact. Persons infected within the prior 90 days do not need to be tested unless symptoms develop.

Employees must wear face coverings around others for a total of 10 days after exposure. Please refer to the section in this FAQ on face coverings for additional face covering requirements.

If an exposed employee develops symptoms, they must be excluded pending the results of a test.

- If an exposed employee who develops symptoms is unable to test or choosing not to test, they must be excluded until 10 days after the date of symptom onset.
- If an exposed employee tests positive for COVID- 19, he/she must follow isolation requirements.
- Employees are strongly encouraged to get vaccinated and boosted. Symptomatic employees must be excluded and test as soon as possible. Exclusion must continue until test results are obtained.
- If the employee is unable to test or choosing not to test, exclusion must continue for 10 days.
- If the employee tests negative and returns to work earlier than 10 days after the close contact, the employee must wear a face covering around others for 10 days following the close contact.
- CDPH recommends continuing exclusion and retesting in 1-2 days if testing negative with an antigen test, particularly if tested during the first 1-2 days of symptoms.

For symptomatic employees who have tested positive within the previous 90 days, using an antigen test is preferred.

Emergency Action Plan

An emergency is a sudden unforeseen crisis, usually involving danger, which calls for immediate action. It is a situation that can directly or indirectly affect a single employee, an entire workplace, or impact a whole community. Emergencies can happen before, during, or after work hours and be caused by a range of events and hazards involving both nature and people.

Workplaces in California are at risk for many different types of emergencies including, natural disasters (earthquakes, floods); extreme weather (storms, heat); fires (building fires, wildfires); chemical or hazardous material spills or releases; major transportation or vehicle accidents (involving trucks, buses, cars, forklifts, etc.); incidents of violence; bomb threats; medical emergencies; employee deaths (suicide, homicide, unintentional or natural);acts of terror; and outbreaks of disease or infections (HINI virus).

Our workplace may be at risk for some of the emergency situations listed above. These sets of events fall under our Emergency Action Plan, which meets a multitude of objectives unique to the needs of our workplace and our employees.

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 firefighting 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 to perform the function for which they are trained provided they may, in their judgment, perform these duties in a safe manner. At no time will any employee put himself/herself at risk.

A copy of this plan will be posted and, like all safety materials, will be readily available for review. Emergency escape route diagrams and emergency telephone numbers will be posted with the 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 will be identified by a sign that reads, for example, "Not an Exit." Aisles and passageways will 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 will know how to alert others,

how to call for assistance, the location of fire extinguishers, the escape route, the rendezvous point (to be 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.

Our emergency action plan will be reviewed annually and revised if necessary.

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

IIPP Administrator: Mark Sandwall

Phone Number: 714 936-3906

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

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 the order given:

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

Assigned First Aid Providers

Names:

Mark Sandwall

Reporting a Fire or Other Emergency

The phone number of the local fire department and emergency services will 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

In case of Fire/Explosion/Severe Weather/Mechanical Failure, etc., the order to evacuate will be given by:

In case of Fire/Explosion/Severe Weather/Mechanical Failure, etc. the Safety Manager and Human Resources Manager will give the order to evacuate to the office personnel via the office/Shop PA system or by phone.

To alert others:

Jorge Briseno, Shop Coordinator, will notify shop personnel of evacuation orders via the shop/office PA system or by phone.

Location of fire extinguishers: There are 5 extinguishers in the office area and 24 in the shop area.

Office:

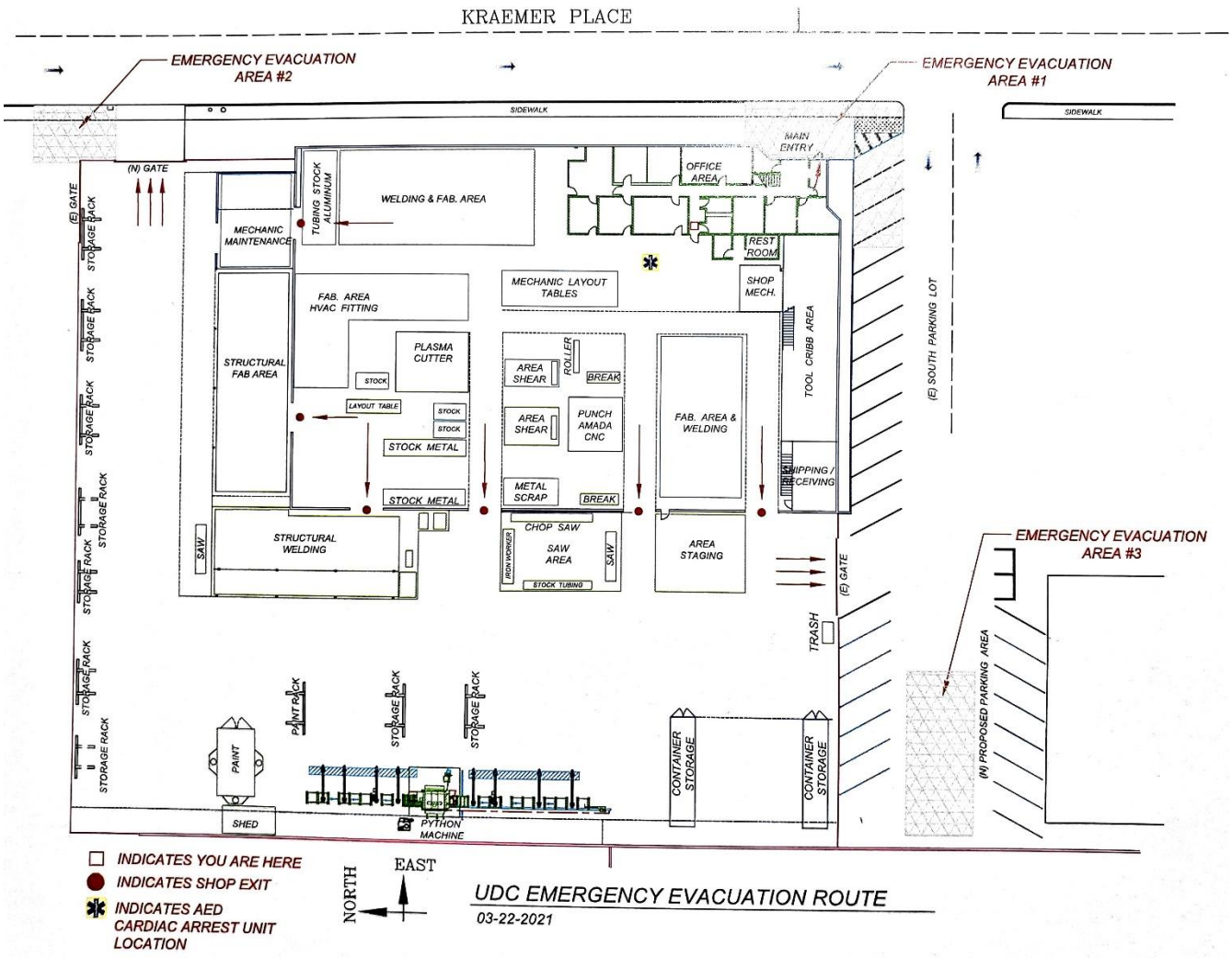
Upstairs office area near the back entrance: 5lb. Halon
Upstairs break area: 5lb Dry Chemical.
Upstairs office area near equipment room: 5lb Halotron
Downstairs in fax machine room: 5lb Halotron

Shop:

On shop wall underneath metal stairs going to the upstairs office: 10lb Dry Chemical.
Near SDS book and first aid kit on column **B8** 10lb Dry chemical.
Welding area inside shop on back wall. 10lb Dry chemical.
Mechanic's shop left side of door. 5lb CO2
Mechanic's shop left side of door, 10lb Dry chemical.
Outside mechanic's shop. West corner on metal beam. 10lb Dry chemical.
Near band saw and belt sander on column B4. 10lb Dry chemical.
Outside welding area under canopy. Next to man door, left of roll up door. 10lb Dry chemical.
Between both shear machines, inside shop area. 10lb Dry chemical.
Next to Amada machine, on column **C7**. 10lb Dry chemical.
Next to aisle, just east of shipping and receiving. 10lb Dry chemical.
Inside shipping and receiving office. 10lb Dry chemical.
Outside of back door, near security alarm. 10lb Dry chemical.
Near Iron Worker on column. 10lb Dry chemical.
Outside, near compressed gas cylinders. 10lb Dry chemical.
Outside, near welding and fabrication area, mounted on the middle of the wall. 10lb Dry chemical.
Outside in welding & fabrication area mounted on the wall. Southwest corner. 10lb Dry chemical.
Outside on wood column in welding and fabrication area. 10lb Dry chemical.
Outside in welding and fabrication area across from paint booth. 10lb Dry chemical.
Outside next to paint booth, left side of door. 10lb Dry chemical.
Concrete area, on metal column next to Conex container. 10lb Dry chemical.
Python building, inside. 11lb Halotron.
Python building, outside near man door. 11lb Halotron.
Inside shop, near electrical transformer & mechanic's shop. 11lb Halotron

Rendezvous Points

Parking lot area near the UDC front entrance near the street.
Sidewalk area near North East gate.
Parking lot area near shipping and receiving.



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.

Roster of Personnel with Specific Duties During an Evacuation

Employees who will remain to operate critical operations before they evacuate will be trained in the proper procedures to perform their duties.

Jorge Briseno, John Graham, or Esteben Lopez will be in charge of shutting down equipment if necessary. This entails shutting off power at the main breaker in the shop.

Foreman in the shop will account for personnel in evacuation areas 2 & 3. Lisa Shaffer or Michelle Proud will account for office personnel in evacuation area #1.

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.

Training for each employee will include the preferred means of reporting emergencies, such as manual pull box alarms, public address systems, radio or telephones. All employees will 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. Per California Standard 3221, we have established the following written fire prevention plan, which will be kept in the workplace and made available for employee review.

Upon initial assignment, we will train our employees in those parts of the fire prevention plan which they must know to protect themselves in the event of an emergency and apprise them of the fire hazards of the materials and processes to which they are exposed.

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

a. Smoking of tobacco products in an enclosed space at a place of employment is prohibited.

   Note: "Enclosed space" includes lobbies, lounges, waiting areas, elevators, stairwells, and restrooms that are a structural part of the building

   Note: To prevent smoking by a nonemployee, we will post clear and prominent signs, as follows:

   Where smoking is prohibited throughout the building or structure, a sign stating, "No smoking" shall be posted at each entrance to the building or structure.

   Where smoking is permitted in designed areas of the building or structure, a sign stating, "Smoking is prohibited except in designated areas" shall be posted at each entrance to the building or structure.

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

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

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

e. Combustible liquids will be stored in containers meeting the requirements of Chapter 1, Title 49, of the *Code of Federal Regulations (DOT Regulations)*, or NFPA No. 386, *Standard for Portable Shipping Tanks*.

f. Chemical spills will be cleaned up immediately using the proper procedures. This is particularly important for combustible and reactive liquids. Damaged chemical containers and cleanup materials will be properly disposed of.

   Note: Exercise care! Information on appropriate personal protective equipment; proper

disposal; proper cleanup procedures; required ventilation, etc. is found on the product's SDS.

g. Combustible liquids and trash will be segregated and kept from ignition sources. The following personnel will be responsible for the control of accumulation of flammable or combustible waste materials:

   Name and Job Title
   Shop: Jorge Briseno, Shop Coordinator

   Field: Foreman on each jobsite.

h. The storage of flammable or combustible liquids in containers or portable tanks will comply with California Standard Sections 5531 through 5543.

i. Clear access to fire hydrants and portable fire extinguishers will be maintained at all times.

j. Our established good housekeeping practices will be followed.

In addition, personnel will be notified by their supervisor of the following unusual existing fire hazard conditions:

Hazard	Fire Prevention Methods
_____	_____
_____	_____
_____	_____

Note: If none, enter "None."

Portable Fire Extinguishers

All personnel will receive instruction on portable fire extinguishers to include general principles of use, the hazards involved in the incipient state of firefighting, inspection, maintenance, and location. This training will be given prior to initial job assignment and at least annually thereafter.

a. Fire extinguishers will be visually inspected monthly for general condition and adequate charge and a record of the inspections will be maintained. They will be serviced and certified by qualified personnel at least annually.

b. Stored pressure dry chemical extinguishers that require a 12-year hydrostatic test will be emptied and subjected to applicable maintenance procedures every 6 years by trained persons with suitable testing equipment and facilities. Tests will meet the requirements of California Standard Section 6151(f).

c. Alternate equivalent protection will be provided when portable fire

extinguishers are removed from service for maintenance and recharging.

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

Portable fire extinguishers will be distributed as indicated below:

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

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 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.

Fire Protection

We will familiarize our local fire department with our facilities and location and notify them of specific hazards on our site.

The phone number of the local fire department will 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.

Fire Alarms

As described in our Emergency Action Plan, the shop PA system will be used to alert the shop & office employees. If necessary, Mark Sandwall or other designated person will walk around the office to notify everyone to evacuate.

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:

a. Using 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);
b. Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);
c. Cleaning, flushing or soaking wounds on the surface of the skin.
d. 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);
e. Using hot or cold therapy.
f. 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);
g. Using temporary immobilization devices while transporting an

accident victim (e.g., splints, slings, neck collars, backboards, etc.);

h. Drilling of a fingernail or toenail to relieve pressure or draining fluid from a blister.

i. Using eye patches.

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

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

l. Using finger guards.

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

n. Drinking fluids for relief of heat stress.

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.

First Aid Kits:

First aid kits are worthless if not readily accessible. Therefore, they will not be locked up on job sites. They are also not very valuable if the items you need are missing. It is very important that the kits have the proper items and that they are replenished as they are used.

OSHA defers to ANSI for determining what qualifies as an acceptable first aid kit for the workplace. The ANSI standard that addresses first aid kits is ANSI/ISEA Z308.1-2015. Two important topics covered in this standard are what items are required to be included in a first aid kit: Class, and in what kind of container the kit is kept: Type.

Class

There are two classes of first aid kits: Class A and Class B. The two classes are divided based on the type of first aid items included and the number of those items available in the kit. ANSI has defined the classes as follows:

Class A first aid kits are intended to provide a basic range of products to deal with the most common types of injuries encountered in the workplace including: major wounds, minor wounds (cuts and abrasions), minor burns and eye injuries.

Class B first aid kits are intended to provide a broader range and quantity of supplies to deal with injuries encountered in more populated, complex and/or high-risk work environments.

The biggest difference between the classes of first aid kits is the number of items included in the kit. Class B kits have more of each item and are needed at a workplace that has many workers.

Keep in mind that sterile items will be individually wrapped, sealed, and used only once. Other items, such as tape or scissors, can be reused and should be kept clean.

The supplies consumed in first aid kits can be used as a measure of safety. For example, if a kit constantly needs replacement of bandages used for minor cuts, there is an obvious problem. Why are cuts happening in the first place? Actual trends can be established and corrective procedures initiated, such as a protective glove requirement or improved handling practices.

Remember, improper medical treatment can be more dangerous than no treatment at all. Only provide care that you have been trained and certified to do.

Below are the required contents, items and quantities of Class A and B first aid kits:

Class A	**Class B**
16 Adhesive Bandage 1 x 3 in.	50 Adhesive Bandage 1 x 3 in.
1 Adhesive Tape 2.5 yd (total)	2 Adhesive Tape 2.5 yd (total)
10 Antibiotic Application 1/57 oz	25 Antibiotic Application 1/57 oz
10 Antiseptic 1/57 oz	50 Antiseptic 1/57 oz
1 Breathing Barrier	1 Breathing Barrier
1 Burn Dressing (gel soaked) 4 x 4 in.	2 Burn Dressing (gel soaked) 4 x 4 in.
10 Burn Treatment 1/32 oz	25 Burn Treatment 1/32 oz.
1 Cold Pack 4 x 5 in.	2 Cold Pack 4 x 5 in.
2 Eye Covering w/ means of attachment 2.9 sq. in.	2 Eye Covering w/ means of attachment 2.9 sq. in.
1 Eye/Skin Wash 1 fl. oz total	1 Eye/Skin Wash 4 fl. oz. total
1 First Aid Guide	1 First Aid Guide
6 Hand Sanitizer 1/32 oz	10 Hand Sanitizer 1/32 oz
2 pr Medical Exam Gloves	4 pr Medical Exam Gloves
1 Roller Bandage 2 in. x 4 yd	2 Roller Bandage 2 in. x 4 yd
1 Scissors	1 Roller Bandage 4 in. x 4 yd
2 Sterile pad 3 x 3 in.	1 Scissors
2 Trauma pad 5 x 9 in.	1 Splint
1 Triangular Bandage 40 x 40 x 56 in.	4 Sterile pad 3 x 3 in.
	1 Tourniquet
	4 Trauma pad 5 x 9 in.
	2 Triangular Bandage 40 x 40 x 56 in.

Type

As important as the contents are, the first aid kit will not be very useful if it's not properly protected from the workplace environment. It the supplies are soaked from rain or smashed from being tossed around, they just will not be able to provide any help when needed. ANSI has addressed this by providing guidelines for the containers that first aid kits can be stored in at the workplace.

They are broken down into four categories: **Type I, Type II**, **Type III**, & **Type IV.** Here are the descriptions that ANSI provides for each type.

Type I first aid kits are intended for use in stationary, indoor settings where the potential for damage of kit supplies due to environmental factors and rough handling is minimal. Type I first aid kits shall have a means for mounting in a fixed position and are generally not intended to be portable.

Note: Typical applications for Type I first aid kits may include, but are not limited to, the following: general indoor use, an office setting or a manufacturing facility. First aid cabinets would generally fall into the Type I classification.

Type II first aid kits are intended for portable use in indoor settings where the potential for damage of kit supplies due to environmental factors and rough handling is minimal.

Note: Typical applications for Type II first aid kits may include, but are not limited to, the following: general indoor use, an office setting or a manufacturing facility.

Type III first aid kits are intended for portable use in mobile, indoor and/or outdoor settings where the potential for damage of kit supplies due to environmental factors is not probable. Type III kits shall have a means to be mounted in a fixed position and shall have a water-resistant seal.

Note: Typical applications for Type III first aid kits may include general indoor use and sheltered outdoor use.

Type IV first aid kits are intended for portable use in the mobile industries and/or outdoor settings where the potential for damage to kit supplies due to environmental factors and rough handling is significant. Type IV kits shall have a means to be mounted in a fixed position and shall meet the performance requirements set forth by ANSI.

Note: Typical applications for Type IV first aid kits may include, but are not limited to, the following: the transportation industry, the utility industry, the construction industry, and the armed forces.

When dealing with any injury, stay calm and never do anything unless you know what you are doing. **Improper medical treatment can be more dangerous than no treatment at all.**

Apparently simple accidents may be caused by many complex reasons. For 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?

The Safety Manager will investigate all workplace accidents, injuries, illnesses, and hazardous substance exposures. Our procedures for investigation include:

a. Visiting the accident scene as soon as possible.

b. Interviewing injured workers and witnesses.

c. Determining the cause of the accident/exposure.

d. Taking corrective action to prevent the accident/exposure from reoccurring.

e. Identifying and addressing the underlying factors that may have contributed to the incident; and

f. Recording the findings and corrective actions taken.

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.

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.

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 our Safety Manager or Human Resources Manager.

Mark Sandwall 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:

a. injuries
b. spills
c. property damage
d. fires
e. explosions
f. 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 because 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 Office: 714 558-4451

Incident Investigation:

Our Safety Manager 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:

a. Initial identification/assessment of evidence.
   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:

a. Incident Investigation Forms
b. Witness Statement Forms
c. Pens, paper, rulers
d. Barricade tape
e. Small hand tools
f. Marking devices such as flags
g. 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 would 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 end 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.

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 because of the incident investigations.

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.

Electronic Submission of Records

Certain employers are required to electronically submit injury and illness data from their onsite OSHA Injury and Illness forms. OSHA will analyze this data and will be able to use its enforcement and compliance assistance resources more efficiently.

Some of the data will also be posted to the OSHA website because OSHA believes that public disclosure will encourage employers to improve workplace safety.

OSHA will provide a secure website that offers three options for data submission:

First, users will be able to manually enter data into a webform.

Second, users will be able to upload a CSV file to process single or multiple establishments at the same time.

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 an employee of UDC Corporation, you have the right and responsibility to report all work-related injuries and illness without the fear of being retaliated against, discriminated against, or terminated from employment.

Note: OSHA has determined that drug testing after injuries or illnesses that occur at the workplace can be considered retaliatory or discriminatory, and thus discourages employees from properly reporting the injury or illness. This can be the case in situations where the injury or illness would not have been reasonably expected to be the result of impairment.

Example: A bee sting that results in an allergic reaction and leads to a stay at the hospital. There is not a reasonable belief that a bee sting would be caused by impairment and thus drug testing would be considered retaliatory or discriminatory.

As a matter of policy, all employees are to report all work-related accidents and injuries immediately to the competent person/supervisor on a job site. The competent person/supervisor will complete an accident investigation form and will forward it to our Safety Manager.

Our Safety Manager will extrapolate appropriate information for completion of the Cal/OSHA Form 300 and complete a review of our policies and procedures to help ensure that there is not a reoccurrence of the reported injury or illness.

As a High Hazard industry, Cal/OSHA standards require keeping records of the steps taken to establish and maintain the injury and illness prevention program, including records of the scheduled and periodic inspections to identify hazardous conditions and work practices, and documentation of the safety and health training given to employees. These records will be kept for at least one year.

Failure to report injuries or illnesses would be a violation of our company's reporting policy and is not acceptable.

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 rule, the Cal/OSHA Forms 300 and 301 will be maintained in our main office. However, if 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:

a. Establishment name
b. Location of the work-related incident
c. Time of the work-related incident
d. Type of reportable event (i.e., fatality, in-patient hospitalization, amputation, or loss of an eye)
e. Number of employees who suffered the event
f. Names of the employees who suffered the event
g. Contact person and his or her phone number
h. Brief description of the work-related incident

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

a. 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.

b. Occurred on a commercial or public transportation system (airplane, subway, bus, ferry, streetcar, light rail, train).

c. 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.

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.

a. Our Code of Safe Practices.

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.

j. 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.

k. 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:

a. Cal/OSHA citations.
b. Notice of informal hearing conference.
c. Names and location of assigned first aid providers.
d. Air or wipe sampling results.

e. Emergency action plan.

Access to Employee Medical Records & Exposure Records

All employee exposure records and medical records are under the control of Mark Sandwall, 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 baseline 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 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 (Human Resources Manager).

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 personnel records within 30 calendar days of their request or, if this is not possible, human resources will provide, within 30 calendar 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, Human Resources 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 reasonable 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:

Purpose

UDC Corporation's progressive discipline policy and procedures are designed to provide a structured corrective action process to improve and prevent a recurrence of undesirable employee behavior and performance issues. Outlined below are the steps of UDC Corporation's progressive discipline policy and procedures. UDC Corporation reserves the right to combine or skip steps depending on the facts of each situation and the nature of the offense. Some of the factors that will be considered are whether the offense is repeated despite coaching, counseling, or training; the employee's work record; and the impact the conduct and performance issues have on the organization. Nothing in this policy provides any contractual rights regarding employee discipline or counseling, nor should anything in this policy be read or construed as modifying or altering the employment-at-will relationship between UDC Corporation and its employees.

Procedure

Step 1: Counseling

Step 1 creates an opportunity for the immediate supervisor to bring attention to the existing performance, conduct or attendance issue. The supervisor should discuss with the employee the nature of the problem or the violation of company policies and procedures. The supervisor is expected to clearly describe expectations and steps the employee must take to improve his or her performance or resolve the problem. Within five business days, the supervisor will prepare an email for documentation of the verbal counseling. The supervisor will send this email to the Human Resources Manager to be added to the employee's personnel file. The employee will not be asked to sign this document.

Step 2: Verbal warning

Step 2 creates an opportunity for the immediate supervisor to bring attention to the existing performance, conduct or attendance issue. The supervisor should

discuss with the employee the nature of the problem or the violation of company policies and procedures. The supervisor is expected to clearly describe expectations and steps the employee must take to improve his or her performance or resolve the problem. Within five business days, the supervisor will prepare written documentation of the verbal warning. The employee will be asked to sign this document to demonstrate his or her understanding of the issues and the corrective action. This documentation will be given to HR to put in the employees personnel file.

Step 3: Written warning

The Step 3 written warning involves more formal documentation of the performance, conduct or attendance issues and consequences. During Step 3, the immediate supervisor, the Human Resources manager and/or President will meet with the employee to review any additional incidents or information about the performance, conduct or attendance issues as well as any prior relevant corrective action plans. Management will outline the consequences for the employee of his or her continued failure to meet performance or conduct expectations. A formal performance improvement plan (PIP) requiring the employee's immediate and sustained corrective action will be issued within five business days of a Step 3 meeting. The written warning 3 may also include a statement indicating that the employee may be subject to additional discipline, up to and including termination, if immediate and sustained corrective action is not taken.

Step 4: Suspension and final written warning

Some performance, conduct or safety incidents are so problematic and harmful that the most effective action may be the temporary removal of the employee from the workplace. When immediate action is necessary to ensure the safety of the employee or others, the immediate supervisor may suspend the employee pending the results of an investigation. Suspensions that are recommended as part of the normal sequence of the progressive discipline policy and procedures are subject to approval from the President and/or HR. Depending on the seriousness of the infraction, the employee may be suspended without pay in full day increments consistent with federal, state, and local wage and hour employment laws. Nonexempt/hourly employees may not substitute or use an accrued paid vacation or sick day in lieu of the unpaid suspension. In compliance with the Fair Labor Standards Act (FLSA), unpaid suspension of salaried/exempt employees is reserved for serious workplace safety or conduct issues. HR will provide guidance to ensure that the discipline is administered without jeopardizing the FLSA exemption status. Pay may be restored to the employee if an investigation of the incident or infraction absolves the employee

of wrongdoing.

Step 5: Recommendation for termination of employment

The last and most serious step in the progressive discipline process is a recommendation to terminate employment. Generally, UDC Corporation will try to exercise the progressive nature of this policy by first providing warnings, issuing a final written warning, or suspending the employee from the workplace before proceeding to a recommendation to terminate employment. However, UDC Corporation reserves the right to combine and skip steps depending on the circumstances of each situation and the nature of the offense. Furthermore, employees may be terminated without prior notice or disciplinary action. Management's recommendation to terminate employment must be approved by human resources (HR) and the President. Final approval may be required from the CEO.

Appeals Process

Employees will have the opportunity to present information to dispute information management has used to issue disciplinary action. The purpose of this process is to provide insight into extenuating circumstances that may have contributed to the employee's performance or conduct issues while allowing for an equitable solution. If the employee does not present this information during any of the step meetings, he or she will have five business days after each of those meetings to present such information.

Performance and Conduct Issues Not Subject to Progressive Discipline

Behavior that is illegal is not subject to progressive discipline and may result in immediate termination. Such behavior may be reported to local law enforcement authorities. Similarly, theft, substance abuse, intoxication, fighting and other acts of violence at work are also not subject to progressive discipline and may be grounds for immediate termination. Documentation The employee will be provided copies of all progressive discipline documentation, including all PIPs. The employee will be asked to sign copies of this documentation attesting to his or her receipt and understanding of the corrective action outlined in these documents. Copies of these documents will be placed in the employee's official personnel file

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.

Aerial Devices & Elevating Work Platforms

The following guidelines apply to vehicle-mounted or self-propelled aerial devices used to elevate personnel, in addition to their tools and materials, to job sites above the ground.

Note: These guidelines do not apply to mobile ladder stands and scaffolds (towers); powered platforms for exterior building maintenance; vertically adjustable platforms used primarily to raise and lower materials or materials-handling equipment, or both, with their operating personnel necessary to transfer such materials between varying elevations; industrial trucks, tractors, haulage vehicles, and earth moving equipment; firefighting equipment.

Definitions

All employees should know the "language" of this section. 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 Cal-OSHA definitions:

AERIAL DEVICE: any vehicle-mounted or self-propelled device, telescoping extensible or articulating, or both, which is primarily designed to position personnel.

AERIAL LADDER: an aerial device consisting of a single- or multiple-section extension ladder.

ARTICULATING BOOM: an aerial device with two or more hinged boom sections.

BOOM: an elevating member; the lower end of which is so attached to a rotating or non-rotating base that permits elevation of the free or outer end in vertical plane.

ELEVATING WORK PLATFORM: a device designed to elevate a platform in a substantially vertical axis (vertical tower, scissor lift, mast-climbing work platform).

EXTENSIBLE BOOM PLATFORM: an aerial device (except ladders) with an extensible boom. Telescopic booms with personnel platform attachments shall be considered to be extensible boom platforms.

INSULATED AERIAL DEVICE: an aerial device designed for work on

energized lines and apparatus.

MAST-CLIMBING WORK PLATFORM: a powered elevating work platform or platforms, supported on one or more vertical masts, for the purpose of positioning personnel, along with necessary tools and materials, to perform their work.

OVERRIDE: the taking over of primary control functions from a secondary location.

PIN-ON PLATFORM: a platform other than basket or tub, without a guardrail which is attached to a boom by hinge or pivot connection allowing movement in the vertical plane, including such hinge down platforms used at the upper end of aerial ladders.

PLATFORM: any personnel-carrying device (bucket, basket, cage, stand, tub or equivalent) which is a component of an aerial device.

RATED WORKLOAD: the safe design live load carrying capacity of the work platform.

STABILITY: a condition of a work platform in which the sum of the moments, which tends to overturn the unit is less than the sum of the moments tending to resist overturning.

WORK PLATFORM, ADJUSTABLE: any device that has a platform which is vertically, horizontally, or rotationally adjustable and supported by a structure.

Equipment Instruction and Marking

Each unit shall have a manual containing instructions for maintenance and operations. If a unit can be operated in different configurations then these shall be clearly described, including the rated capacity in each configuration. The required manual(s) shall be maintained in a weather resistant storage location on the elevating work platform or aerial device.

Aerial lifts acquired for use will have a placard or label affixed which indicates that the lift is designed and constructed in accordance with the appropriate ANSI standard.

Placards or labels shall contain the following information when applicable:

a. Make, model and manufacturer’s serial number
b. Rated capacity at the maximum platform height
c. Maximum platform travel height
d. Maximum recommended operating pressure of hydraulic and/or pneumatic system(s)
e. Basic cautions and/or restrictions of operation

f. Basic operating instructions, and/or instructions referring users to the manufacturer's operating manual

g. Rated line voltage

h. In addition to the above, alternative configurations shall require:

   1. Chart, schematic, or scale showing capacities of all combinations in their operating positions

   2. Caution and/or restrictions, of operation of all alternate or combinations of alternate configurations

      Note: For mast-climbing work platform alternative configurations, the placard or label may refer the operator to the operating/instruction manual

In accordance with Cal-OSHA regulations and the manufacturer's operating instructions:

a. Employees shall be instructed in the proper use of the platform.

b. All aerial devices and elevating work platforms shall be assembled and erected by a qualified person.

   Note: if the manufacturer is no longer in business and instructions are no longer available, assembly and erection shall be performed by a qualified person under the direction of a registered professional engineer experienced in the design of elevating work platforms or aerial lifts.

c. All aerial devices and elevating work platforms shall be maintained in safe operating condition.

Work performed when using elevating work platforms or aerial devices in proximity to energized high voltage lines shall be in accordance with Article 37 of the High-Voltage Electrical Safety Orders.

Note: See Title 8, Low Voltage Electrical Safety Orders for work below 600 volts.

All electrical tests shall conform to the requirements of the applicable ANSI Standard or equivalent DC voltage test approved by the equipment manufacturer or equivalent entity.

Design of Work Platform Assembly

Where the platform is supporting its rated workload by a system of wire ropes and/or lift chains, the safety factor of the wire rope or chain system shall not be less than 8:1 based on ultimate strength.

All critical components of a hydraulic or pneumatic system used in a work platform shall have a bursting strength that exceeds the pressure attained when the system is subjected to the equivalent of 4 times the rated workload. Critical components are those in which a failure would result in a free fall or free rotation of the boom. All noncritical hydraulic components shall have a bursting safety factor of at least 2:1.

Automatic safety devices or systems shall be provided to prevent free fall

of the work platform should a failure of the power supply or elevating system occur.

Maintenance and Repairs

Lift controls and equipment must be inspected and tested each day, prior to use, to determine that they are in a safe working condition.

Inspections, maintenance, and repairs shall be performed by a qualified person in accordance with the manufacturer's specifications.

Note: If the manufacturer is no longer in business and instructions are no longer available, required inspection, maintenance, and repairs shall be performed by a qualified person under the direction of a registered professional engineer experienced in the design of elevating work platforms or aerial lifts.

The materials used in the repair of aerial devices and elevating work platforms shall conform to standard specifications of strength, dimensions, and weights, and shall be selected to safely support the rated workload.

Electrical wiring and equipment shall comply with the provisions of the California Electrical Safety Orders.

All exposed surfaces shall be free from sharp edges, burrs, or other hazardous projections.

Records of inspections and repairs shall be maintained for at least 3 years and be made available to the Division upon request. Inspection records shall include:

a. The date of inspection
b. Deficiencies found.
c. Corrective action recommended.
d. Identification of the persons or entities performing the inspection

Repair records shall include:

a. Date of repair
b. Description of the work that was done.
c. Identification of persons or entities performing the work.

Platform Equipment

The platform deck shall be equipped with a guardrail or other structure around its upper periphery that shall be 42 inches high, +/- 3 inches, with a midrail. Chains or the equivalent may be substituted where they give equal protection.

Where the guardrail is less than 39 inches high, an approved personal fall protection system as defined by Cal OSHA shall be used in accordance with regulations.

For mast-climbing work platforms used by glaziers, bricklayers and stonemasons, the inboard guardrail may be removed if:

a. The inboard edge of the work platform or platform extension is no more than 7 inches from the finish face of the building or structure on which the work is being performed or
b. Approved personal fall protection systems are used in accordance with Section 1670 Personal Fall Arrest Systems.

For all other mast-climbing work platforms not listed above, the inboard guardrail may be removed as long as:

a. The inboard edge of the work platform or platform extension is no more than 12 inches from the building or structure wall or
b. Approved personal fall protection systems are used in accordance with Section 1670 Personal Fall Arrest Systems.

The configuration of an elevating work platform may include a ladder for personnel to use in reaching the platform deck. Any ladder device used in this way shall have rungs located on uniform centers not to exceed 12 inches.

Any elevating work platform equipped with a powered elevating assembly and having a platform height exceeding 60 inches shall be supplied with safe emergency lowering means compatible with the specific elevating assembly used.

Any powered elevating platform shall have both upper and lower control devices. Controls shall be plainly marked as to their function and guarded to prevent accidental operation. The upper control device shall be in or beside the platform, within easy reach of the operator. An emergency stopping device shall be provided at the upper controls of elevating work platforms. The lower control device shall have the capability to lower the platform where the operator's safety is in jeopardy.

Note: Mast-climbing work platform controls shall be located only on the platform.

Elevating work platforms shall include:

a. Toe boards at sides and ends which shall not be less than 3 ½ inches high.

   Note: Toe boards may be omitted at the access openings.

b. A hinged trap access door, if applicable.
c. A platform whose minimum width shall not be less than 16 inches.

Mast-climbing work platforms shall include at least one 3A40BC fire extinguisher located no closer than 5 feet from the control panel. In addition, when fuel-powered equipment is being used, the equipment fuel supply shall be limited to no more than that required for a single shift.

Guarding of Moving Parts

All rotating shafts, gearing, and other moving parts shall be guarded to confirm with Group 6 of the General Industry Safety Orders.

Stability on Inclined Surfaces

Unless recommended for such use by the manufacturer, no elevating work platform shall be used on an included surface. Procedures for maintaining stability must be clearly outlined in the special warnings section on placards or labels. The user shall not deviate from the manufacturer's instructions.

Operating Instructions - Elevating Work Platforms

No employee shall ride and no tools, materials, or equipment shall 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 shall 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.

Units shall be assembled, used, and disassembled in accordance with manufacturer's instructions. They shall be inspected for damaged and defective parts before use and they shall not be loaded more than the design working load. If damaged or weakened in any way, the unit shall be taken out of service and it will not be sued until repairs have been made.

Employees will abide by the following guidelines:

a. No sitting, standing, or climbing on the guardrails of an elevating work platform or using planks, ladders, or other devices to gain greater working height or reach.
b. No working on units when exposed to high winds, storms, or when the units are covered in ice or snow (unless provisions have been made to ensure the safety of the employees).
c. Both hands shall be free for climbing and descending vertical ladders.
d. Substances such as mud or grease should be removed from shoes before climbing/descending ladders.

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

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

Screens shall be required between toeboards and guardrails in operations involving production of small debris, chips, etc., the use of small tools and materials, and where persons are required to work or pass under the equipment. The screen shall extend along the entire opening and shall consist of No. 18 gage U.S. Standard Wire ½ inch mess, or equivalent.

Mast-climbing work platforms shall not be used as construction personnel or material hoists. This does not prohibit the transfer of tools, materials and/or workers using personal fall protection at the location where the work is being performed.

Employees shall be instructed by a qualified person in the safe use of the work platform in accordance with Cal OSHA guidelines and the manufacturer's operating instructions. Training for employees who erect, disassemble, move, operate, use, repair, maintain, or inspect elevating work platforms shall include, but not be limited to:

a. Operating instructions for elevating work platforms
b. The correct procedures for performing their assigned duties
c. 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
d. The safe operation and use of elevating work platforms and the proper handling of materials on the work platform.
e. The maximum load capacity of the work platform based upon installed configuration.

Pin-On Platforms

Pin-on platforms shall be securely pinned to the boom or boom extension. Employees on the elevated pin-on platform shall be secured to the boom by a safety belt and lanyard or a body belt and safety strap.

Operating Instructions - Aerial Devices

Aerial baskets or platforms shall not be supported by adjacent structure(s) when workers are on the platform or in the basket while in an elevated position. Lift controls shall be tested in accordance with the manufacturer's recommendations prior to use to determine that such controls are in safe working condition. Only authorized persons shall operate an aerial device.

When working from an aerial lift, you must stand firmly on the floor of the basket or cage, and use (wear) an approved fall restraint system. The fall restraint system must be attached to the boom or basket – it may not be attached to any adjacent pole, structure, or other equipment. Climbers shall not be worn while performing work from an aerial device. You may not sit or climb on the edge of the basket; also, **do not** use planks, ladders, or other devices for a work position.

Load limits set by the manufacturer must never be exceeded.

The brakes must be set. When outriggers are used, they shall be positioned on pads or a solid surface. Provided they can be safely installed, wheel chocks shall be installed before using an aerial device on an incline.

When an insulated aerial device is required, the aerial device shall not be altered in any manner that might reduce its insulating value.

Aerial lifts must not be moved with personnel in the basket unless:

a. It is 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 must be maintained 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 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.

Aerial lifts designed as personnel movers must have controls that are clearly marked as to their use and the lower controls must be able to override the upper controls. Except in an emergency, the lower controls shall not be used unless permission has been granted by the persons in the lift.

Before moving an aerial device for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position, except as provided when moving with employees in the basket or platform.

Boom-Type Mobile Cranes

This topic covers regulations specific to locomotive cranes, crawler cranes, motor truck cranes, boom-type excavators and any modification of these types which retain their characteristic mobility, except units of one ton capacity or less.

Note: For the purposes of this safety program, requirements for locomotive cranes, barge mounted cranes, permanently mounted floating cranes and derricks, and life buoys are excluded. For more information, refer to CCR, Title 8, Article 93 for more information.

Also excluded from this topic are cranes designed and used exclusively for clearing railway and/or automobile wreck(s) and aerial devices designed and used for positioning personnel.

Operating Controls

Lever-operated controllers shall be provided with a device which will hold the handle in the “off” position. Manual effort is required to move the handle to the “on” position.

Operators will be able to easily reach operating controls. These controls will be identified by marking or a legible chart to indicate the motion controlled and direction.

Controls shall include means:

a. To start and stop
b. To control speed of internal combustion engines
c. To stop engines under emergency conditions
d. For shifting selective transmission.

Crane Boom stops

Cranes of such design that the boom could fall over backward shall be equipped with boom stops whenever the main boom is rope supported and the crane used for hook, clamshell, magnet, grapple, concrete bucket, or service presenting similar risk. The boom stop shall provide emergency protection against destructive damage and related hazards by opposing any unexpected upward and rearward boom movement beyond the working range. It shall not be used purposely as a substitute for normal procedures in stopping a boom being raised.

In the case of new cranes over 10 tons in capacity purchased after January 1, 1971, the required boom stops shall satisfy the following standards and we shall have substantial assurance of this in the form of crane manufacturers’ warranties, test reports, charts, engineering calculations, etc.

a. Boom stops shall be strong enough to develop the ultimate strength of the boom in bending at the point of attachment or contact between boomstop and boom, which should be located near the outer end of the basic inner section of the boom; however, the point must be at least 5 feet above the operator's normal seat level when the crane is level and the boom is vertical.

b. The ultimate bending strength of the boom referred to above shall not be reduced by the nature of contact between the boomstop and boom; such points of contact to be so located and designed that forces developed by boomstop action on the boom will not cause prior local failure of any boom members.

c. The boom stop shall prevent that portion of the boom below the point of boomstop contact from upward and rearward movement beyond 90 degrees or less in reference to the horizontal machinery deck.

d. The boom stop shall provide energy absorbing resistance to the upward and rearward movement of the boom throughout an angular range of the last 5 degrees of such movement as limited in c above.

e. Jibs shall have positive stops to prevent their movement of more than 5 degrees beyond the straight line of the jib and boom on conventional-type crane booms.

f. No boom stop shall remain in use unless it is in good operating condition and maintained in accordance with the certified agent's guidelines for maintenance and service.

Load Rating Chart and Safety Devices

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

All cranes having a maximum rated capacity exceeding one ton shall be equipped with safety devices as provided as follows.

Note: Exceptions to this include boom-type excavators used in excavation work and all equipment when configured for pile driving or log handling, as well as digger derrick trucks designed, built, and maintained in accordance with ANSI/ASSE A10.31 standards for "Construction and Demolition Operations – Safety Requirements, Definitions and Specifications for Digger Derricks".

All mobile cranes including truck-mounted tower cranes having either a maximum rated boom length exceeding 200 feet or a maximum rated capacity exceeding 50 tons shall be equipped with a load indicating device

or a load moment device, or a device that prevents an overload condition. Only approved devices shall be used.

All other mobile cranes manufactured after September 27, 2005, with a maximum rated capacity exceeding 3 tons must be equipped with a load indicating device, load moment device, or a device that prevents and overload condition.

a. When installed load indicating devices are not functional, a qualified person shall determine load weights until the device is restored to operation. Load indicating devices shall be repaired in accordance with manufacturer's recommendations.

Mobile cranes shall be provided with a boom angle or radius indicator which clearly shows the boom angle in degrees to the operator at all times.

Note: Articulating boom cranes are exempt from this provision.

When a boom angle or radius indicator is inoperative or malfunctioning, a qualified person shall determine the radius or boom angle by measurement until the indicator is restored to operation. Boom angle or radius indicators shall be repaired according to manufacturer's recommendations.

Telescopic boom cranes manufactured after February 28, 1992, must be equipped with an anti two-block device or two-block damage prevention feature for all points of two-blocking.

Lattice boom cranes manufactured after February 28, 1992, must be equipped with an anti two-block device or a two-block warning feature, which functions for all points of two-blocking.

Note: This requirement does not apply to lattice boom cranes when used for dragline, clamshell (grapple), magnet, and drop ball work.

Articulating boom cranes manufactured after August 30, 2001, equipped with a load hoisting device (winch) must be equipped with a two-block damage prevention feature.

Spirit levels, or equivalent, shall be provided to indicate the level of the crane fore and aft and across the width.

Operator's Cab

Operators exposed to the hazard of falling material or objects shall be protected by a canopy-type guard or cab over their usual operating position on the equipment, except when such enclosure would interfere with the safe operation of the crane and create an additional hazard by excessively restricting the operator's vision.

All windows on such equipment shall be safety glass, or equivalent, without optical distortion and possess optical qualities meeting standards of the

California Department of Motor Vehicles. Wire glass, or equivalent, shall only be used for those windows through which the operator is not required to view the operations.

Visibility forward shall include a vertical range adequate to cover the boom point at all times. The front window may have a section which may be readily removed or held open if desired. If the section is of the type held in the open position, it shall be secured to prevent closure.

Exhaust gas discharge shall be away from the normal position of the operator. All exhaust pipes shall be guarded or insulated in areas where contact by employees is possible in the performance of normal duties.

Boom Hoist Mechanisms

When using recommended boom hoist reeving and with rated loads suspended, the boom hoist shall be capable of raising the boom, holding it stationary without attention from the operator, and lowering it only when coupled to its prime mover.

The boom hoisting mechanism shall be provided with a clutching or power engaging device permitting immediate starting or stopping of the boom drum motion. The boom hoisting mechanism also shall be provided with a self-setting safety brake, capable of supporting all rated loads, with recommended reeving.

The boom hoisting mechanism shall be provided with auxiliary ratchet and pawl or other positive locking device as an added safety feature.

The boom hoist drum shall have sufficient rope capacity to operate the boom at all positions from horizontal to the highest angle recommended when using the certified agent’s recommended reeving and rope size.

a. No less than 2 full wraps of rope shall remain on the drum with boom point lowered to the level of the crane supporting surface.
b. The drum end of the rope shall be anchored by a clamp securely attached to the drum or a wedge socket arrangement approved by the crane or rope manufacturer.

The drum diameter shall be sufficient to provide a first layer rope pitch diameter of not less than 15 times the nominal diameter of the rope used.

Automatic means shall be provided to stop drum motion when highest permissible boom angle is reached.

Load Hoist Drums

The load hoist drum assemblies shall have power and operational characteristics to perform all load hoisting and lowering functions required in crane service when operated under recommended conditions.

Where brakes and clutches are used to control the motion of the load hoist drums, they shall be of such size and thermal capacity to control all rated crane loads with minimum recommended reeving.

Load hoist drums shall have rope capacity with recommended rope size and reeving to perform crane service within the range of boom lengths, operating radii and vertical lifts specified by the certified agent.

a. No less than 2 full wraps of rope shall remain on the drum when the hook is in its extreme low position.
b. The drum end of the rope shall be anchored by a clamp securely attached to the drum or a wedge socket arrangement approved by the crane or rope manufacturer.
c. Drums shall be provided with a means to prevent rope from jumping off the drum.
d. Fiber rope fastenings are prohibited.

Diameter of the load hoist drums shall be sufficient to provide a first layer rope pitch diameter of not less than 18 times the nominal diameter of the rope used.

Note: On small cranes of less than 10,000 lbs. capacity, a smaller drum may be used provided that when lifting loads the actual pitch diameter is not less than 15 times the rope diameter and the rope safety factor is not less than 5.

Means that are controllable from the operator's station shall be provided to keep the drum from rotating in the lowering direction and be capable of holding the rated load indefinitely without further attention from the operator.

Cranes Used in Demolition Work

The weight of the demolition ball shall not exceed 50% of the crane's rated load, based on the length of the boom and the angle of operation at which the demolition ball will be used, or its weight shall not exceed 25% of the nominal breaking strength of the line by which it is suspended, whichever is less.

The ball shall be attached to the load line with a swivel-type connection to prevent twisting of the load line and shall be attached by positive means in such a manner that the weight cannot become accidentally disconnected.

The swing of the boom shall not exceed 30 degrees from centerline, front to back of the crane backing.

The load line and attachment of the demolition ball to the load line shall be checked at least twice per shift.

Truck cranes without outriggers extended shall not be used to swing a demolition ball.

No employees shall be permitted in any area when balling or clamming is being performed. Only those employees necessary for the performance of the operations shall be permitted in the area at any time.

Regarding annual certification:

a. Cranes used on demolition job sites to perform balling, clamming and related lifting operations shall not be required to comply with the annual certification requirement of Section 5021. The same is true if these cranes are moved from one demolition job site to another demolition job site.

b. Cranes with or without a current annual certification as required by Section 5021 and used for balling or clamming operations shall be recertified or certified when used for lifting operations not associated with demolition operations. The requirement shall apply even if the crane's annual certification is current.

Other Safety Requirements for Boom-type Mobile Cranes

a. Boom-type mobile cranes and boom-type excavators shall be provided with steps and handholds or other safe means so located as to give convenient and safe access to the operator's position or machine house.

b. When necessary to go out on booms to oil the blocks or other parts of machinery, each boom shall be equipped with a catwalk, guardrails and grab-irons or handholds.

Note: Booms which are lowered to the ground or floor level for service are exempt from this requirement.

c. When power-operated brakes having no continuous mechanical linkage between the actuating and braking means are used for controlling loads, an automatic means shall be provided to prevent the load from falling in the event of loss of brake actuating power.

d. Foot-operated brake pedals shall be maintained so that the operator's foot will not easily slip off.

e. Means shall be provided for holding the brakes in the applied position without further action by the operator.

f. When provided, a power-controlled lowering system shall be capable of handling rated loads and speeds as specified by the certified agent to provide precision lowering and to reduce demand on the load brake.

Note: Power controlled lowering is usually necessary when maximum rated loads are being lowered with near maximum boom length or operations involving long lowering distances.

g. Brakes and clutches shall be provided with adjustments where necessary to compensate for wear and to maintain adequate force in springs where used.

h. The swing mechanism shall be capable of smooth starts and stops with varying degree of acceleration and deceleration required in normal crane operation.

i. A braking means with holding power in both directions shall be provided to prevent movement of the rotating superstructure, when desired under normal operation. The braking means shall be capable of being set in the holding position and remaining so without attention on the part of the operator.

j. On crawler cranes, brakes or other locking means will be maintained to hold the machine stationary during working cycles on level grade or while the machine is standing on maximum grade recommended for travel. Such brakes or locks will be arranged to remain engaged in event of a loss of operating pressure or power.

k. On crawler cranes, the travel and steering mechanism will be arranged so that it is not possible for both crawlers to become disconnected simultaneously from the power train and to “freewheel.”

l. Sheaves carrying ropes which can momentarily be unloaded will be provided with close fitting guards, or other devices, to guide the rope back into the groove when the load is again applied.

m. An effective, audible warning and operating signal device shall be provided on the outside of the crane. The controls for the device shall be within easy reach of the operator.

n. Outrigger wheels when used on mobile cranes shall be properly guarded to prevent a person being run over by a wheel.

o. Boom-type mobile cranes which operate at night shall have their load hooks and working areas adequately illuminated. Boom heads and load blocks should be painted with high-visibility yellow or other contrasting colors.

Mobile Crane Operator Qualifications and Certification

Only operators who have a valid certificate of competency will be allowed to operate the specified crane on that certificate. Certificates will be issued to operators who:

a. Pass a physical exam conducted by a physician which, at a minimum, meets the criteria specified in the American Society of Mechanical Engineers B30.5-2000 standard or the U.S. Department of Transportation 49 CFR Sections 391.41-391.49.

b. Pass a standardized substance abuse test.

c. Pass a written exam developed, validated, and administered in accordance with the Standards for Educational and Psychological Testing. The exam shall test the knowledge and skills identified as necessary for safe crane operations and shall, at a minimum, include the following:

    1. Operational characteristics and controls, including characteristic and performance questions appropriate to the specified crane type

    2. Emergency control skills, such as a response to fire, power line contact, loss of stability, or control malfunction

    3. A demonstration of basic math skills necessary for crane operation and the ability to read and understand the crane manufacturer's operation and maintenance instruction materials, including load capacity information (load charts) for the specified crane

    4. Knowledge of applicable American Society of Mechanical Engineers (ASME) chapters based on the specified crane type.

    5. Pass a "hands-on" exam to demonstrate deficiency in operating the specified crane. At a minimum, this exam will include a pre-start and post-start inspection, maneuvering skills, shutdown, and securing procedures.

Certificates shall be valid for a maximum of 5 years. Crane operators will recertify every 5 years and shall be required to meet all the aforementioned qualifications. Operators who are up for recertification and have at least 1,000 hours of documented experience operating a specified crane during the immediately preceding certification period may not be required to take the "hands-on" examination if that operator meets the physical exam, substance abuse, and written exam requirements.

Trainees may be authorized to operate mobile or tower cranes provided they are under the direct supervision of an operator possessing a valid certificate of competency for the crane being operated. The supervising operator must be in the immediate area of the trainee and within visual distance. In addition, the supervising operator should be able to effectively communicate with the trainee and should have no other duties other than to observe the operation of the crane by the trainee.

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 100ºF. The actual flash point - lowest temperature at which a liquid gives off enough vapor to form a flammable mixture with air - of gasoline is -45ºF. The autoignition temperature - the temperature at which, with sufficient oxygen, gasoline will ignite on its own and burn - is 536ºF.

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 can detect 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 considering 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.

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.

Employees will ensure that the vehicle registration and proof of insurance is within the vehicle.

Distracted Driving

Phone use:

- Hands-free business calls may be made or accepted on a limited basis and of a limited duration if they are of an urgent nature and pulling over to a safe parking area is not practical.

  Initiation or acceptance of hands-free calls should be limited to one click – a DOT requirement.
- Drivers should limit other distracting activities while the vehicle is in motion. This includes eating, reading, reaching for objects, and interacting with infotainment systems.
- Set up navigation systems, plug in your phone, and set up your music before leaving.
- Keep items you may need nearby so you are not reaching for them.
- Keep your eyes primarily focused on the forward roadway.
- Mirror checks should be frequent and of short duration – about one second.
- Return your eyes to the forward roadway before checking another mirror.

Fatigue/Illness/Drugs and Alcohol

- Drivers should be well rested, healthy, and alert before beginning any trip.
- Drivers should be aware of their total time on-the-job and stop driving when they become drowsy or fatigued.
- Drivers should stop driving and find a safe place to park if an illness

or stress renders them incapable of driving safely.

- Drivers should be aware of the impact of an over-the-counter drug or prescribed medication on his or her driving and follow precautions outlined, including not driving. Inform doctors of your driving responsibilities when receiving any new medical recommendation.
- Being under the influence of alcohol or controlled substance is prohibited while operating a company vehicle.
- Consumption of alcohol by drivers during working hours or within 4 hours prior to driving is prohibited.
- Possessing controlled substances or open containers of alcohol in a company vehicle is prohibited.
- Drivers must comply with our company's drug and alcohol program.

<u>After a Vehicle Accident</u>:

- Stop, turn off your engine, set your brake, and turn on your emergency flashers.
- If the accident is minor and there are no serious injuries, move your vehicle to a safe place off the roadway.
- Contact the Human Resources Manager (714 600-8838) or the Safety Manager (714 936-3906) immediately to report the accident.
- Call 911 to alert the Highway Patrol/Police and other emergency personnel.
- Give the Highway Patrol/Police complete and accurate information; do not guess. Do not discuss the specifics of the accident with other drivers or anyone else without company's approval. Do not admit fault to the highway/police or other parties involved.

<u>Record What Happened</u>

- While you are at the accident site, complete the "What to do if you are in an accident" form which is in the glove box of your vehicle.
- Take plenty of pictures. Do not take just one picture. More is better. Ask any witnesses for their contact information in case the drivers disagree about the events.

- Drivers involved should provide each other with their:
  - Name
  - Address
  - Phone number
  - Insurance company name and policy # (Take a picture of the card)
  - Name of the insured person and relationship to the driver
  - Driver's license information (State and number. Take a picture)
  - License plate number of all vehicles involved
  - Make, model, year, and color of all vehicles involved (Take pictures)
  - Take pictures of all 4 sides of the company vehicle as well as the other vehicles involved. Take pictures of all people involved and those uninvolved but may have witnessed the accident.
  - Do not guarantee payment or accept/admit responsibility for the accident without company authorization.

    *All paperwork is to be given to the Human Resources Manager upon completion and no later than 24 hours after the accident.

Employees must report all traffic accidents to Lisa Shaffer, and/or Mark Sandwall, Safety Manager. Employees are responsible for any moving violation/traffic citations.

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.

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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. No vehicle will be operated that is not in safe mechanical condition.

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

a. Seat belts will be always worn by all occupants while the vehicle is in motion.
b. Safe distance (one vehicle length per 10 MPH) will be maintained.
c. Posted speed limits will not be exceeded.
d. During fuel stops, all fluids will be checked and the windows, headlights and taillights will be cleaned.
e. Constant attention will be maintained by always being aware of road conditions and surrounding vehicles

   Note: 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.

f. Before backing up any vehicle, check behind and blow horn for the safety of others.

Compressed Air

California Code of Regulations, Title 8, § 3301. Use of Compressed Air or Gases.

Prior to using compressed air, employees will receive training in:

a. Safe use of compressed air.
b. Pneumatic power tools.
c. Inspection of compressed gas cylinders

What follows are the guidelines for safe use of compressed air and gases:

a. Compressed air or other compressed gases in excess of 10 lbs. per square inch gauge shall not be used to blow dirt, chips, or dust from clothing while it is being worn.
b. Compressed air or gases shall not be used to empty containers of liquids where the pressure can exceed the safe working pressure of the container.
c. To protect the operator or other workers from the possibility of eye or body injury, the use of compressed air will be controlled and the proper personal protective equipment (PPE) or safeguards will be used.
d. 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.

e. Compressed gases shall not be used to elevate or otherwise transfer any substance from one container to another unless the containers are designed to withstand, with a safety factor of at least four, the maximum possible pressure that may be applied.

Pressure testing of any object shall be in accordance with Section 560(c) and (d) of the Unfired Pressure Vessel Safety Orders.

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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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:

a. 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 identify its content by name.

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

c. 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.

d. Compressed gas cylinders will have valve protectors in place when not in use **or** connected for use.

   1. 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.

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

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

g. 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.

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

i. Hoses and connections will be inspected regularly for damage. Hoses should be stored in cool areas and protected from damage.

Compressed Gas Cylinders Storage

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

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

c. 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.

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

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

f. 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.

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

Transportation of Compressed Gas Cylinders

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

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

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

d. Protective caps are not to be used to lift cylinders.

Concrete & 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.

Note 1: All Shoring equipment must be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.

Note 2: 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.

Note 3: Erected shoring equipment shall be inspected immediately prior to, during, and immediately after concrete placement.

Note 4: 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.

Note 5: The sills for shoring must be sound, rigid, and capable of carrying the maximum intended load.

Note 6: 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.

Note 7: Eccentric loads on shore heads and similar members shall be prohibited unless these members have been designed for such loading.

Note 8: 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.

Note 9: Adjustment of single post shores to raise form work will not be made after the placement of concrete.

Note 10: 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 the competent person determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure can support 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 – under the ground, 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:

1. Mechanical device to clear the skip of materials
2. Guardrail installed on each side of the skip

Note: Regardless of the size of the skip, point of operation guarding must be utilized. Skip clearing shall not be done by a worker standing under or near a raised skip while striking it with a hand-held implement.

i. When using mortar, plaster, or fireproofing mixers of one yard capacity or smaller:

1. They shall be equipped with grid guards.
2. Grid guards shall have a grid opening no greater than 16 square inches with a minimum clearing of 5 inches from the top of the grid guard to the top of the mixing paddles.

j. Powered, rotating-blade type concrete troweling machines that are guided manually shall be equipped with a control or switch that will shut off power automatically when the operator's hands are removed from the equipment handles.

Framing and Concrete Forms

When working with framing and concrete forms:

a. Framed panels for structures shall be securely anchored, guyed, or braced to prevent them from falling.

b. Form panels for concrete structures shall be securely anchored, guyed, or braced to prevent them from falling or collapsing.

   1. Panels exceeding 500 lbs. shall have lifting attachments with a safety factor of 4.

   2. Nailed lifting attachments shall not be used.

   3. Reinforcing steel shall not be used as guy attachments.

Vertical Slip Form Operations

When performing vertical slip form operations, we will observe the following requirements:

a. The steel rods or pipe on which the jacks climb or by which the forms are lifted shall be specifically designed for that purpose. Rods not encased on concrete shall be adequately braced.

b. Jacks and vertical supports shall be positioned such that the vertical loads are distributed equally and do not exceed the capacity of the jacks.

c. Jacks or other lifting devices shall be provided with mechanical dogs or other automatic holing devices to provide protection in case of power failure or lifting mechanism failure.

d. Lifting shall proceed steadily and uniformly and shall not exceed the predetermined safe rate of lift.

e. During jacking operations:

   1. Lateral and diagonal bracing of the forms shall be provided to prevent excessive distortion of the structure.

   2. The form structure shall be maintained in line and plumb.

f. All vertical lift forms shall be provided with scaffolding or work platforms completely encircling the area of placement.

Falsework and Vertical Shoring

Formwork and falsework or shoring for the support of concrete or other materials shall be designed, erected, supported, braced and maintained so as to assure its ability to safely withstand all intended loads during erection, construction, usage and removal.

Regardless of slab thickness, the minimum total design load for any formwork and shoring shall be no less than 100 lbs. per square foot for the combined live and dead load. The minimum allowance for live load and formwork shall be no less than 20 lbs. per square foot in addition to the weight of the concrete.

The above figures shall be increased according to the table below when using the equipment listed.

Equipment to be Used	Increase to minimum allowances
Worker Propelled Carts	10 lbs. per square foot
Motorized Carts	25 lbs. per square foot
Note: Special consideration will be given and the necessary additional allowances made for any unusual circumstances such floor hoppers, concentrated piles of reinforcing steel bars, or similar loads.	

The lateral loads for shoring to be resisted at each floor in both directions by diagonal bracing or other means shall be taken at no less than 100 lbs. per lineal foot of floor edge or 2% of the total dead load, whichever is greater.

All vertical supports shall be erected on a properly compacted and reasonably level and stable base. Plate, pads and load bearing characteristics of the soil shall be adequate to support the imposed loads.

Note: Precautions shall be taken so that weather and concrete pouring conditions do not change the load carrying capacity of the soil below the design minimum. Submittal of evidence to justify the design for any falsework or vertical shoring installation may be required.

All detailed design calculations and working drawings shall be approved and signed by a civil engineer currently registered in California when the following conditions exist for falsework or vertical shoring installations:

a. The height exceeds 14 feet when measured from the top of the sills to the soffit of the superstructure.

b. Individual horizontal span lengths exceed 16 feet.

c. Provisions are made for vehicular or railroad traffic through the falsework or vertical shoring.

In addition, a civil engineer currently registered in California shall inspect

the falsework or vertical shoring system meeting any of the conditions above to ensure it conforms to the working drawings. This inspection will take place after construction is complete and before placement of concrete.

If none of the above conditions exist for falsework and vertical shoring installations, the falsework plan or shoring layout (available on the job site at all times) shall be approved and signed by one of the following:

a. A civil engineer currently registered in California.
b. A manufacturer's authorized representative
c. A licensed contractor's representative qualified in the usage and erection of falsework and vertical shoring.

Any one of the above listed individuals is responsible for inspecting the falsework or vertical shoring systems to ensure it conforms to working drawings after construction and before placement of concrete.

Inspections shall be certified in writing to indicate that the falsework and vertical shoring system conforms to the working drawings and material and workmanship are satisfactory. Certification will be available at the job site.

When constructing falsework and vertical shoring, we will abide by the following safety requirements:

a. Where wood shores are butt spliced, they shall be made with square joints and secured on four sides with no less than 2-inch material of 5/8-inch plywood of the same width as the post. The scabs shall extend at least 2 feet beyond the joint.
b. If metal shore clamps are used, they shall be installed according to manufacturer's specifications.
c. In lieu of requirements for standard walkways and work platforms in the immediate area where forms are being installed, joists or similar members no less than 5 ½ inches wide and on centers not to exceed 36 inches shall be provided.
d. When the formwork and shoring are being erected, the first set of protective guardrails shall be installed at the perimeter immediately after such supporting members are in place. Railings are to be installed and maintained at the perimeter of and at openings in all floors of buildings and sides of bridge decks at all times.
e. In the area immediately adjacent to where the joists or similar members are being installed, a 12-inch wide plank resting on the joists is acceptable as a walkway for distributing joists.

When working on building floor form installations:

a. Employees are prohibited from working below unless they are engaged in the installation, removal or inspection. Warning signs to this effect will be posted at the perimeter of the affected work area.

b. Only employees who are engaged in inspection or necessary building floor form modifications will be permitted in the affected work area below the actual placement of concrete.

c. No one will be in work areas underneath the installation before, during, or after concrete placement until a civil engineer currently registered in California inspects and certifies that the building floor form installation can safely withstand all anticipated loads when either of the following conditions exist:

    1. The height exceeds 14 feet when measured from the top of the sills to the soffit of the superstructure.

    2. Individual horizontal span lengths exceed 16 feet.

d. Either a civil engineer currently registered in California or a licensed contractor/representative qualified to determine that the floor form installation can safely withstand all anticipated loads shall inspect and certify building floor form installations that do not meet conditions listed above in c (1) and c (2).

Stripped forms and shoring shall be removed and stockpiled promptly in all areas in which persons are required to work or pass. Protruding nails, wire ties, and other form accessories not necessary to subsequent work shall be pulled, cut or removed by other means to eliminate the related hazards.

Formwork and shores (except those used for slabs on grade and slip forms) shall not be removed until it is determined that the concrete has sufficient strengths to support its weight and superimposed loads. Such determination will be based on compliance with the stipulated conditions for removal of forms and shores indicated in the plans and specifications.

Reshoring will not be removed until the concrete being supported has attained the strength to support is weight and all loads placed upon it.

Tilt-Up Concrete Panel Construction

Concrete erection stresses, lifting point attachments and locations in tilt-up concrete panels shall be designed for expected loads, including impact, by, or under the direction, of, a civil engineer currently registered in California (also referred to as the responsible engineer).

Lifting inserts, which are embedded or otherwise attached to tilt-up concrete members shall be capable of supporting at least two times the maximum intended load applied or transmitted to them and shall be used

in accordance with the manufacturer's recommendations.

Lifting hardware shall be capable of supporting at least five times the maximum intended load applied or transmitted to the lifting hardware.

Vertical panel bracing used to support the tilt-up panels prior to final bolting/attachment shall be designed by, or under the direction of, and installed in accordance with the direction of the responsible engineer.

Bracing shall be designed to withstand, at a minimum, a wind load induced force of a 70 mph wind.

Prior to starting a panel erection, detailed lifting and erection plans shall be prepared by, or under the direction of, the responsible engineer. All panel erection shall be performed in accordance with the plan. Lifting and erection plans and procedures shall be available at the job site.

Note: Field modifications to the lifting plan shall be approved by the responsible engineer and added to the plans and procedures available at the job site.

Lifting methods and procedures shall be such that employees are not at risk of being struck by the panel or other supporting equipment.

Tilt-up wall panels shall be supported to prevent overturning, toppling and/or collapse until permanent connections are completed as specified in the erection plan.

Concrete Cutting

This section applies to the use of powered tools or equipment to cut, grind, core, or drill concreate or masonry materials. This section does not apply to:

a. Stucco, plastering material, or similar products
b. Wall cladding, siding, or other similar products
c. Downward drilling
d. Jack-hammering or chipping when that work is incidental to the scope of work or planned operations of a plumbing or landscaping activity
e. Work with powder-actuated tools
f. Work incidental to the installation of concrete and masonry materials such as drilling holes for plumbing fixtures
g. Tile backer board when cut with powered shears or a dust reduction

blade having a dust containment device.

Definitions

Concrete and masonry material: A hard stone-like building material made of clay or made by mixing cement or a combination of cement, sand, gravel, broken stone, or other aggregate with water. Examples include: brick, clay brick, concrete block, mortar, natural or manufactured stone, floor, wall or counter top tile, and terra cotta. Unless otherwise indicated by evidence that the mixture does not include cement, sand, gravel, stone, clary or aggregate material containing silica, material that is apparently stone-like in appearance and texture shall be presumed to be concrete or masonry material.

Dust containment device: A device attached to a power tool such as a pouch, bag, plastic container, or similar attachment which is intended to capture dust generated by the power tool. This device is not intended to be a dust reduction system as defined below.

Dust reduction system: Technology that utilizes the application of water or local exhaust ventilation to reduce airborne dust generated by the use of powered tools or equipment. Local exhaust ventilation may include vacuum systems, dust collection systems, and dust exhaust systems.

Powered tools or equipment: Tools or equipment for which the motive force that disrupts concrete or masonry materials is provided by a source other than human energy. Powered tools or equipment include those powered by electrical, combustion, hydraulic, chemical, or pneumatic energy.

Dust Reduction Systems

A dust reduction system shall be applied to effectively reduce airborne particulate during operations in which powered tools or equipment are used to cut, grind, core or drill concrete and masonry materials.

Dust reduction systems are not required under the following circumstances:

A. If the operation does not result in employee exposure exceeding the permissible exposure limits (PEL) for applicable particulates including, but not limited to, crystalline silica, as demonstrated by reliable air sampling data applicable to the specific operation being performed.

b. For rooftop operations with roofing tile, roofing pavers, or similar materials.

C. During the first 24 hours of an operation undertaken in response to an emergency where it can reasonably be demonstrated or foreseen that its use would impair the timely progress of the operation.

Note: "Emergency" means an unexpected occurrence requiring immediate action to prevent or mitigate loss of or damage to life, health, property or essential public services. "Emergency" includes, but is not limited to, a fire, flood, earthquake or other soil/geologic movement, structural collapse, damage to a subsurface installation, terrorist act, or sabotage.

We will adhere to the following to ensure the safety and effectiveness of dust reduction systems:

a. Dust reduction effectiveness will be maintained throughout the work shift.

b. Dust reduction systems shall be installed, operated, and maintained in accordance with manufacturer recommendations where applicable.

c. Local exhaust ventilation shall be designed, tested, maintained, used, and the waste materials they collect disposed of in compliance with applicable requirements of Sections 1530 and 5143.

d. The use of electrical tools with water as a dust reduction system will occur in accordance with applicable requirements of the Electrical Safety Orders.

General Safety Guidelines for Concrete Cutting Operations

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 operate a handheld 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.

Training

Only trained and authorized personnel will operate concrete cutting equipment. Employees will be trained prior to their work assignment and annually thereafter. Topics to be covered in training include:

a. The potential health hazards of overexposure to airborne dust generated from concrete and masonry materials including silicosis, lung cancer, chronic obstructive pulmonary disease, (COPD) and decreased lung function.

b. Methods used to control employee exposures to airborne dust from concrete and masonry materials, including wet cutting, local exhaust ventilation systems, and isolation of the process from the operator or other employees by means of distance, enclosure, or other method as applicable.

c. Proper use and maintenance of dust reduction systems, including the safe handling and disposal of waste materials collected during use.

d. The importance of good personal hygiene and housekeeping practices when working in proximity to dust from concrete and masonry materials including:

   1. Not smoking tobacco products
   2. Appropriate methods of cleaning up before eating.
   3. Appropriate methods of cleaning clothes
   4. Where practical, avoiding activities that would significantly increase an employee's exposure to airborne dusts.

Supervisors overseeing the work of employees who will be cutting, grinding, drilling or coring concrete or masonry materials will undergo training prior to their job assignment and annually thereafter. Topics to be covered in training include:

a. All the above information covered in employee training.

b. Identification of tasks the employees will perform which may result in

employee exposure to concrete or masonry dust.

c. Procedures for implementing measures to reduce employee exposure to concrete or masonry dust.

Concrete Placement

Concrete Pumps & Placing Booms

This section is applicable to truck-mounted concrete boom pumps, trailer-mounted concrete pumps and separate concrete placing booms. Following is a list of relevant definitions for this section.

Concrete Delivery Hose: A flexible delivery hose having a coupling on each end.

Control Panel: The place where the control actuating devices for the operation of the machine are located.

Delivery System: Delivery lines, hoses, and their components, as well as transfer valves, through which the material to be transported is pumped.

End Hose: A flexible concrete delivery hose which has only one end coupling.

Placing Boom: Manual or power driven, slewable working device, consisting of one or more extendable or foldable parts which support the concrete delivery system, and which direct the discharge into the desired location.

Remote Control: A control device for the machine that is portable and may be connected to the machine by a wire umbilical cord or linked by radio or other wireless means.

General Safety for Concrete Pumps and Placing Booms

We will adhere to the following general safety procedures for concrete pumps and placing booms.

a. The following information shall be legibly marked on a durable ID plate on the concrete pump:
    1. Manufacturer’s name
    2. Year of manufacture
    3. Serial number

4. Type or model ID
5. Maximum working pressure in the hydraulic system
6. Maximum material pressure
7. Power rating for electrical equipment (voltage, frequency, amperage)

b. The following information shall be legibly marked on a durable ID plate on the placing boom:
   1. Manufacturer's name
   2. Year of manufacture
   3. Serial number
   4. Type or model ID
   5. Maximum working pressure in the hydraulic system
   6. Maximum weight per foot of the delivery system, including concrete at 150 lbs. per cubic foot.

c. Concrete pumping equipment and placing booms shall be set up and operated according to the manufacturer's operation and safety manuals and the following:
   1. The manufacturer's operations manual shall be maintained in legible condition and shall be available to the operator during set up and operation of the equipment.
   2. The concrete placing boom shall not be used to drag hoses or lift other loads.
   3. Concrete delivery hoses shall not be used as end hoses except for:
      i. Shotcrete operations.
      ii. When the hose is supported by the walking/working surface while pumping and placing flatwork.

d. Controls:
   1. Controls shall have their function clearly marked
   2. If there are several control locations, the same operation shall only be possible from one location at a time except for:
      i. Emergency stop controls required by item d below shall have

priority and shall be operable from any installed location.

3. Controls shall be safeguarded against unintentional operation except for:
    i. Equipment manufactured before May 3, 2006.
4. Each machine shall be equipped with an emergency stop system; devices shall be located at the control panels and at the remote-control device.

e. Guarding shall be provided and maintained according to manufacturer's specifications to prevent unintentional access to moving parts.

f. Delivery Systems:
    1. Concrete pumping systems using discharge pipes shall be provided with pipe supports designed for twice the rated load, including concrete at 150 lbs. per cubic foot.
    2. Compressed air hoses, if used, shall be equipped with connecting ends that shall be chained or otherwise secured to prevent whipping in case of separation when pressurized.

g. Operation of concrete placing booms near overhead high-voltage lines shall be in accordance with Article 37 of the High-Voltage Electrical Safety Orders.

h. Concrete placing booms shall be posted with durable warning signs in accordance with Section 2947 except:
    1. Minimum clearances from overhead high-voltage lines in accordance with manufacturers' specifications may be posted where minimum clearance distances are greater than those prescribed by Article 37 of the High-Voltage Electrical Safety Orders.

Inspection, Maintenance and Repairs

A qualified attendant or operator shall visually inspect the machine's controls and functional mechanisms for maladjustment, damage, or deterioration prior to daily use. Any condition that affects the safe operation shall be corrected prior to use.

Hoses, clamps and pips shall be inspected by a qualified attendant or operation prior to use. Damaged or defective hoses, clamps or pipes will

not be used.

We will establish a preventative maintenance program and implement the program in accordance with the manufacturer's specifications.

A qualified person will perform inspections, maintenance, and repairs in accordance with the manufacturer's specifications and procedures.

In the event that a manufacturer is no longer in business or the specifications are no longer available, required set-up, operation, inspection, and maintenance procedures and repairs shall be specified by a qualified person experienced in the field of concrete pumps and placing booms. Inspection, maintenance and repairs shall be performed by a qualified person in accordance with these established procedures.

Inspection and maintenance records will be maintained and made available to the Division of Occupational Safety and Health upon request.

Inspection records must include the following:

a. A listing of the components and parts inspected and tested.
b. A brief description of test methods, results, and repairs made.
c. Names and signatures of persons performing the inspections.

Concrete Buggies

Handles of buggies shall not extend beyond the wheels on either side of the buggy. Handles shall be guarded or equipped with knuckle guards.

Concrete Buckets

We will adhere to the following safety guidelines when using concrete buckets:

a. Buckets equipped with hydraulic or pneumatic operating gates shall have devices installed to prevent accidental dumping.
b. Buckets shall be designed to prevent aggregate and loose material from accumulating on the top and sides of the bucket.
c. Riding of concrete buckets for any purpose is strictly prohibited.
d. No employee shall be permitted to work under concrete buckets while buckets are being elevated or lowered into position.
e. When employees are required to work in the pit, the bucket will be shored on two sides with timbers, or their equivalent, of sufficient

strength to support the bucket. Timbers shall not protrude into an adjacent hoist way.

General Requirements for the Placement of Concrete

When discharging on a slope, the wheels of ready-mix trucks shall be blocked and the brakes set to prevent movement.

Nozzle-gun operators shall be required to wear protective head and face equipment as appropriate.

Adjustment of single post shores to raise formwork shall not be made after the placement of concrete.

Reshoring shall be erected, as the original forms and shores are removed, whenever the concrete is required to support loads more than its capacity.

Demolition

CCR, Title 8, Subchapter 4, Article 31 - Demolition

General Requirements

a. Proper Permits shall be obtained prior to the commencement of any demolition activities.
b. Demolition Permits are to be readily available on site for review.
c. Protection of adjacent structures, property, and sidewalks is to be accomplished prior to commencement of demolition activities.
d. Proper personal protective equipment is to be worn throughout demolition process including but not limited to hard hats, work boots, glasses, and fall protection.
e. Dust control should be implemented to eliminate hazards where dust presents a health hazard, environmental hazard, damage to property.
f. Any entry point or gate openings are to be closed and secured during all demolition activities.
g. 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

a. Demolition work will occur only under the immediate supervision by a qualified person with the authority to secure maximum safety for

employees engaged in demolition work.

b. 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 and shall remain until the demolition project is complete.

c. When employees are required to work within a structure to be demolished which has been found compromised during the survey, the walls or floor shall be shored, braced, or otherwise corrected.

d. All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled, outside the building or curb line before demolition work is started. In each case, any utility company, which is involved, shall be notified in advance.
   1. If it is necessary to maintain any power, water or other utilities during demolition, such lines shall be temporarily relocated, as necessary, and protected.
   2. 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.

e. Pipe-covering insulation, steel beam and column fire protection, and heating, ventilating and air conditioning duct work shall be surveyed for asbestos. If asbestos is present, we will comply with Section 1529.

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

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

h. 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.

i. 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.

j. Employee entrances to multi-story structures being demolished shall be completely protected by 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, Ladders and Elevators

a. 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 always closed.

b. 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.

c. In a multi-story 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.

d. Construction passenger elevators for hoisting employees shall be provided on demolition projects on multi-story buildings 7 or more floors or 72 feet or more in height.

e. Landings shall be provided for the passenger elevators on or in buildings at intervals not to exceed 4 floors or 48 feet.

f. Where there is doubt concerning structural integrity or engineering

data indicates attachment of an elevator may jeopardize the strength of the building or structure, the Division may permit alternate methods of installation. Other means of employee access may also be allowed by the Division where the above is clearly impractical.

Chutes

a. Whenever waste material is dropped to any point lying outside the exterior walls of the building, enclosed chutes shall be used unless the area is effectively protected by barricades, fences or equivalent means. Signs shall be posted to warn employees of the hazards of falling debris.

b. All material 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.

c. 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.

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

e. Any chute opening into which employees dump debris shall be protected by a substantial guardrail that is approximately 42 inches above the floor or other surface on which they 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.

f. Where the material is dumped from mechanical equipment or wheelbarrows, 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.

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

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

i. 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.

j. All structural supports of material chutes shall be of noncombustible material.

k. Enclosed chutes should be designed for free flow of material, but if clogging or stoppages occur, employees shall not remove material from the chutes with their hands. Picks or other suitable implements shall be used for this purpose.

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

a. 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.

b. No wall section, which is more than one story in height shall be permitted to stand alone without lateral bracing, unless a civil engineer who is currently registered in California has submitted engineering data to the Division substantiating the capability of the wall to stand without lateral support. All walls shall be left in a stable condition at the end of each shift.

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

d. Structural or load supporting members on any floor shall not be cut or removed until all stories above such 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.

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

below.

f. In building of “skeleton-steel” construction, the steel framing may be left in place during the demolition of masonry. The tier of beams immediately below the tier from which beams and columns are being removed shall be planked over unless safety nets are used or the floor of such tier has not been removed. Necessary openings for material handling are allowed. 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.

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

h. 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.

i. Walls, which are to serve as retaining walls against which debris will be piled, shall not be so used unless determined to be capable of safely supporting the imposed load.

Manual Removal of Floors

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

b. 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 employees should the arch between the beams collapse. The open space between planks shall not exceed sixteen inches (16”).

c. Safe walkways, not less than twenty inches (20”) 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 employees when necessary to enable them to reach any point without walking upon exposed beams. Walking across exposed floor joists, steel beams, or girders is prohibited.

d. 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.

e. Planks spanning the distance between adequate beams shall be used where necessary as a substitute for weakened floors, and as access walkways over open or weakened areas.

f. 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. When demolishing floors and roofs, employees shall be prohibited from working below this activity. Demolition of floor spaces shall continue until all unsupported flooring is removed. When employees are required to remove floor support beams, wall sections, etc., by hand, scaffolding as described in Article 21 of the Construction Safety Orders or elevating work platforms and aerial devices as described in Article 24 of the General Industry Safety Orders shall be provided and used where necessary to ensure employee safety

g. Demolition of floor arches shall not be started until they, 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

a. 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.

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

c. No salvage of materials shall be permitted during demolition operations on any building, structure, falsework or scaffold more than 3 stories high or the equivalent height for which a permit is required.

Steel Construction:

Steel construction shall be dismantled column length by column length, and tier by tier (columns may be 2-story lengths). Any structural unit being dismantled shall not be overstressed.

Storage & Waste Disposal

a. The storage of waste material and debris on any floor shall not exceed the allowable floor loads. Unless material displaced by partial demolition will be used for reconstruction, such material shall be relocated to the ground.

b. 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.

c. 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.

d. 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.*

e. 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.

f. Storage spaces shall not interfere with access to any stairway or passageway.

g. All scrap lumber, waste material, and rubbish shall be removed from the immediate work area as the work progresses.

h. All solvent waste, oily rags, and flammable liquids shall be kept in fire resistant covered containers until removed from the work site.

Inspections

During demolition, continuing inspections shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors or walls, or loosened material. Employees shall not be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

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:

a. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.

b. 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.

c. 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.

d. Keep track of your respirator so that you do not mistakenly use someone else's.

Electrical – Low Voltage

Cal/OSHA T8 CCR 2320

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:

Responsible supervision has determined that the work is to be performed while the equipment or systems are energized.

a. Involved personnel have received instructions on the work techniques and hazards involved in working on energized equipment.

b. 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:

a. Removing from the work area any temporary personnel protective equipment, and
b. 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 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.

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 - AC

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

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.**

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. Except for 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 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.

g. 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.

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.

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 through-out the day as conditions change. Competent person is defined as one who must demonstrate:

a. **knowledge of the provisions pertaining to excavations, trenches, and earthwork**
b. **knowledge of soil analysis as required in the provisions pertaining to excavations, trenches, and earthwork**
c. **knowledge of the use of protective systems**
d. **authority to take prompt corrective action on the job as conditions warrant**
e. **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 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 deeper.
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 always on site during excavating work to test soil conditions visually and manually 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

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).
i. Keep cords out of walkways whenever possible to prevent tripping hazards.
j. Do not lay cords across sharp material such as bottom track commonly found on jobsites.

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:

a. 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.

b. 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.

c. Appropriate FRC should also be worn when there is a history of fluid or gas kicks from underground producing zones.

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 & Exposure

Employees of UDC Corporation may encounter various hazardous chemicals while performing their work duties. If employees have been properly trained on a particular hazard, they may continue work as required. If employees have not been trained on the hazard they encounter, they are to stop work immediately and notify their supervisor.

Per *Hazard Communication*, located at T8 CCR 5194, we will keep the SDS on site and readily available for each chemical to which we may be exposed. This information will be provided by the facility operator.

Ammonia Awareness

NIOSH Pocket Guide to Chemical Hazards – Ammonia

Ammonia is found in chemical plants, pharmaceutical, and industrial plants as well as refineries. Some of its uses are as a refrigerant, fertilizer, a chemical for making nitrogen containing compounds, and scrubbing SO_2 from the burning of fossil fuels.

Ammonia is a colorless gas with a pungent, suffocating odor.

Ammonia can cause harm if inhaled and/or it comes into contact with the eyes or skin.

Health Effects:

Respiratory Effects: Acute lung damage/edema; Asthma, pulmonary fibrosis, bronchiolitis.

Irritation: Eye, Nose, Throat, Bronchi, Skin.

Temporary Blindness.

Affected organs:

Respiratory system, eyes, & skin.

Potential symptoms:

Eye, nose, throat irritation; corneal burns, increased intraocular pressure; coughing; laryngeal edema; dyspnea, bronchospasm; chest pain; pulmonary edema or pneumonitis; pink frothy sputum; & skin burns.

First Aid:

Eye: Irrigate immediately (solution/liquid)

Skin: Water flush immediately (solution/liquid)

Breathing: Respiratory support

Swallow: Medical attention immediately (solution)

Personal Protective Equipment:

Appropriate personal protective equipment that will adequately protect employees during routine operations and anticipated emergencies when there is a possibility of contact with liquid ammonia or vessels containing liquid ammonia would include, at a minimum, the following which should be easily accessible: gloves, protective slicker or protective pants and jacket (impervious to ammonia); goggles and/or face shield; and full-face respiratory protection with appropriate cartridges.

An easily accessible emergency shower and plumbed eyewash or at least 150 gal. of clean water in an open top container should be installed, inspected, and maintained.

A Self-Contained Breathing Apparatus (SCBA) may be required if there is potential for entry into an atmosphere that contains ammonia concentrations in excess of the immediately dangerous to life or health (IDLH) value [300 ppm].

Respiratory Protection:

Per **T8 CCR 5155 Table** AC-1, the Cal/OSHA Permissible Exposure Limit (PEL) for Ammonia is 35 ppm; 18 mg/m^3 Ceiling.

NIOSH gives the following respirator recommendations:

Up to 250 ppm:

(APF = 10) Any chemical cartridge respirator with **green** cartridges.

(APF = 10) Any supplied-air respirator*

Up to 300 ppm:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode.

(APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern.

(APF = 50) Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against the compound of concern.

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern.

(APF = 50) Any self-contained breathing apparatus with a full facepiece.

(APF = 50) Any supplied-air respirator with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern.

Any appropriate escape-type, self-contained breathing apparatus.

The below is extracted from Appendix A to Section 5189 - List of Acutely

Hazardous Chemicals, Toxics and Reactives (Mandatory). This Appendix contains a listing of toxic and reactive highly hazardous chemicals which present a potential for a catastrophic event at or above the threshold quantity.

Chemical Name	CAS	Threshold Quantity
Ammonia, Anhydrous	**7664-41-7**	**10000 Pounds**
Ammonia solutions (greater than 44% ammonia by weight)	**7664-41-7**	**15000 Pounds**
Ammonium Perchlorate	**7790-98-9**	**7500 Pounds**
Ammonium Permanganate	**7787-36-2**	**7500 Pounds**

Anhydrous means without water.

Because of the potential for a catastrophic event, the release of ammonia at the threshold quantities above would be covered under both Process Safety Management as well as HAZWOPER Response.

As part of process safety management of highly hazardous chemicals, prior to actual work in a facility where possible exposures to highly hazardous chemicals exist, our employees will be given training on negating the hazards relating to possible chemical exposures in the areas in which we are working by the facility operator.

The training on the facility operator's **emergency/contingency plan** would include identification of the various hazardous chemicals, their location, 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. This 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 chemical specific training must include the following: 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 our Hazard Communication Plan, we will keep on site, and readily available, SDS for each chemical to which we may be exposed. This information will be provided by the facility operator.

If a monitor alarm sounds, the employee will follow the emergency procedures in place by the host contractor which would include donning an appropriate respirator, vacating the area, and notifying others. If there is a

potential for an uncontrolled release of ammonia, this situation could represent an emergency. Such an emergency release would be covered under T8 CCR 5192, the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard [and the employee will follow the host's established procedure for emergency evacuation and response], unless it were an incidental release, as defined in the standard, T8 CCR 5192(a)(3), where there is no potential safety or health hazard. Paragraph (q) of T8 CCR 5192 covers emergency responses regardless of location.

Employees must be aware of the owner's specific contingency/emergency plans.

Asbestos Awareness

§1529. Asbestos

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 downside 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 that can cause serious long-term health effects. Fluffy sprayed-on materials used for fireproofing, insulation, or sound proofing are considered to be friable. T8 CCR 5208(f)(1)(J) prohibits the spraying of any substance containing any amount of asbestos in or upon a building or other structure during its construction, alteration, or repair.

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 increase 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:

a. Under no circumstances will asbestos containing material (ACM) or presumed asbestos containing material (PACM) be disturbed during work activities.

b. If you believe the materials you will be working with contain asbestos, do not disturb the material, and contact your supervisor.

c. Obey all asbestos warning signs and labels. ACM and PACM will not be disturbed.

d. 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 also have to fail), they are to immediately remove themselves from the area until the breach and containment systems is repaired.

e. 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

§ 1532.3. Occupational Exposures to Respirable Crystalline Silica

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.

Employee Information and Training

We will ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

Additionally, we must ensure that our employees can demonstrate knowledge and understanding of at least the following:

a. The health hazards associated with exposure to respirable crystalline silica

   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.

   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:

Chronic silicosis:	Usually occurs after 10 or more years of exposure to crystalline silica at relatively low concentrations
Accelerated silicosis:	Results from exposure to high concentrations of crystalline silica and develops 5 to 10 years after the initial exposure.
Acute silicosis:	Occurs where exposure concentrations are the highest and develops after a few months or as long as 2 years following exposures to extremely high concentrations of respirable crystalline silica.

b. Specific tasks in the workplace from Table 1 of §1532.3 that could result in exposure to respirable crystalline silica

c. Specific measures we have implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used

   Engineering controls would include local exhaust ventilation, blasting cabinets, and establishing a clearly identified exposure area.

   Work practice controls would include 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.

   Personal protective equipment would include appropriate half-face or full-face respirator.

d. The contents of T8 CCR 1532.3

e. The identity of the competent person designated by the employer in accordance with paragraph (g)(4) of T8 CCR 1532.3; and

f. The purpose and a description of the medical surveillance program required by paragraph (h) of T8 CCR 1532.3.

We will make a copy of T8 CCR 1532.3 readily available and without cost to our employees covered by this program.

NIOSH Safety Recommendations:

NIOSH recommends the following measures to reduce crystalline silica exposures at the job site and prevent silicosis and silicosis-related deaths:

a. Prohibit silica sand (or other substances containing more than 1% crystalline silica) as an abrasive blasting material and substitute less hazardous materials.
b. Conduct air monitoring to measure worker exposures.
c. Use containment methods such as blast-cleaning machines and cabinets to control the hazard and protect adjacent workers from exposure.
d. Practice good personal hygiene to avoid unnecessary exposure to silica dust.
    1. Wash hands and face before eating.
    2. No eating, drinking or tobacco products in the blasting area.
    3. Shower before leaving work site.
    4. Vehicles parked away from contaminated area.
e. 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.
f. Use respiratory protection when source controls cannot keep silica exposures below the NIOSH REL.
g. Provide periodic medical examinations for all workers who may be exposed to crystalline silica.
h. Post signs to warn workers about the hazard and to inform them about required protective equipment.
i. Provide workers with training that includes information about health effects, work practices, and protective equipment for crystalline silica.
j. Report all cases of silicosis to the state health department.

Lead Hazard Awareness:

§1532.1. Lead

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.

Cal/OSHA standard T8 CCR 1532.1, 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 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 who 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 **T8 CCR 1532.1. *Lead, Appendix A***:

> 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 your 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) 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 because 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 each 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

Article 10. Haulage and Earth Moving
Article 11. Vehicles, Traffic Control, Flaggers, Barricades, and Warning Signs
Article 25. Industrial Trucks, Tractors, Haulage Vehicles, and Earthmoving Equipment
§5185. Changing and Charging Storage Batteries

Heavy construction equipment includes bulldozers, compactors, front-end loaders, graders, haulage vehicles (trucks/dump trucks), scrapers, skid-steer machines, and tractors.

All vehicles in use will be inspected at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brake); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices; and, where such equipment is necessary, equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc. All defects affecting safe operation will be corrected before the vehicle is placed in service.

Heavy equipment will be operated only by authorized personnel.

Vehicle engines will not be allowed to run in closed garages or other enclosed places, unless vents are provided which effectively remove the exhaust gases from the building. During normal operations, exhaust gases must be directed away from the operator's breathing zone.

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.

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

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

General repairs must not be made to powered equipment until workers are protected from movement of the equipment or its parts. See **1595** for more info.

Before repairs are made workers must comply with the lock-out/tag-out requirements, if applicable, of our Control of Hazardous Energy Program.

A system of traffic controls must be used wherever mobile equipment operation encroaches on a public thoroughfare.

Flaggers are required at all locations where barricades and warning signs cannot control the moving traffic.

Flaggers must wear high visibility safety apparel and headwear manufactured in accordance with ANSI/ISEA standards. Also, all employees on foot such as grade-checkers, surveyors, and others exposed to the hazard of vehicular traffic, must wear high visibility safety apparel in accordance with the requirements of **1598** and **1599**, **1590**.

Job-site vehicles must be equipped with the following per **1597**, if so designed:

a. Operable service, emergency, and parking brakes.
b. Two operable headlights and taillights for night operation.
c. All vehicles, or combination of vehicles, shall be equipped with operating brake lights, regardless of light conditions.
d. Windshield wipers and defogging equipment as required.
e. Tools and materials shall be secured to prevent movement when transported in the same compartment as the employees.
f. Vehicles used to transport employees shall have enough seats firmly secured for the number of employees riding in vehicle.
g. Seat belts if the vehicle has rollover protection structures.
h. Employees will be required to use seat belts.
i. Fenders or mud flaps.
j. Vehicles not covered under other sections shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects shall be corrected before the vehicle is

placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

k. Where vehicles are operated, temporary covers for conduits, trenches and manholes and their supports, when located in roadways and vehicular aisles, shall be designed to carry at least 2 times the maximum intended vehicular live load and they shall be designed and installed as to prevent accidental displacement.

l. If an exhaust retrofit is installed on a vehicle, it must be installed and maintained as per **1591(m)**.

Rollover protection structures and seat belts must be installed for:

a. The following equipment having a brake horsepower rating above 20:

1. Bulldozer
2. Front-end loader
3. Motor grader
4. Scraper
5. Tractor (except side boom pipe laying)
6. Water wagon prime mover

b. The following equipment:

1. Rollers and compactors (weighing more than 5,950 lbs.).
2. Sheeps foot-type rollers and compactors.
3. Crawler tractor.

Haulage and earth-moving equipment safety requirements are as follows:

a. Every vehicle having a body capacity of 2.5 cu. yds. or more must be equipped with an automatic backup alarm that sounds immediately on backing.

b. All other vehicles operating when rear vision is blocked must be equipped with an automatic backup alarm or its equivalent.

c. All vehicles must be equipped with a manually operated warning device.

d. Haulage vehicles in operation must be under operator control and must be kept in gear when descending grades.

e. The brakes on a haulage vehicle must meet the criteria specified by the Construction Safety Orders.

f. The control devices on a haulage vehicle must be inspected at the

beginning of each shift. All defects affecting safe operation must be corrected before the vehicle is placed in service.

g. Exposed scissor points on front-end loaders must be guarded.

h. Engines must be stopped during refueling.

i. Lights are required for night operation.

j. Vehicles loaded by cranes, shovels, loaders, and similar devices must have an adequate cab or canopy for operator protection.

k. Dust control is required when dust seriously limits visibility.

l. In dusty operations, equipment operators must use adequate respiratory protection.

m. Loads on vehicles must be secured from displacement.

n. If an exhaust retrofit is installed, install, and maintain as per **1591(m)**.

o. When wire rope is being wound on a power-driven drum, a mechanical threading device must be used, where practicable, to guide the cable. When this operation must be done manually, the feet must not be used and the hands must be kept at least 3 feet from the drum.

p. Loading buckets, scoops, blades or similar attachments on haulage vehicles which do not provide fall protection equivalent to that required by **Section 3210** of the General Industry Safety Orders or **Article 24** of the Construction Safety Orders (starting with Section **1669**) must not be used as work platforms or to elevate or transport employees except as provided by **Section 1597** of these Orders.

q. The use, care and maintenance of slings used in lifting suspended loads with excavators, loaders and similar equipment must comply with the requirements of **Article 101** of the General Industry Safety Orders.

Safety requirements for industrial trucks and tractors include:

a. Posting and enforcing, by employers using industrial trucks or industrial tow tractors, a set of operating rules including the appropriate rules listed in the General Industry Safety Orders.

b. Providing operating instructions at the time of initial assignment and at least annually thereafter.

c. Using the locking device where the dump body of a truck is raised for work.

d. Performing repair work only when there is no possibility of sudden movements or operation of the equipment or its parts. Keeping all

controls in a neutral position, with the engine(s) stopped and brakes set, unless work being performed requires otherwise.

All high lift trucks (e.g., forklifts), industrial trucks, and rider trucks must conform with the applicable orders in **Article 25** of the General Industry Safety Orders and:

a. If a load is lifted by two or more trucks working in unison, the proportion of the total load carried by any one truck must not exceed its capacity.

b. Steering or spinner knobs must not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin. The steering knob must be mounted within the periphery of the wheel.

A safety tire rack, cage, or equivalent protection will be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings, or similar devices.

All equipment passenger cab window glass must be safety glass, or equivalent, and must not cause any vision impairment that may affect the safe operation of the vehicle.

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.

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.

Refueling

No internal combustion engine fuel tank will be refilled with a flammable liquid while the engine is running. Repairs will not be made to equipment while it is being fueled.

Fueling must be done in such a manner that the likelihood of spillage is minimal. If a spill occurs, it must be washed away completely, evaporated, or equivalent action taken to control vapors before restarting the engine. Fuel tank caps will be replaced before starting the engine.

A good metal-to-metal contact must be kept between fuel supply tank or nozzle of supply hose and the fuel tank.

No open lights, welding, or sparking equipment will be used near internal combustion equipment being fueled or near storage tanks.

No smoking will be permitted at or near the gasoline storage area or on equipment being fueled. A conspicuous sign will be posted in each fuel

storage and fueling area stating: "NO SMOKING WITHIN 25 FEET."

Class I liquids will not be dispensed by pressure from drums, barrels, and similar containers. Approved pumps taking suction through the top of the container or approved self-closing faucets will be used.

Each fuel storage tank or drum will be conspicuously marked with the word "Flammable" and have a similarly sized word indicating the contents of the container.

A dry chemical or carbon dioxide fire extinguisher rated 6:BC or larger will be in a location accessible to the fueling area.

Equipment Batteries

General Requirements

Employees assigned to work with batteries will be qualified and instructed in emergency procedures. Face shields, aprons, and rubber gloves will be available and must be used by employees who handle acids or batteries. Facilities for quick drenching of the eyes and body will also be available within 25 feet of battery handling areas.

There will also be a flushing and neutralizing station and fire protection equipment available. Mechanical lifting and material handling devices or equipment will be provided for handling batteries.

Batteries that are unsealed will be in enclosures with outside vents or in well ventilated rooms. They must be arranged so that fumes, gases, or electrolyte spray does not escape into surrounding areas. Ventilation will also be provided to ensure that the gases from the batteries diffuse into the air and prevent the accumulation of an explosive mixture.

Storage racks and trays must be strong enough to support the batteries and they must be made of materials nonconductive to spark generation or coated or covered to achieve this objective. Floors must be of acid resistant construction unless protected from acid accumulations.

Electrolyte (acid or base, and distilled water) for battery cells will be mixed in a well-ventilated room. When dispensing or sampling electrolyte, only devices specifically designed for such activities will be used. Electrolyte will only be placed in suitable containers and will not be stirred with metal objects. Acid or base will be poured gradually into the water while stirring. Water will never be poured into concentrated (greater than 75 percent) acid solutions.

When taking specific gravity readings, the open end of the hydrometer must be covered with an acid resistant material while moving it from battery to battery to avoid splashing or throwing the electrolyte.

Charging Requirements

Battery charging stations are to be located in an area designated specifically for that purpose and not used for other purposes. Smoking is prohibited in the charging area.

Precautions must be taken to prevent static discharge, open flames, sparks, short circuits, or electric arcs in areas where batteries are charged. Tools and other metallic objects must be kept away from the top of uncovered batteries. Chargers must be turned off when leads are being connected or disconnected.

Besides tools and metallic objects, no other items will be set on batteries or the charging stations.

All charging equipment will be placed so that it is protected from damage by trucks and other equipment.

When batteries are being charged, the vent caps must be kept in place to avoid electrolyte spray. The battery compartment cover(s) must be open to dissipate heat. Vent caps must be maintained in good working condition and kept in place when batteries are being moved.

Mobile equipment must be properly positioned and brake applied before attempting to change or charge batteries. Ignition, lights, and accessories on the vehicle must be turned off before connections are made. When a jumper battery is connected to a battery in a vehicle, the ground lead must connect to ground away from the vehicle's battery.

Any equipment used for removing large batteries will be inspected prior to use, following the inspection requirements of the manufacturer of the lifting equipment.

Maintenance and Repairs

Maintenance and repairs will only be performed by competent person(s).

No repairs will be attempted on power equipment until arrangements are made to eliminate the possibility of injury caused by sudden movements or operation of the equipment or its parts.

Heavy machinery, equipment, or any of their parts that must be suspended or held in the air by using a slings, hoists, or jacks will be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between those parts.

Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, will be fully lowered or blocked when being repaired or when not in use. All controls will be left in a neutral position, with the motors stopped and brakes set, unless work being performed requires otherwise.

Follow all requirements stated in the Owner's Manual. If the Owner's Manual isn't available, electronic copies can sometimes be found online.

Overhead 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)**
600 to 50,000	10
over 50,000 to 75,000	11
over 75,000 to 125,000	13
over 125,000 to 175,000	15
over 175,000 to 250,000	17
over 250,000 to 370,000	21
over 370,000 to 550,000	27
over 550,000 to 1,000,000	42

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)
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

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. 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.

Ladders

§1629. Stairways and Ladders.
§1675. General. (Ladders)
§1676. Job-Made 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. All portable lights shall have a guard on them to prevent personnel from touching the lights and getting burned.

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?

a. N**ever** 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.

b. Ensure the guarding systems are in place, functioning properly, and have not been altered or removed.

c. If a hazard assessment of the machinery operation dictates specific personal protective equipment (PPE), wear it!

d. 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

General Requirement for Storage

All materials stored in tiers must be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling or collapse.

Maximum safe load limits of floors within buildings and structures, in pounds per square foot, must be conspicuously posted in all storage areas, except for floor or slab on grade. Maximum safe loads must not be exceeded.

Aisles and passageways must be kept clear to provide for the free and safe movement of material handling equipment or employees. Such areas will be kept in good repair.

When a difference in road or working levels exist, means such as ramps, blocking, or grading must be used to ensure the safe movement of vehicles

between the two levels.

Material Storage

Material stored inside buildings under construction must not be placed within 6 feet of any hoist way or inside floor openings. If stored within 10 feet of an exterior wall that does not extend above the top of the material, the material must be positively barricaded, placed, or secured to prevent it from falling.

Each employee who is 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 our fall protection program.

Materials which may cause a hazardous reaction or unstable condition while in storage must be segregated in storage.

Bagged materials piled more than 5 feet high must be tapered back (except where supported by walls or otherwise), or the sacks shall be so tied in horizontal layers as to prevent them from falling or collapsing.

Materials are not permitted to be stored on scaffolds or runways in excess of supplies needed for immediate operations.

Brick stacks must not be more than 7 feet in height. When a loose brick stack reaches a height of 4 feet, it must be tapered back 2 inches in every foot of height above the 4-foot level.

When masonry blocks are stacked higher than 6 feet, the stack must be tapered back one-half block per tier above the 6-foot level.

All nails must be removed from used lumber before stacking. Additionally, lumber must be stacked on level and solidly supported sills and will be so stacked as to be stable and self-supporting. Headers, crosspieces, or other means will be used as needed in the pile to prevent slipping, tipping, or collapsing. Lumber piles cannot exceed 20 feet in height, if lumber to be handled manually is not stacked more than 16 feet high.

Mold & Mildew

Molds and mildew are fungi that can be found inside any building in which employees of UDC Corporation are working. Within the United States, there are about 1,000 species of mold.

Problems may arise when mold starts eating away at materials, affecting the look, smell, and possibly, with the respect to wood-framed buildings, affecting the structural integrity of the buildings.

Molds can grow on virtually any substance, if moisture or water, oxygen,

and an organic source, such as wood, are present. Molds reproduce by creating tiny spores (viable seeds) that usually cannot be seen without magnification. In fact, mold spores are continually floating through both the indoor and outdoor air. These spores alone do not create a problem.

The problem occurs when mold spores land on a damp spot and begin growing. They digest whatever they land on to survive. Molds can grow on wood, paper, carpet, foods, insulation, and even dust and dirt that gathers in moist areas of a building.

From a contractor standpoint, over time, molds can gradually damage building materials and furnishings. If left unchecked, mold can eventually cause structural damage to a wood framed building, weakening floors and walls as it feeds on moist wooden structural members.

Most molds do not present a true health hazard in the general population. Molds can, however, cause adverse effects by producing allergens and the allergic reactions to mold can be either immediate or delayed. Allergic responses would include hay fever-type symptoms such as runny nose and red eyes.

The work UDC Corporation performs as a contractor will not introduce molds into the workplace.

Should mold be discovered on any of our job sites, we will notify the owner and advise the owner to seek a professional mold remediation contractor.

Should mold exist on a job site where our employees are working, the following precautionary steps will be taken:

a. Dust mask may be used for personal employee comfort.
b. Items damaged by mold may be discarded as general waste with no special precautions needed.

Pipe Tie-Ins

Prior to a pipe tie-in, the flow of gas, steam, vapor, and liquid must be halted. It is 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.

1. 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.
2. 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.
3. 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.
4. 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.
5. Hydraulic hoses must be inspected for leaks or bubbles after each stressing operation and any damaged hoses should be immediately removed from service.
6. The hydraulic system must be regularly inspected for oil leaks and other damage and necessary corrective action taken.
7. Where adequate clearance exists, the platform width at jacking locations must be at least 32”.
8. Each blowout must be reported to the structural design engineer, investigated, and logged.
9. A copy of the logged entry must be available on site for reference purposes.
10. If there is risk of injury from handling coiled post-tensioning tendons, a suitable coil handling device must be used.
11. 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 more than 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. In the event any deviation from this fall protection procedure is required, the activity must be approved by the Environmental, Health and Safety Manager.

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.

When assessing compliance efforts, OSHA considers the requirements of pertinent national consensus standards. In the case of scissor-lifts, ANSI/SIA A92.6-1990, *Self-propelled Elevated Work Platforms*, and ANSI/SIA A92.3, *Manually Propelled Elevating Aerial Platforms*, are used.

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.

Silica Exposure

Construction employers must comply with all requirements of the standard by September 23, 2017, except requirements for laboratory evaluation of exposure samples, which begin on June 23, 2018.

Overview

Our Silica program applies to all workplace exposures to respirable crystalline silica. The only exception is when employee exposure will remain below 25 micrograms per cubic meter of air (25 µg/m3) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

Definitions

The following definitions apply to our silica program will help ensure that our employees fully understand the information provided.

Action level means a concentration of airborne respirable crystalline silica of 25 µg/m3, calculated as an 8-hour TWA.

Chief means the Chief of the Division of Occupational Safety and Health, or designee.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Competent person means an individual who can identify existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in subsection (g) of Section 1532.3.

Employee exposure means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.

Objective data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all the health care services required by subsection (h) of Section 1532.3.

Respirable crystalline silica means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality – Particle Size Fraction Definitions for Health-Related Sampling.

Specialist means an American Board-Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

This section means this respirable crystalline silica standard, Section 1532.3.

Specified Exposure Control Methods

If any of our employees are engaged in a task identified on Table 1 below, we will fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task.

Exception: We must assess and limit the exposure of our employees to safe levels of respirable crystalline silica using the alternative exposure control methods following Table 1.

Table 1: Specified Exposure Control Methods when Working with Materials Containing Crystalline Silica

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	− When used outdoors.	None	APF 10
	− When used indoors or in an enclosed area.	APF 10	APF 10

Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only: Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None
Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	− When used outdoors.	None	None
	− When used indoors or in an enclosed area.	APF 10	APF 10
Drivable saws	For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	None	None

Dowel drilling rigs for concrete	For tasks performed outdoors only: Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10
Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector. OR	None	None
	Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
Jackhammers and handheld powered chipping tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.		
	− When used outdoors.	None	APF 10
	− When used indoors or in an enclosed area.	APF 10	APF 10
	OR Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
	− When used outdoors.	None	APF 10
	− When used indoors or in an enclosed area.	APF 10	APF 10

Handheld grinders for mortar removal (i.e., tuckpointing)	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 25
Handheld grinders for uses other than mortar removal	For tasks performed outdoors only: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
	OR Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.		
	− When used outdoors.	None	None
	− When used indoors or in an enclosed area.	None	APF 10
Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR	None	None

	Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None
Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
Large drivable milling machines (half-lane and larger)	For cuts of any depth on asphalt only:		
	Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions.	None	None
	For cuts of four inches in depth or less on any substrate:		
	Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. OR	None	None
	Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None

Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None
Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	Operate equipment from within an enclosed cab.	None	None
	When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions. OR	None	None
	When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

When implementing the control measures specified in Table 1, we must:

a. Provide a method of exhaust to minimize the accumulation of visible airborne dust for tasks performed indoors or in enclosed areas.
b. Apply water at flow rates sufficient to minimize release of visible dust for tasks performed using wet methods.
c. If an enclosed cab or booth is used, we must ensure that it:
    1. Is maintained as free as practicable from settled dust
    2. Has door seals and closing mechanisms that work properly
    3. Has gaskets and seals that are in good condition and working properly.
    4. Is under positive pressure maintained through continuous delivery of fresh air.
    5. Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); and
    6. Has heating and cooling capabilities.

If one of our employees performs more than one task on Table 1 during a single work shift, the total time for all tasks will be considered.
If it's more than 4 hours in total, the employees must use the respiratory protection specified in the > 4 hours/shift column. If combined it's less than four hours, employee will follow the guidelines in the ≤ 4 hours/shift column.

Alternative Exposure Control Methods

If we are unable to implement the engineering controls, work practices, and respiratory protection described fully and properly in Table 1, we must ensure the following requirements are in place.

Permissible Exposure Limit (PEL)

We must ensure that none of our employees are exposed to an airborne concentration of respirable crystalline silica more than 50 µg/m3, calculated as an 8-hour TWA.

Exposure Assessment

We must assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level. This can be accomplished using one of the following options:

Performance Option:

The performance option requires that we must assess the 8-hour TWA exposure for each employee based on any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

Scheduled Monitoring Option:

If we use the scheduled monitoring option, we have to have provide initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, and in each work area.

Where several employees perform the same tasks on the same shift and in the same work area, we may sample a representative fraction of these employees. If we use representative sampling, we must sample the employees who are expected to have the highest exposure to respirable crystalline silica.

If initial exposure monitoring indicates that certain employee's exposures are below the action level, we may discontinue monitoring for those employees.

If the most recent exposure monitoring indicates that our employee's exposures are at or above the action level but at or below the PEL, we will ensure that the monitoring is repeated within six months of those results.

If the most recent exposure monitoring indicates that our employee's exposures are above the PEL, we will be sure to repeat the monitoring within three months of those results.

If the most recent exposure monitoring results (after the first round of monitoring) indicates that our employee's exposures are below the action level, then we will repeat the monitoring within six months of those results to determine if we need to continue monitoring.

If our repeat monitoring results indicate two consecutive measurements, taken seven or more days apart, are below the action level, we may discontinue monitoring for our employees whose exposures are represented by the monitoring.

Reassessment of Exposures:

It is our responsibility as the employer to provide a hazard free workplace for our employees and if we have any reason to believe that new or additional exposures at or above the action level have occurred we will reassess employee exposures.

We will reassess exposures whenever we have a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level.

Methods of Sample Analysis:

We will ensure that all of our exposure monitoring samples are evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with the procedures in Section 1532.3 - Appendix A.

Note: Requirements for laboratory evaluation of exposure samples are require to begin on June 23, 2018.

Employee Notification of Assessment Results:

We will individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees within five working days after completing an exposure assessment.

If an exposure assessment indicates that an employee is exposed to respirable crystalline silica above the PEL, we will provide them with a description of the corrective action being taken to reduce their exposure to within the PEL in the written notification.

Observation of Monitoring:

We will provide all affected employees, or their designated representatives, an opportunity to observe any monitoring of employee exposure to respirable crystalline silica.

When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, we must provide the observer with protective clothing and equipment at no cost and must ensure that the observer uses such clothing and equipment correctly.

Methods of Compliance

Engineering and Work Practice Controls:

We must use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless we can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, we will still use them to reduce our employee's exposure to the lowest feasible level. We will then supplement those controls with the use of respiratory protection in accordance with our Respiratory Protection Program.

Abrasive Blasting:

We must also comply with other OSHA standards, in addition to the engineering and work practice controls previously discussed, if abrasive blasting is conducted using crystalline silica-containing blasting agents or if abrasive blasting is conducted on substrates that contain crystalline silica.

Respiratory Protection

Respiratory Protection Program

When respiratory protection is required by Section 1532.3, we will use our respiratory protection program to provide each of our employee's an appropriate respirator that complies with the requirements of Section 5144.

Respiratory protection is required:

a. Where specified by Table 1 - Specified Exposure Control Methods when Working with Materials Containing Crystalline Silica.

b. For tasks not listed in Table 1, or where we do not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

   1. Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;

   2. Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and

   3. During tasks for which we have implemented all feasible engineering and work practice controls and those controls are not sufficient to reduce exposures to or below the PEL.

Specified Exposure Control Methods

If we can fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1 - Specified Exposure Control Methods when Working with Materials Containing Crystalline Silica, we will be considered to be in compliance with subsection (e)(1) of Section 1532.3 and the requirements for selection of respirators in Section 5144(d)(1)(C) and (d)(3) with regard to exposure to respirable crystalline silica.

Housekeeping

We will not allow dry sweeping or dry brushing when it could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible.

Our employees are not permitted to use compressed air to clean clothing or surfaces when it could contribute to employee exposure to respirable crystalline silica unless:

a. The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or

b. No alternative method is feasible.

Written Exposure Control Plan

We will establish and implement a written exposure control plan that contains at least the following elements:

a. A description of the tasks in the workplace that involve exposure to respirable crystalline silica.

b. A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task.

c. A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and

d. A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.

We will review and evaluate the effectiveness of the written exposure control plan at least annually and update it as necessary.

We will make the written exposure control plan readily available for examination and copying, upon request, to each employee covered by this program, their designated representatives, the Chief, and the Director.

We will designate a competent person to implement the written exposure control plan and to make frequent and regular inspections of job sites, materials, and equipment.

Medical Surveillance

We will make medical surveillance available to our employees at no cost and at a reasonable time and place for each who will be required under this program to use a respirator for 30 or more days per year.

We will ensure that all medical examinations and procedures required by this program are performed by a Physician or other licensed health care professional or PLHCP.

Initial Examination

We must make available an initial baseline medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of Section 1532.3 within the last three years. The examination must consist of:

a. A medical and work history, with emphasis on past, present, and anticipated exposure to respirable crystalline silica, dust, and other agents affecting the respiratory system; any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing); history of tuberculosis; and smoking status and history
b. A physical examination with special emphasis on the respiratory system
c. A chest X-ray (a single posteroanterior radiographic projection or radiograph of the chest at full inspiration recorded on either film, no less than 14 x 17 inches and no more than 16 x 17 inches, or digital radiography systems), interpreted and classified according to the International Labor Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader
d. A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course
e. Testing for latent tuberculosis infection; and
f. Any other tests deemed appropriate by the PLHCP.

Periodic Examinations

We will make medical examinations available that include the procedures described in subsection (h)(2) of Section 1532.3 (except subsection (h)(2)(E)) at least every three years, or more frequently if recommended by the PLHCP.

Information Provided to the PLHCP

We will ensure that the examining PLHCP has a copy of this standard, and must provide the PLHCP with the following information:

a. A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to respirable crystalline silica.
b. The employee's former, current, and anticipated levels of occupational exposure to respirable crystalline silica.

c. A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and

d. Information from records of employment-related medical examinations previously provided to the employee and currently within the control of the employer.

PLHCP's Written Medical Report for the Employee

We must ensure that the PLHCPs explain to our employees the results of the medical examination and provides them with a written medical report within 30 days of the medical examination performed. The written report must contain:

a. A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to respirable crystalline silica and any medical conditions that require further evaluation or treatment.

b. Any recommended limitations on the employee's use of respirators.

c. Any recommended limitations on the employee's exposure to respirable crystalline silica; and

d. A statement that the employee should be examined by a specialist (pursuant to subsection (h)(7) of Section 1532.3) if the chest X-ray provided in accordance with Section 1532.3 is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

PLHCP's Written Medical Opinion for the Employer

We must also obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain **only** the following:

a. The date of the examination.

b. A statement that the examination has met the requirements of Section 1532.3; and

c. Any recommended limitations on the employee's use of respirators.

If the employee provides written authorization, the written opinion can also contain either or both of the following:

a. Any recommended limitations on the employee's exposure to respirable crystalline silica
b. A statement that the employee should be examined by a specialist (pursuant to subsection (h)(7) of Section 1532.3) if the chest X-ray provided in accordance with Section 1532.3 is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

We must ensure that each employee receives a copy of that written medical opinion within 30 days of each medical examination performed.

Additional Examinations

If the PLHCP's written medical opinion indicates that an employee should be examined by a specialist, we must make a medical examination by a specialist available within 30 days after receiving the PLHCP's written opinion.

We must ensure that the examining specialist is provided with all the information that we provided to the PLHCP.

We must ensure that the specialist explains the results of the medical examination to the employee and provides them with a written medical report within 30 days of the examination that meets the requirements of subsection (h)(5) (except subsection (h)(5)(iv)) of Section 1532.3.

We will also obtain a written opinion from the specialist within 30 days of the medical examination that meets the requirements of subsection (h)(6) (except subsection (h)(6)(i)(B) and (ii)(B)) of Section 1532.3.

Communication of Silica Hazards to Employees

Hazard communication

We will include respirable crystalline silica in Hazard Communication program. This requires that we ensure that our employees have access to labels on containers of crystalline silica and safety data sheets. Additionally, we will ensure our employees are trained in accordance with the provisions of HCS and the below information.

Employee Information and Training

We will ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

Additionally, we must ensure that our employees can demonstrate knowledge and understanding of at least the following:

a. The health hazards associated with exposure to respirable crystalline silica
b. Specific tasks in the workplace that could result in exposure to respirable crystalline silica
c. Specific measures the employer has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used
d. The contents of Section 1532.3
e. The identity of the competent person designated by the employer in accordance with subsection (g)(4) of Section 1532.3; and
f. The purpose and a description of the medical surveillance program required by subsection (h) of Section 1532.3.

We will make a copy of Section 1532.3 readily available and without cost to our employees covered by this program.

Recordkeeping

Air Monitoring Data

We will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to respirable crystalline silica. This record will include at least the following information:

a. The date of measurement for each sample taken
b. The task monitored
c. Sampling and analytical methods used
d. Number, duration, and results of samples taken
e. Identity of the laboratory that performed the analysis
f. Type of personal protective equipment, such as respirators, worn by the employees monitored; and
g. Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were monitored.

Objective Data

We will make and maintain an accurate record of all objective data relied upon to comply with the requirements of Section 1532.3. This record will include at least the following information:

a. The crystalline silica-containing material in question
b. The source of the objective data
c. The testing protocol and results of testing
d. A description of the process, task, or activity on which the objective data were based; and
e. Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

Medical Surveillance

We will make and maintain an accurate record for each employee covered by medical surveillance under subsection (h) of Section 1532.3. The record will include the following information about the employee:

a. Name and social security number
b. A copy of the PLHCPs' and specialists' written medical opinions; and
c. A copy of the information provided to the PLHCPs and specialists.

Medical Record Retention

We will maintain medical records and make them available in accordance with Section 3204, including that medical record for each employee be preserved and maintained for at least the duration of employment plus thirty (30) years.

Slings

T8 CCR Article 101. Slings

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.

29 CFR 1926.251, *Rigging Equipment for Material Handling* and T8 CCR *Article 101. Slings* give detailed instructions on the use of each type of sling.

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. Slings may not be kinked or knotted.
c. Slings may not be loaded more than their rated capacities as prescribed by the sling manufacturer on the identification markings permanently affixed to the sling.
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. (See Section 5002).

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.

l. Slings without affixed and legible identification markings will not be used.

Stairs

§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 inches in width and shall be equipped with stair rails, handrails, treads, and landings.

g. All guardrail railings, including their connections and anchorage, shall be capable of withstanding a load as specified in 1620(c).

h. Handrails must be 34 inches to 38 inches above the tread nosing.

i. Wooden posts shall be not less than 2-inch by 4-inch in cross section, spaced at 8-foot or closer intervals. Wooden top railings shall be smooth and of 2-inch by 4 inches or larger material. Double, 1 inch by 4-inch 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 inches in the direction of travel and extend at least 24 inches in width at every 12 feet or less of vertical rise.

l. Stair steps must be illuminated with at least 5-foot candles of light and all lamps must be guarded.

Steel Erection Activities

California Code of Regulations, Title 8, § 1710. Structural Steel Erection

All affected personnel will have access to the above steel erection standards and be provided training, as appropriate, prior to working in steel erection activities.

Specific hazards that are identified include, but are not limited to: working under loads, hoisting, landing, and placing decking, column stability, double connections, loading and placing steel joints, and falls to lower levels.

Definitions

All employees should know the "language" of this section. 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 Cal-OSHA definitions:

ANCHORED BRIDGING: the steel joist bridging is connected to a bridging terminus point.

BOLTED DIAGONAL BRIDGING: diagonal bridging that is bolted to a steel joist or joists.

BRIDGING CLIP: a device that is attached to a steel joist to allow the bolting of the bridging to the steel joist.

BRIDGING TERMINUS POINT: a wall, a beam, tandem joists (with all bridging installed and a horizontal truss in the plane of the top chord) or other element at an end or intermediate point(s) of a line of bridging that provides an anchor point for the steel joist bridging.

COLD FORMING: the process of using press brakes, rolls, or other methods to shape steel into desired cross sections at room temperature.

COLUMN: a load-carrying vertical member that is part of the primary skeletal framing system. Columns do not include posts.

CONNECTOR: an employee who, working with hoisting equipment, is placing and connecting beams or other structural members.

CONSTRUCTABILITY: the ability to erect structural steel members in accordance with Section 1710 without having to alter the over-all structural design.

CONSTRUCTION LOAD (FOR JOIST ERECTION): any load other than the weight of the employee(s), the joists and the bridging bundle.

CONTROLLED DECKING ZONE (CDZ): an area established specifically for the initial placement and securing of metal decking where access to the area is restricted and work may take place without the use of a personal fall protection system when the provisions of Section 1710(n) are met.

CONTROLLED LOAD LOWERING: lowering a load by means of a mechanical hoist drum device that allows a hoisted load to be lowered with maximum control using the gear train or hydraulic components of the hoist mechanism. Controlled load lowering requires the use of the hoist drive motor, rather than the load hoist brake, to lower the load.

CONTROLLING CONTRACTOR: a prime contractor, general contractor, construction manager or any other legal entity which has the overall responsibility for the construction of the project - its planning, quality and completion.

CRITICAL LIFT: a lift that exceeds 75 percent of the rated capacity of the crane or derrick or requires the use of more than one crane or derrick. (used in Appendix C to Section 1710)

DERRICK FLOOR (WORKING FLOOR): an elevated floor of a building or structure that has been designated to receive hoisted pieces of steel prior to final placement.

DOUBLE CONNECTION: an attachment method where the connection point is intended for two pieces of steel which share common bolts on either side of a central piece.

DOUBLE CONNECTION SEAT: a structural attachment that, during the installation of a double connection, supports the first member while the second member is connected.

ERECTION BRIDGING: the bolted diagonal bridging that is required to be installed prior to releasing the hoisting cables from the steel joists.

GIRT (IN SYSTEMS-ENGINEERED METAL BUILDINGS): a “Z” or “C” shaped member formed from sheet steel spanning between primary framing and supporting wall material.

METAL DECKING: a commercially manufactured, structural grade, cold rolled metal panel formed into a series of parallel ribs; for this section, this includes metal floor and roof decks, standing seam metal roofs, other metal roof systems and other products such as bar gratings, checker plate, expanded metal panels, and similar products. After installation and proper fastening, these decking materials serve a combination of functions including, but not limited to a structural element designed in combination with the structure to resist, distribute and transfer loads, stiffen the structure, and provide a diaphragm action; a walking/working surface; a form for concrete slabs; a support for roofing systems; and a finished floor or roof.

MULTIPLE LIFT RIGGING: rigging manufactured by rigging suppliers that facilitates the attachment of up to five independent loads to the hoist rigging of a crane.

PERMANENT FLOOR: a structurally completed floor at any level or elevation (including slab on grade).

POST: a structural member with a longitudinal axis that is essentially vertical, that weighs 300 pounds or less and is axially loaded (a load presses down on the top end), or is not axially loaded, but is laterally restrained by the above member. Posts typically support stair landings, wall framing, mezzanines, and other substructures.

PROJECT STRUCTURAL ENGINEER OF RECORD: the registered, California licensed engineer responsible for the design of structural steel framing and whose seal appears on the structural contract documents.

PURLIN (IN SYSTEMS-ENGINEERED METAL BUILDINGS): a “Z” or “C” shaped member formed from sheet steel spanning between primary framing and supporting roof material.

SAFETY DECK ATTACHMENT: an initial attachment that is used to secure an initially placed sheet of decking to keep proper alignment and bearing with structural support members.

SHEAR CONNECTOR: headed steel studs, steel bars, steel lugs, and similar devices which are attached to a structural member for the purpose of achieving composite action with concrete.

STEEL ERECTION: the construction, alteration or repair of steel buildings, bridges, and other structures, including the installation of metal decking and all planking used during the process of erection.

STEEL JOIST: an open web, secondary load-carrying member of 144 feet (43.9 m) or less, designed by the manufacturer, used for the support of floors and roofs. This does not include structural steel trusses or

cold-formed joists.

STEEL JOIST GIRDER: an open web, primary load-carrying member, designed by the manufacturer, used for the support of floors and roofs. This does not include structural steel trusses.

STEEL TRUSS: an open web member designed of structural steel components by the project structural engineer of record. For the purposes of this section, a steel truss is considered equivalent to a solid web structural member.

STRUCTURAL STEEL: a steel member, or a member made of a substitute material. These members include, but are not limited to, steel joists, joist girders, purlins, columns, beams, trusses, splices, seats, metal decking, girts, and all bridging, and cold formed metal framing which is integrated with the structural steel framing of a building.

SYSTEMS-ENGINEERED METAL BUILDING: a metal, field-assembled building system consisting of framing, roof, and wall coverings. Typically, many of these components are cold-formed shapes. These individual parts are fabricated in one or more manufacturing facilities and shipped to the job site for assembly into the final structure. The engineering design of the system is normally the responsibility of the systems-engineered metal building manufacturer.

TANK: a container for holding gases, liquids, or solids.

Site Layout and Construction Sequence

The controlling contractor is required to provide the steel erector with the following notifications:

a. Approval to begin steel erection. Before authorizing the commencement of steel erection, the controlling contractor shall ensure that the steel erector is provided with the following written notifications:

   1. The concrete in the footings, piers and walls, and the mortar in the masonry piers and walls have attained, based on an appropriate ASTM standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.

   2. Any repairs, replacements and modifications to the anchor bolts were conducted in accordance with CCR, Title 8, §1710 (f)(2).

b. Commencement of steel erection. A steel erection contractor shall not erect steel unless it has received written notification that the concrete in the footings, piers and walls or the mortar in the masonry

piers and walls has attained, based on an appropriate ASTM standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.

c. Site layout. The controlling contractor shall ensure that the following is provided and maintained:

   1. Adequate access roads into and through the site for the safe delivery and movement of derricks, cranes, trucks, other necessary equipment, and the material to be erected and means and methods for pedestrian and vehicular control. Exception: this requirement does not apply to roads outside of the construction site.

   2. A firm, properly graded, drained area, adequately compacted to support the intended loads, readily accessible to the work with adequate space for the safe storage of materials and the safe operation of the erector's equipment.

d. Preplanning of overhead hoisting operations. All hoisting operations in steel erection shall be preplanned to ensure that the requirements of CCR, Title 8, §1710 (d)(1) are met.

e. Site-specific erection plan. When we elect, due to conditions specific to a site, to develop alternate means and methods that provide employee protection in accordance with CCR, Title 8, §1710 (d)(9), §1710 (h)(1)(C), or §1710 (h)(5)(D), a site-specific erection plan will be developed by a qualified person and be available at the work site. Guidelines for establishing a site-specific erection plan are contained in Appendix C of §1710.

Training

All training required by the steel erection standards will be provided by qualified person(s).

Fall hazard training will be provided to all employees exposed to fall hazards. The training and instruction will cover the following areas:

a. The recognition and identification of fall hazards in the work area

b. 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

c. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used

d. 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

e. The fall protection requirements for structural steel erection.

Special training programs:

In addition to the above, training will be provided to address the following issues.

Multiple Lift Rigging Procedure:

Each employee who performs multiple lift rigging must be provided training in:

a. The proper inspection and removal of hoisting slings, eye-hooks, and other rigging components used in multiple lift rigging.

b Procedures for determining the proper sling length for structural members.

c. The use of rated load charts and capacities for manufactured rigging equipment.

d. The design and use of manufactured rigging assemblies.

e. Proper rigging techniques to maintain 7 feet between structural members being hoisted.

f. Instruction that no more than 5 structural members can be hoisted per lift.

g. Proper techniques for rigging structural members from the top down and setting structural members from the bottom up.

h. Procedures and techniques for rigging structural members at the center of gravity.

i. Procedures to ensure that no crane is used for multiple lifts that violates the crane manufacturer's specifications.

j. Procedures to ensure that no load exceeds 75% of the rated capacity for the hoisting equipment as specified in the hoisting equipment load charts.

k. The use of controlled load lowering on hoisting equipment used for multiple lifts.

l. Procedures for performing multiple lifts that are site-specific.

m. Procedures for preplanning overhead routes of suspended loads.

Connector Procedures

Each connector must be provided training in the following areas:

a. The nature of the hazards associated with connecting; and

b. Shinning of columns, access, proper connecting techniques and work practices required by CCR, Title 8, §1710 (g)(4) and (m).

Controlled Decking Zone Procedures (CDZs):

Each affected employee will be training in the following areas:

a. The nature of the hazards associated with work within a controlled decking zone **and**

b. The establishment, access, proper installation techniques and work practices required by CCR, Title 8, §1710, (n), printed below:

CCR, Title 8, §1710, (n):

Controlled Decking Zone (CDZ): A controlled decking zone is permitted only in that area of the structure over 15 and up to 30 feet above a lower level where it can be shown that the use of a personal fall protection system is impractical or creates a greater hazard. In each CDZ, the following shall apply:

1. The CDZ shall be limited to that area where metal decking is initially being installed and forms the leading-edge work.
2. The implementation of a CDZ shall be under the supervision of a competent person.
3. The employer shall document the reasons why the use of conventional fall protection systems (guardrails, personal fall arrest systems, positioning device systems, fall restraint systems or safety nets) are infeasible or why their use would create a greater hazard.
    i. The name or other method of identification for each employee (e.g., job title) who is designated to work in the CDZ must be documented.
    ii. The documentation required shall be in writing and shall be available at the job site.
4. Where a CDZ is being used, a safety monitoring system is provided and a competent person designated to monitor the safety of employees within the CDZ. The safety monitor shall:
    i. Be competent to recognize fall hazards.
    ii. Warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner.
    iii. Be within visual sighting distance of the employee.
    iv. Be close enough to communicate orally with the employee.
    v. Not have other responsibilities which could take the monitor's

attention from the monitoring function; and

vi. Not be located within the CDZ.

5. Each employee working within a CDZ shall be protected from fall hazards of more than 2 stories or 30 feet, whichever is less, by the use of a personal fall protection system.
6. Access to a CDZ shall be limited to only those employees engaged in leading edge work.
7. The boundaries of a CDZ shall be designated and clearly marked. The CDZ shall be defined by a control line or by any equivalent means that restrict access.
   i. Control lines shall meet the requirements of CCR, Title 8, §1671.2(a)(4) through (a)(6).
   ii. When control lines or equivalent means are used, they shall be erected not less than 6 feet from the unprotected leading edge.
   iii. The CDZ shall not be more than 90 feet wide and 90 feet deep from any leading edge.
   iv. Signs meeting the requirements of CCR, Title 8, §3340 shall be posted to warn unauthorized persons to stay out of CDZ.
8. Safety deck attachments shall be performed in the CDZ from the leading edge back to the control line and shall have at least two attachments for each metal decking panel. Unsecured decking in a CDZ shall not exceed 3,000 square feet.
9. Final deck attachments, installation of shear connectors, and flashing shall not be performed in the CDZ.

Working Under Loads

All loads shall be rigged by a qualified rigger.

Routes for suspended loads will be preplanned to ensure that no employee is required to work directly below a suspended load except for those engaged in the initial connection of the steel or those necessary for the hooking or unhooking of the load.

When working under suspended loads:

a. The materials being hoisted must be rigged to prevent unintentional displacement.
b. Hooks with self-closing safety latches or their equivalent must be used to prevent components from slipping out of the hook.

Safety latches on hooks shall not be deactivated or made inoperable except:

a. When a qualified rigger has determined that the hoisting and placing of purlins and single joists can be performed more safely by doing so; and
b. When the steel erector develops and implements a site-specific erection plan that ensures the load will not travel over or expose employees in other trades to the hazards of suspended loads.

Multiple Lift Rigging Procedures

A multiple lift shall only be performed if the following criteria are met:

a. A multiple lift rigging assembly is used
b. A maximum of five members are hoisted per lift
c. Rigging procedures shall prevent hazardous contact between the structural steel members being hoisted and adjacent structures or workers
d. Only beams and similar structural members are lifted
e. All employees engaged in the multiple lift have been trained in these procedures in accordance with CCR, Title 8, §1710 (q)(3)(A); and
f. No crane is permitted to be used for a multiple lift where such use is contrary to the manufacturer's specifications and limitations.

Components of the multiple lift rigging assembly shall be specifically designed and assembled with a maximum capacity for total assembly and for each individual attachment point. This capacity, certified by the manufacturer or a qualified rigger, shall be based on the manufacturer's specifications with a 5 to 1 safety factor for all components.

The total load shall not exceed:

a. 75% of the rated capacity of the hoisting equipment specified in the hoisting equipment load charts.
b. The rigging capacity specified by the manufacturer.

The multiple lift rigging assembly shall be rigged with members:

a. Attached at their center of gravity and maintained reasonably level
b. Rigged from top down; and
c. Rigged at least 7 feet apart.

The members on the multiple lift rigging assembly shall be set from the bottom up.

Controlled load lowering shall be used whenever the load is over the connectors.

Hoisting

a. Other applicable regulations pertaining to hoisting and rigging operations for the use of cranes and derricks in steel erection construction are contained in the General Industry Safety Orders, Group 13, Cranes and Other Hoisting Equipment.
b. A pre-shift visual inspection of cranes must be accomplished by a competent person and the competent person must also observe cranes in operation. Remember, a competent person has the authority to stop work if an unsafe work practice is observed. Furthermore, a crane operator has the authority to stop work if an unsafe condition exists.
c. Cranes being used in steel erection activities must be visually inspected prior to each shift by a competent person and the inspection shall include observation for deficiencies during operation. At a minimum, this inspection shall include the following:
    1. All control mechanisms for maladjustments.
    2. Control and drive mechanism for excessive wear of components and contamination.
    3. Crane safety devices.
    4. Air, hydraulic, and other pressurized lines, and systems for condition.
    5. Hooks and latches for deformation, chemical damage, cracks, or wear.
    6. Wire rope travel and attachment.
    7. Electrical apparatus for malfunctioning, signs of excessive deterioration, dirt, or moisture accumulation.
    8. Ground conditions.
    9. Leveling.
d. Only a qualified person can inspect the rigging.

e. Metal decking bundles shall be landed on framing members so that enough support is provided to allow the bundles to be disbanded without dislodging the bundles from the supports.

f. Temporary loads placed on a derrick floor shall be distributed over the underlying support members so as to prevent local overloading of the deck material.

g. Bundle packaging and strapping shall not be used for hoisting unless specifically designed for that purpose.

h. If loose items such as dunnage, flashing, or other materials are placed on the top of metal decking bundles to be hoisted, such items shall be secured to the bundles.

i. Cranes or derricks may be used to hoist employees on a personnel platform when work under this section is being conducted, provided the provisions of CCR, Title 8, §5004 [except for subsection (c)] are met.

j. Safety latches on hooks shall not be deactivated or made inoperable except:

   1. When a qualified rigger has determined that the hoisting and placing of purlins and single joists can be performed more safely by doing so; and

   2. When the steel erector develops and implements a site-specific erection plan that ensures the load will not travel over or expose employees in other trades to the hazards of suspended loads.

Walking/Working Surfaces

To prevent tripping hazards, shear connectors (such as headed steel studs, steel bars or steel lugs), reinforcing bars, deformed anchors or threaded studs shall not be attached to the top flanges of beams, joists, or beam attachments so that they project vertically from or horizontally across the top flange of the member until after the metal decking, or other walking/working surface, has been installed.

When shear connectors are used in construction of composite floors, roofs and bridge decks, employees shall lay out and install the shear connectors after the metal decking has been installed, using the metal decking as a working platform.

Column Anchorage

We will follow the below listed general requirements for erection stability:

a. All columns shall be anchored by a minimum of 4 anchor rods (anchor bolts) except when columns are braced or guyed to provide the stability to support an eccentric load as specified in paragraph b below.

b. Each column anchor rod (anchor bolt) assembly, including the column-to-base plate weld and the column foundation, shall be designed to resist a minimum eccentric gravity load of 300 lbs. located 18 inches from the extreme outer face of the column in each direction at the top of the column shaft.

c. Columns shall be set on level finished floors, pre-grouted leveling plates, leveling nuts, or shim packs which are adequate to transfer the construction loads.

d. All columns shall be evaluated by a competent person to determine whether guying or bracing is needed; if guying or bracing is needed, it shall be installed.

When repairing, replacing, or making field modifications of anchor rods (anchor bolts):

a. No repair, replacement or field modifications will be made without the approval of the project structural engineer of record.

Note: Minor adjustment of anchor rods (anchor bolts) that do not affect the structural integrity of anchor rods (anchor bolts) are not considered "repairs" of the purposes of this subsection.

b. Prior to the erection of a column, the controlling contractor will provide written notification to the steel erector if any repair, replacement, or modification of the anchor rods (anchor bolts) of that column.

Beams and Columns

During the final placing of solid web structural members, the load shall not be released from the hoisting line until the members are secured with at least two bolts per connection, of the same size and strength as shown in the erection drawings, drawn up wrench-tight or the equivalent as specified by the project structural engineer of record, except as specified in paragraph (2) below.

a. A competent person shall determine if more than two bolts are necessary to ensure the stability of cantilevered members; if additional bolts are needed, they shall be installed.

b. Diagonal bracing. Solid web structural members used as diagonal bracing shall be secured by at least one bolt per connection drawn up wrench-tight or the equivalent as specified by the project structural engineer of record.

c. Double connections at columns and/or at beam webs over a column.

    1. When two structural members on opposite sides of a column web, or a beam web over a column, are connected sharing common connection holes, at least one bolt with its wrench-tight nut shall remain connected to the first member unless a shop-attached or field-attached seat or equivalent connection device is supplied with the member to secure the first member and prevent the column from being displaced (See Appendix B to this subpart for examples of equivalent connection devices).

    2. If a seat or equivalent device is used, the seat (or device) shall be designed to support the load during the double connection process. It shall be adequately bolted or welded to both a supporting member and the first member before the nuts on the shared bolts are removed to make the double connection.

d. Column splices. Each column splice shall be designed to resist a minimum eccentric gravity load of 300 pounds located 18 inches from the extreme outer face of the column in each direction at the top of the column shaft.

e. Perimeter columns. Perimeter columns shall not be erected unless:

    1. The perimeter columns extend a minimum of 48 inches above the finished floor to permit installation of perimeter safety cables prior to erection of the next tier, except where constructability does not allow.

    2. The perimeter columns have holes or other devices in or attached to perimeter columns at 42-45 inches above the finished floor and the midpoint between the finished floor and the top cable to permit installation of perimeter safety cables (wire rope) required by subsection (l)(3) of CCR, Title 8, §1701, except where constructability does not allow.

Open Web Steel Joists

Except where constructability does not allow a steel joist to be installed at the column, where steel joists are used and columns are not framed in at least two directions with solid web structural steel members, a steel joist shall be field bolted at the column to provide lateral stability to the column during erection. For the installation of this joist:

a. A vertical stabilizer plate shall be provided on each column for steel joists. The plate shall be a minimum of 6 inches by 6 inches and shall extend at least 3 inches below the bottom chord of the joist with a 13/16 inch hole to provide an attachment point for guying or plumbing cables.

b. The bottom chords of steel joists at columns shall be stabilized to prevent rotation during erection.

c. Hoisting cables shall not be released until the seat at each end of the steel joist is field-bolted, and each end of the bottom chord is restrained by the column stabilizer plate.

Where constructability does not allow a steel joist to be installed at the column:

a. An alternate means of stabilizing joists shall be installed on both sides near the column and shall:

   1. Provide stability equivalent to the guidelines listed above
   2. Be designed by a qualified person
   3. Be shop installed; and
   4. Be included in the erection drawings.

b. Hoisting cables shall not be released until the seat at each end of the steel joist is field-bolted and the joist is stabilized.

We will observe the following additional general guidelines for open web steel joists:

a. Where steel joists at or near columns span more than 60 feet, the joists shall be set in tandem with all bridging installed unless an alternative method of erection, which provides equivalent stability to the steel joist, is designed by a qualified person, and is included in the site-specific erection plan.

b. A steel joist or steel joist girder shall not be placed on any support structure unless such structure is stabilized. When steel joist(s) are landed on a structure, they shall be secured to prevent unintentional displacement prior to installation.

c. No modification that affects the strength of a steel joist or steel joist girder shall be made without the approval of the project structural engineer of record.

d. Except for steel joists that have been pre-assembled into panels, connections of individual steel joists to steel structures in bays of 40 feet or more shall be fabricated to allow for field bolting during erection. These connections shall be field bolted unless constructability does not allow.

e. Steel joists and steel joist girders shall not be used as anchorage points for a fall arrest system unless written approval to do so is obtained from a qualified person.

f. A bridging terminus point shall be established before bridging is installed. (See Appendix A of CCR, Title 8, §1701).

When attaching steel joists and steel joist girders:

a. Each end of “K” series steel joists shall be attached to the support structure with a minimum of two 1/8-inch fillet welds 1 inch long or with two ½-inch bolts, or the equivalent.

b. Each end of “LH” or “DLH” series steel joists and steel joist girders shall be attached to the support structure with a minimum of two ¼-inch fillet welds 2 inches long, or with two ¾-inch bolts, or the equivalent.

c. Except as provided in #4 below, each steel joist shall be attached to the support structure, at least at one end on both sides of the seat, immediately upon placement in the final erection position and before additional joists are placed.

d. Panels that have been pre-assembled from steel joists with bridging shall be attached to the structure at each corner before the hoisting cables are released.

When erecting steel joists:

a. Both sides of the seat of one end of each steel joist that requires bridging under Tables A and B shall be attached to the support structure before hoisting cables are released.

b. For joists over 60 feet, both ends of the joist shall be attached as specified above and the provisions of the Erection Bridging section met before the hoisting cables are released.

Note: Where any steel joist specified here is a bottom chord bearing joist, a row of bolted diagonal bridging shall be provided near the support(s). This bridging shall be installed an anchored before the hoisting cable(s) is release.

c. On steel joists that do not require erection bridging under Tables A and B, only one employee shall be allowed on the joist until all bridging is installed and anchored.

d. Employees shall not be allowed on steel joists where the span of the steel joist is equal to or greater than the span shown in Tables A and B except in accordance with erection bridging section.

e. When permanent bridging terminus points cannot be used during erection, additional temporary bridging terminus points are required to provide stability. (See Appendix A of CCR, Title 8, §1701).

Erection Bridging

Where the span of the steel joist is equal to or greater than the span shown in Tables A and B, the following shall apply:

a. A row of bolted diagonal erection bridging shall be installed near the midspan of the steel joist

b. Hoisting cables shall not be released until this bolted diagonal erection bridging is installed and anchored

c. No more than one employee shall be allowed on these spans until all other bridging is installed and anchored.

Where the span of the steel joist is over 60 feet through 100 feet, the following shall apply:

a. All rows of bridging shall be bolted diagonal bridging.

b. Two rows of bolted diagonal erection bridging shall be installed near the third points of the steel joist.

c. Hoisting cables shall not be released until this bolted diagonal erection bridging is installed and anchored; and

d. No more than two employees shall be allowed on these spans until all other bridging is installed and anchored.

Where the span of the steel joist is over 100 feet through 144 feet, the following shall apply:

a. All rows of bridging shall be bolted diagonal bridging

b. Hoisting cables shall not be released until all bridging is installed and anchored

c. No more than two employees shall be allowed on these spans until all bridging is installed and anchored.

Note: Where any steel joist specified above is a bottom chord bearing joist, a row of bolted diagonal bridging shall be provided near the support(s). This bridging shall be installed an anchored before the hoisting cable(s) is release.

For steel members spanning over 144 feet, the erection methods used shall be in accordance with those outlined under Beams and Columns.

When bolted diagonal erection bridging is required, the following shall apply:

a. The bridging shall be indicated on the erection drawing
b. The erection drawing shall be the exclusive indicator of the proper placement of this bridging
c. Shop-installed bridging clips, or functional equivalents, shall be used where the bridging bolts to the steel joists
d. When two pieces of bridging are attached to the steel joist by a common bolt, the nut that secures the first piece of bridging shall not be removed from the bolt for the attachments of the second; and
e. Bridging attachments shall not protrude above the top chord of the steel joist.

When landing or placing loads:

a. We will ensure that the load is distributed so as not to exceed the carrying capacity of any steel joist when placing a load on steel joists during the construction period.
b. The weight of a bundle of joist bridging shall not exceed a total of 1,000 lbs. A bundle of joist bridging shall be placed on a minimum of three steel joists that are secured at one end. The edge of the bridging bundle shall be positioned within 1 foot of the secured end.
c. No construction loads are allowed on the steel joists until all bridging is installed and anchored and all joist-bearing ends are attached.

Note: An exception to this rule applies when all of the following conditions are met: 1) A qualified person has determined and documented in a site-specific erection plan that the structure or portion thereof is capable of supporting the load; 2) The bundle of decking is placed on a minimum of three steel joists; 3) The joists supporting the bundle of decking are attached at both ends; 4) At least one row of bridging is installed and anchored; 5) The total weight of the bundle of decking does not exceed 4,000 lbs; and 6) The edge of the construction load shall be placed within 1 foot of the bearing surface of the joist end.

Systems-Engineered Metal Buildings

All the steel erection requirements listed apply to the erection of systems-engineered metal buildings except those listed under Column Anchorage and Open Web Steel Joists. In addition, we will abide by the following requirements:

a. Each structural column shall be anchored by a minimum of four anchor rods (anchor bolts).

b. Rigid frames shall have 50% of their bolts or the number of bolts specified by the manufacturer (whichever is greater) installed and tightened on both sides of the web adjacent to each flange before the hoisting equipment is released.

c. Construction loads shall not be placed on any structural steel framework unless such framework is safely bolted, welded, or otherwise adequately secured.

d. In girt and eave strut-to-frame connections, when girts or eave struts share common connection holes, at least one bolt with its wrench-tight nut shall remain connected to the first member unless a manufacturer-supplied, field-attached seat or similar connection device is present to secure the first member so that the girt or eave strut is always secured against displacement.

e. Both ends of all steel joists or cold-formed joists shall be fully bolted and/or welded to the support structure before:

   1. Releasing the hoisting cables
   2. Allowing an employee on the joists; or
   3. Allowing any construction loads on the joists.

f. Purlins may only be used as a walking/working surface when installing safety systems, after all permanent bridging has been installed and fall protection is provided.

g. Construction loads may be placed only within a zone that is within 8 feet of the centerline of the primary support member.

Falling Object Protection

All materials, equipment, and tools, which are not in use while aloft, shall be secured against accidental displacement. Also, the controlling contractor shall bar other construction processes below steel erection unless overhead protection for the employees below is provided.

Skeleton Steel Construction in Multi-Story Buildings

Permanent Flooring

The permanent floors shall be installed as the erection of structural members progresses, and there shall be not more than 8 stories between the erection floor and the uppermost permanent floor, except where the structural integrity is maintained because of the design.

At no time shall there be more than 4 floors or 48 feet, whichever is less, of unfinished bolting or welding above the foundation or uppermost permanently secured floor, except where structural integrity is maintained

because of the design.

Temporary Flooring

The derrick or erection floor shall be solidly planked or decked except for access openings. Planking or decking of equivalent strength, shall be of proper thickness to carry the working load. Planking shall be no less than 2 inches thick full size undressed and shall be laid tight. Both planking and decking shall be secured.

A tightly planked and substantial floor shall be maintained within 2 stories or 30 feet, whichever is less, below, and directly under that portion of each tier of beams on which any work is being performed.

a. When gathering and stacking temporary floor planks, the planks shall be removed successively, working toward the last panel of the temporary floor so that the work is always done from the planked floor.

b. When gathering and stacking temporary floor planks from the last panel, the employees assigned to such work shall be protected by an approved personal fall protection system attached to a catenary line or other substantial anchorage.

On buildings or structures not adaptable to temporary floors, and where scaffolds or approved fall protection is not used, safety nets shall be installed and maintained whenever the potential fall distance exceed 2 stories or 30 feet, whichever is less.

The exposed edges of all temporary planked and metal decked floors at the periphery of the building, or at interior openings, such as stairways and elevator shafts shall be protected by a single 3/8-inch minimum diameter wire rope of 13,500 lbs. minimum breaking strength located between 42 and 45 inches above design finish floor height. A different guardrail protection may be used if equal fall protection is provided.

Note: Pendant lines, catenary lines and other lines used to secure workers shall be used in accordance with CCR, Title 8, §1670.

Note: Wire rope or other guardrail protection provided by the steel erector shall remain in the area where steel erection activity has been completed, to be used by other trades, only if the controlling contractor or its authorized representative: 1) has directed the steel erector to leave the wire rope or other guardrail protection in place; and 2) has inspected and accepted control and responsibility of the wire rope or other guardrail protection prior to authorizing persons other than steel erectors to work in the area.

Midrail protection shall be installed as soon as the metal decking has been installed and prior to the decked area being used by trades other than the steel erector or decking crew.

Except as provided in CCR, Title 8, §1710(n), metal decking shall be laid tightly and immediately secured upon placement to prevent accidental movement or displacement. During initial placement, metal decking panels shall be placed to ensure full support by structural members.

Metal decking at roof and floor holes and openings shall be installed as follows:

a. Framed metal deck openings shall have structural members turned down to allow continuous deck installation except where not allowed by structural design constraints or constructability.

b. Metal decking holes and openings shall not be cut until immediately prior to being permanently filled with the equipment or structure needed or intended to fulfill its specific use and which meets the strength requirements of CCR, Title 8, §1632(b), or shall be immediately covered.

Fall Protection

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.

Note: For fall protection requirements associated with work above reinforcing steel and similar projections, see CCR, Title 8, §1712.

When connecting beams or other structural members at columns the practice of shinning (vertically climbing up or down) columns to access work points shall be permitted where the fall distance does not exceed 2 stories or 30 feet, whichever is less.

Iron workers shall be provided with and use a personal fall protection system as described in CCR, Title 8, §1670 tied-off to either columns, pendant lines secured at the tops of columns, catenary lines, or other secure anchorage points when:

a. Connecting beams or other structural members at the periphery or interior of a building or structure where the fall distance is greater than 2 stories or 30 feet, whichever is less

b. Shinning columns where the fall distance exceeds 2 stories or 30 feet, whichever is less

c. Performing work other than connecting where the fall distance is greater than 15 feet.

When moving from work point to work point or releasing slings, and the fall distance is great than 30 feet or 2 stories, whichever is less, connectors:

a. Shall coon or walk the bottom flange (inside flange of peripheral beams);
b. May walk the top surface of securely landed decking bundles; or
c. May walk the top flange if they are tied-off to catenary lines or use other fall protection in accordance with CCR, Title 8, Article 24.

Note: Lines #1-3 above also apply to iron workers when moving from work point to work point or releasing slings, and the fall distance is greater than 15 feet for other than connecting.

If the procedure specified for connecting is impractical, perimeter safety nets shall be installed at no more than 25 feet below the work surface and extend to at least 8 feet beyond the perimeter of the building or structure. Nets shall meet the requirements set forth in accordance with CCR, Title 8, §1671.

Tools – Hand

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:

a. Hand tools shall be used only for the purpose for which they are designed.
b. Hand tools will be kept clean and, where appropriate, oiled.
c. Hand tools which are damaged will not be used.
d. Handheld cutting tools will be kept sharp and will be sheathed or retracted when not in use.
e. When using a striking tool such as a hammer or chisel, safety glasses or safety goggles will be used.
f. Do not force tools.

g. If you are unfamiliar with the proper procedure for using a tool, ask your Supervisor for instruction.

h. Power tools may be operated only by those persons who are qualified by training or experience.

i. Do not alter guards on power tools; wear appropriate PPE.

j. Electrical tools must be grounded and, in the absence of permanent wiring, a Ground Fault Circuit Interrupter must be used.

k. Electric tools will not be lifted by their cords and pneumatic tools will not be lifted by their hoses.

Tools - Pneumatic Powered

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.

Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.

The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.

The use of hoses for hoisting or lowering tools shall not be permitted.

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.

Pneumatically Driven Nailers and Staplers

All pneumatically driven nailers and staplers, except for light-duty nailers and staplers, 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.

Note: Light-duty nailers and staplers are designed to only drive fasteners meeting both of these

requirements: 1) Fasteners 1-inch nominal length or shorter. 2) Fasteners made from wire with cross sectional area less than 18 ASWG. The use of a trigger, workpiece contact and/or other operating control, separately or in some combination or sequence, actuates the tool. Modes of actuation include "bump fire" and sequential modes.

Operating tools shall not be removed, tampered with, altered, or otherwise disabled.

Pneumatically driven nailers and staplers shall be connected to the air supply with a safety disconnect consisting of a spring-loaded shut-off valve and a positive locking mechanism to prevent the tool from becoming accidentally disconnected. They will be disconnected from the air supply when performing any maintenance or repair on the tool or clearing a jam.

Tools shall be equipped with a fitting that will discharge all compressed air in the tool at the time the fitting or hose coupling is disconnecting.

On roofs sloped steeper than 7:12 the air hose shall be secured at the roof level in such a manner as to provide ample, but not excessive, amounts of hose.

Training will be provided to operators of pneumatically driven nailers and staplers. This training will consist of, but not be limited to:

a. The Code of Safe Practices for pneumatically driven nailers and staplers.
b. The hazards related to each mode of actuation for pneumatically driven nailers and staplers.
c. Hands-on training to verify that the operator understands the operating and safety instructions.

Training will be provided by a qualified person and will take place prior to initial assignment. Refresher training will occur when the operator has been observed using the pneumatically driven nailer or stapler in an unsafe manner or when the operator has been involved in an accident.

Tools - Powder-Actuated

CCR Title 8, Article 27 - Powder-Actuated 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 like a pistol or rifle.

The speed of the projectile may range from 300 ft./second to 1290 ft./second.

Only powder-actuated tools shall be used that are approved for their intended use as defined in §1505 or have California approval numbers.

Only trained and authorized persons may operate a powder actuated tool and, for safety, these tools should be kept secured when not in use. These qualified persons should carry a valid operator's card for the appropriate tools.

Note: A person who is receiving training may be permitted to operate a powder-actuated tool when under the direct supervision of a qualified instructor.

The operators' cards shall be issued either by qualified instructors who carry a valid, authorized instructor(s) card(s) issued by the tool manufacturer(s) or by persons acceptable to the Division of Industrial Safety.

Qualified instructors shall be trained in accordance with the training requirements established by either the tool manufacturer or by the Powder Actuated Tool Manufacturers Institute (PATMI). Instructors authorized by the Division of Industrial Safety shall certify in writing that they are knowledgeable in the use, maintenance and repair of the tool(s) that is/are acceptable to the Division and that their instructions cover applicable safety orders.

A lockable container shall be provided and kept with each tool. The words "POWDER-ACTUATED TOOL" shall appear in plain sight on the outside of the container. The following notice shall be attached on the inside of the cover of the container:

> "WARNING - POWDER-ACTUATED TOOL TO BE USED ONLY BY A QUALIFIED OPERATOR AND TO BE KEPT UNDER LOCK AND KEY WHEN NOT IN USE."

On the job site, each tool should be accompanied by:

a. its container
b. the operator's instruction & service manuals
c. the tool inspection record; and
d. service tools & accessories.

Only approved pole tool assemblies shall be used.

Prior to use and at regular intervals, the tool must be inspected and tested according to the manufacturer's instruction manual. Defective tools must not be used and they must be taken out of service. A record of this inspection and service shall be documented with dates in the tool inspection record.

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.

Here are the do's and do nots of operating powder-actuated tools.

Do's:

a. Tools will be operated in accordance with manufacturer's instructions.
b. Eye or face protection will be worn by operators and assistants when the tool is in use.
c. Prior to use, the operator will inspect the tool to determine that it is in proper working condition in accordance with the testing methods recommended by the manufacturer of the tool.
d. Any tool found not to be in working condition will be immediately removed from service, tagged "DEFECTIVE" and not used until it has been repaired in accordance with the manufacturer's instructions.
e. The shield, fixture, adapter, or accessory suited for the application as recommended and supplied by the manufacturer will be used.
f. If the work is interrupted after loading, then the tool should be unloaded immediately.
g. Hands and feet should be kept clear of the open barrel end.
h. The tool always should be held perpendicular to the work surface when fastening into any material, except for specific applications recommended by the tool manufacturer.

i. In the event of a misfire, the operator should hold the tool firmly against the work surface for 30 seconds and then follow the instructions set forth in the manufacturer's instructions.

j. Power loads of different power levels and types should be kept in separate compartments or containers.

k. A sign of at least 8" x 10" using boldface type no less than 1" in height, will be conspicuously posted within 50 feet of the area where the tools are being used. The sign shall read something similar to the following: CAUTION – POWDER-ACTUATED TOOL IN USE.

l. Signs will be removed promptly when no longer applicable.

Do not's:

a. Tools will not be loaded until just prior to the intended firing time.

b. Neither loaded nor empty tools will be pointed at any person.

c. The tool shall not be used in an explosive or flammable atmosphere.

d. A loaded tool shall never be left unattended.

e. Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, hardened steel, glass block, natural rock, hollow tile or most brick.

f. Fasteners shall not be driven into easily penetrated or thin materials or materials of questionable resistance unless backed by a material that will prevent the fastener from passing completely through the other side.

g. Fasteners shall not be driven closer than ½ inch from the edge of steel except for specific applications recommended by the tool manufacturer.

h. Fasteners shall not be driven into concrete unless material thickness is at least three times the fastener shank penetration.

i. Fasteners shall not be driven into any spalled area.

j. Fasteners shall not be driven through existing holes unless a specific guide means, as recommended and supplied by the tool manufacturer, is used to assure positive alignment.

k. Because the case and load are color coded, the operator must distinguish the colors of brass and nickel as well as gray, brown, green, yellow, and red and purple.

Traffic Control - Flagmen

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 clearly identify 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 retro reflectorized 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.

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:

MINERAL DUSTS	
Substance	[a]**mppcf**
SILICA	
Crystalline Quarts	
Threshold Limited calculated from the formula	[b](250) ÷ (%SiO_2+5)
Cristobalite.	20
Amorphous, including natural diatomaceous earth	
SILICATES (Less than 1% crystalline silica)	
Mica	20
Portland Cement	20
Soapstone	20
Talc (non-abestiform)	20
Talc (fibrous), use asbestos limit	
GRAPHITE (Natural)	15
INERT OR NUISANCE PARTICULATES Note 1 Covers all organic and inorganic particulates not otherwise regulated. Same as Particulates Not Otherwise Regulated. Note 2 Inert or Nuisance Dusts includes all mineral, inorganic, and organic dusts as indicated by examples in TLV's Appendix D.	50 (or 15 mg/m³ which-ever is the smaller) of total dust <1% SiO Note 1 See Table above

a. Millions of particles per cubic foot or 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.

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, & Hot Work

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, 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 operate 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. Keep in mind, some customers require a fire watch to stay up to two hours after hot work activities have ceased.

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/m^3) 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/m^3. If air monitoring, as described in 29 CFR 1926.1026, is below .5 µg/m^3, 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 more than 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. 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.

7. 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.
8. 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.

9. 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 near other welding work or near sparks, flame, or other possible sources of ignition.

   Exception: Hydrogen cylinders. See supplier's instructions before connecting the regulator.

10. Before a regulator is removed from a cylinder valve, the cylinder valve shall be closed and the gas released from the regulator.
11. 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.
12. 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.
13. Safety devices shall not be tampered with.
14. The cylinder valve shall always be opened slowly.
15. 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.
16. 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.
17. Torches shall be lighted by friction lighters or other approved devices, and not by matches or from hot work.

18. Unalloyed copper shall not be used for acetylene or acetylenic compounds except in listed equipment.
19. 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.
20. 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.
21. If pipeline protective equipment incorporates a liquid, the liquid level shall be maintained, and a suitable antifreeze may be used to prevent freezing.
22. 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.
23. 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.
24. 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, 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, considering 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. Structures or pipelines acting continuously as ground return circuits shall have joints bonded and maintained to ensure that no electrolysis or fire hazard exists.

d. 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.

e. 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.

Working Over or Near Water

CCR, Title 8, Subchapter 4, Article 13. Working Over or Near Water

Employees working over or near water, where the danger of drowning exists, will be provided with U.S. Coast Guard-approved personal flotation devices that are labeled or marked as Type I PFD, Type II PFD, Type III PFD, or a Type V PFD that is marked or labeled for use as a work vest for commercial use or for use on vessels.

Prior to and after each use, the buoyant work vests or life preservers will be inspected for defects which would alter their strength or buoyancy. Defective units will be removed from service and not be used.

It is important to note that the provisions of our fall protection program require that fall protection (guardrail system, safety net system, or personal fall arrest system) be provided when working 6 or more feet above a lower level and this would include water. If fall protection is being used then the danger of drowning does not exist and life jackets or buoyant work vests are not required.

If a safety net system, alone, is used for fall protection, then the life preservers are required because of the remote possibility that heavy material falling into the safety net may damage the net.

In addition to the above, and in all cases irrespective of fall protection, the following applies:

a. Ring buoys with at least 150 feet of 600 lb. capacity line will be provided and readily available for emergency rescue operations. Distance between ring buoys may not exceed 200 feet.
b. At least one lifesaving skiff, either manually or power-operated, will be immediately available at locations where employees are working over or adjacent to water.

Lifesaving boats will be properly maintained, ready for emergency use and equipped with oars and oarlocks attached to the gunwales, boathook, anchor, ring buoy with 50 feet of 600 lb. capacity line and two (2) life preservers as described above.

Where lifeboats cannot be used because of swift current, a line shall be stretched across the stream with tag lines or floating planks trailing in the water at intervals not to exceed 6 feet. If this is impracticable, some other arrangement for providing effective lifelines near the water surface shall be provided.

If a barge is in use, we will ensure that there is at least one portable or fixed ladder which will reach from the top of the apron to the surface of the water. If the above equipment is not available at the pier, we will furnish it during the time that the barge is in use.

Provisions for rendering first aid and medical assistance will be in accordance with General Industry Safety Orders, Section 3400.

Access to/from Wharves, Floats, Barges, and/or Boats

Ramps for access of vehicles to or between barges must be of adequate strength, provided with side boards, well maintained, properly secured, and meet all requirements of Section 3337 - Dock Plates and Loading Ramps.

Unless employees can step safely to and from the wharf, float, barge, or river towboat, either a ramp meeting the requirements above or a safe walkway will be provided.

When dredge discharge pipelines are used as walkways, they shall be provided with a flat surface walkway at least 12” wide, anchored to the pipe line to prevent displacement. A railing providing at least a single rail or taut rope 42-45” high shall be provided along one side. When rope is used, it shall be at least as strong as ¾” diameter Manila or at least 3/8” diameter wire rope, or equivalent.

Catwalks or platforms shall be at least 20” wide with railings provided at all locations over bodies of water more than 4 feet deep. Plan for such use at those locations subject to immersion shall be rough sawn and treated to resist rot. Railings must be installed in accordance with the provisions of Section 1620.

When the upper end of the means of access rests on or is flush with the top of the bulwark, substantial steps properly secured and equipped with at least one substantial handrail not less than 34” or more than 38” above the tread nosing shall be provided between the top of the bulwark and the deck.

The gangway, ramp, catwalk, or other means of access will contain no

obstructions and will have adequate lighting for the full length.

Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured. They will either hang without slack from their lashings or be pulled up entirely.

Working Surfaces of Barges

Employees are not permitted to walk along the sides of covered lighters or barges with coamings more than 5 feet high unless there is a clear walkway of 3 feet or a grab or taut hand line is provided.

Decks and other working surfaces must be maintained in a safe condition as prescribed in Section 1511.

Employees are not permitted to pass fore and aft, or over, or around deck loads. Additionally, employees are not permitted to walk over deck loads from rail to coaming, unless there is a safe passage.

If it is necessary for an employee to stand at the outboard or inboard edge of the deck load where less than 36" of bulwark, rail, coaming, or other protection exists, the employee will be provided with fall protection.

Dock Plates and Loading Ramps

Every dock plate and loading ramp must be constructed and maintained with strength sufficient to support the load being carried.

Dock plates or loading ramps also must be secured in position when spanning the space between the dock or unloading area and the vehicle. The dock plate or loading ramp, together with its securing devices, where used over spans of different lengths, must be constructed to obtain rigid security of the spans.

The dock plates or loading ramps will be so constructed or maintained that when they are secured in position the end edges of the plate or loading ramp make substantial contact with the dock or loading area and with the vehicle bed in such a manner as to prevent rocking or sliding.

Adequate and safe means must be used when moving dock plates and loading ramps.

UDC Corporation
Section III
Specific Compliance Programs

Bloodborne Pathogens - Exposure Control Plan

§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 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)

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 can release 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 way a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

Exposure Control Plan

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.

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 countertop 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.

The actual disposal of all regulated waste shall follow 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 dustpan 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.

After 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 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.

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. This Report will be prepared regardless of whether 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.
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 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 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 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 intention 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.

Housekeeping Checklist

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:

	YES	NA
FLOORS	☐	☐
WALLS	☐	☐
EQUIPMENT	☐	☐
PRODUCT	☐	☐
WASTE CONTAINERS	☐	☐
TOOLS	☐	☐

Broken, potentially infected glassware should be picked up and disposed of using mechanical means such as a brush and dustpan 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.

Cold Stress Prevention Program

Cold-related work illness is not a real threat to most employees performing work in the state of California. In the rare event that employees are exposed to cold weather conditions, this program covers the symptoms of cold-related work illness and the precautions to take when working outside in cold weather.

All current employees will be given instruction in this program prior to working outside where the possibility of frostbite and hypothermia exist. A copy of this program will be kept at the work area during applicable periods of cold weather.

On days when applicable environmental conditions exist (**temperatures or wind chill factors equal to or less than 30 degrees F**) and before the morning shift starts, the site supervisor will remind workers of the danger of frostbite and hypothermia, the procedures to lessen its impact, and, in the worst case, the procedure for medical response.

Symptoms

All persons should recognize the symptoms of cold related illness and follow guidelines for preventing further injury and seeking help.

Frostbite

Symptoms: Sensations of coldness; tingling, stinging or aching feeling of the exposed area followed by numbness of ears, fingers, toes, cheeks, and noses. Frostbitten areas appear white and cold to the touch.

What to do: Seek medical assistance immediately. Frostbitten parts should be covered with dry, sterile gauze or soft, clean cloth bandages. Do not massage frostbitten tissue. Take measures to prevent further cold injury.

General Hypothermia

Symptoms: Shivering, an inability to do complex motor functions, lethargy, and mild confusion.

What to do: Seek medical assistance. Conserve remaining body heat. Providing additional heat sources.

Severe Hypothermia

Symptoms: Unresponsive and not shivering.

What to do: Seek medical attention immediately. Reduce heat loss by:

a. Obtaining shelter.
b. Removing of wet clothing.
c. Adding layers of dry clothing, blankets, or using a pre-warmed sleeping bag.

Environmental Factures

The four environmental conditions that cause cold-related stress are low temperatures, high/cool winds, dampness, and cold water. Wind chill, a combination of temperature and velocity, is a crucial factor to evaluate when working outside. For example, when the actual air temperature of the wind is 40°F (4°C) and its velocity is 35 mph, the exposed skin receives conditions equivalent to the still-air temperature being 11°F. A dangerous situation of rapid heat loss may arise for any individual exposed to high winds and cold temperatures.

The purpose of this program is to take definitive measures prior to the onset of cold related illnesses 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.

Preventative Measures

Definitive measures to prevent cold related illness include:

a. Personal protective clothing is the most important step in fighting the elements. Pay special attention to protecting feet, hands, face, and head. Up to 40% of body heat can be lost when the head is exposed. Footgear should be insulated to protect against cold and dampness. Keep a change of clothing available in case work garments become wet. Wear at least three layers of clothing:
    1. An outer layer to break the wind and allow some ventilation (like Gore-Tex® or nylon);

2. A middle layer of wool or synthetic fabric (Quallofil® or pile) to absorb sweat and retain insulation in a damp environment. Down is a useful lightweight insulator; however, it is ineffective once it becomes wet.
3. An inner layer of cotton or synthetic weave to allow ventilation.

b. Engineering controls help reduce the risk of cold-related injuries.
   1. Use an on-site source of heat, such as air jets, radiant heaters, or contact warm plates.
   2. Shield work areas from drafty or windy conditions.
   3. Provide a heated shelter for employees who experience prolonged exposure to equivalent wind-chill temperatures of 20° F or less.
   4. Use thermal insulating material on equipment handles when temperatures drop below 30° F.

c. Safe work practices, such as changes in work schedules and practices, are necessary to combat the effects of exceedingly cold weather. Possible workable safe practices include:
   1. Allowing a period of adjustment to the cold before embarking on a full work schedule.
   2. Permitting employees to set their own pace and take extra work breaks when needed.
   3. Reducing the number of activities performed outdoors as much as possible. When employees must brave the cold, select the warmest hours of the day, and minimize activities that reduce circulation.
   4. Ensuring that employees remain hydrated.
   5. Establishing a buddy system for working outdoors.
   6. Educating employees to the symptoms of cold-related stresses - heavy shivering, uncomfortable coldness, severe fatigue, drowsiness, or euphoria.

Provision of Water

Employees will have access to adequate quantities of potable drinking water.

Where the supply of water is not plumbed or otherwise continuously supplied, water will be provided in sufficient quantity.

Supervisors will provide frequent reminders to employees to drink frequently and more water breaks will be provided if needed.

Drinking water will be dispensed in containers with a tight sealing lid and labeled as Drinking Water. Drinking water containers are to be cleaned

daily. Water containers will be placed as close as possible to the workers.

Supervisors will monitor water consumption and water supply and ensure adequate levels are available to last the whole shift.

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.

In cold weather conditions, employees are encouraged to drink warm, sweet beverages (sugar water, sports-type drinks). They should avoid drinks with caffeine (coffee, tea, or hot chocolate).

Training

All employees will read this program and be given interactive training in its provisions. A copy of this program will be kept at the work area during applicable periods of cold weather.

All supervisors will read the below informational items prior to utilization of this program and have an opportunity for discussion and clarification with Mark Sandwall, our Safety Manager.

Confined Spaces in Construction

CCR, Title 8, Subchapter 4, Article 37 Confined Spaces in Construction

This Confined Spaces in Construction Program identifies the requirements for the practices and procedures to protect our employees engaged in construction activities at a worksite with one or more confined spaces.

Note: This Confined Spaces in Construction Program does not apply to (1) construction work regulated by Construction Safety Orders, Article 6, Excavation. (2) Construction work regulated by Tunnel Safety Orders. 3) Construction work regulated by General Industry Safety Orders, Group 26, Diving Operations. 4) Construction work regulated by General Industry Safety Orders, Article 154, Pressurized Worksite Operations.

Note: If UDC Corporation is performing work covered by another OSHA standard and that standard addresses a confined space issue, we will comply with both that requirement and the applicable provisions of this Confined Spaces in Construction Program.

Definitions

The following terms are defined for the purposes of this Confined Spaces in Construction Program only.

ACCEPTABLE ENTRY CONDITIONS: the conditions that must exist in a

permit space, before an employee may enter that space, to ensure that employees can safely enter, and safely work within, the space.

ATTENDANT: an individual stationed outside one or more permit spaces who assesses the status of authorized entrants and who must perform the duties specified in Section 1958.

AUTHORIZED ENTRANT: an employee who is authorized by the entry supervisor to enter a permit space.

BARRIER: a physical obstruction that blocks or limits access.

BLANKING *or* **BLINDING**: the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that can withstand the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

COMPETENT PERSON: one who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate the hazards.

CONFINED SPACE: a space that:

1. Is large enough and so configured that an employee can bodily enter it
2. Has limited or restricted means for entry and exit
3. Is not designed for continuous employee occupancy

CONTROL: the action taken to reduce the level of any hazard inside a confined space using engineering methods (for example, by ventilation), and then using these methods to maintain the reduced hazard level. Control also refers to the engineering methods used for this purpose. Personal protective equipment is not a control.

CONTROLLING CONTRACTOR: the employer who is responsible, by contract or through actual practice, for safety and health conditions on the worksite, i.e., the employer who has the authority for ensuring that the hazardous condition is corrected (the controlling employer).

Note: If the controlling contractor owns or manages the property, then it is both a controlling employer and a host employer.

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.

EARLY-WARNING SYSTEM: the method used to alert authorized entrants and attendants that an engulfment hazard may be developing. Examples of early-warning systems include but are not limited to: alarms activated by remote sensors; and lookouts with equipment for immediately

communicating with the authorized entrants and attendants.

EMERGENCY: any occurrence (including any failure of power, 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, crushing, or suffocation.

ENTRY: the action by which any part of 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, whether such action is intentional or any work activities are actually performed in the space.

ENTRY EMPLOYER: any employer who decides that an employee it directs will enter a permit space.

Note: An employer cannot avoid the duties of the standard merely by refusing to decide whether its employees will enter a permit space, and OSHA will consider the failure to so decide to be an implicit decision to allow employees to enter those spaces if they are working in the proximity of the space.

ENTRY PERMIT (PERMIT): the written or printed document that is provided by the employer who designated the space a permit space to allow and control entry into a permit space and that contains the information specified in Section 1955.

ENTRY RESCUE: occurs when a rescue service enters a permit space to rescue one or more employees.

ENTRY SUPERVISOR: the qualified person (such as the employer, foreman, or crew chief) 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 by this standard.

Note: An entry supervisor also may serve as an attendant or as an authorized entrant if that person is trained and equipped as required by this standard for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during an entry operation.

HAZARD: a physical hazard or hazardous atmosphere. See definitions below.

HAZARDOUS ATMOSPHERE: an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute

illness from one or more of the following causes:

1. Flammable gas, vapor, or mist more than 10 percent of its lower flammable limit (LFL)
2. Airborne combustible dust at a concentration that meets or exceeds its LFL

   Note: This concentration may be approximated as a condition in which the combustible dust obscures vision at a distance of 5 feet (1.52 meters) or less.

3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent
4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Article 4 of the Construction Safety Orders, or in Group 16 of the General Industry Safety Orders

   Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this definition.

5. Any other atmospheric condition that is immediately dangerous to life or health.

   Note: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Safety Data Sheets that comply with the Hazard Communication Standard, Section 5194, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

HOST EMPLOYER: the employer that owns or manages the property where the construction work is taking place.

Note: If the owner of the property on which the construction activity occurs has contracted with an entity for the general management of that property, and has transferred to that entity the below information:

Before entry operations begin, the host employer must provide the following information, if it has it, to the controlling contractor:

1. **The location of each known permit space**
2. **The hazards or potential hazards in each space or the reason it is a permit space; and**
3. **Any precautions that the host employer or any previous controlling contractor or entry employer implemented for the protection of employees in the permit space.**

OSHA will treat the contracted management entity as the host employer for as long as that entity manages the property. Otherwise, OSHA will treat the owner of the property as the host employer. In no case will there be more than one host employer.

HOT WORK: operations capable of providing a source of ignition (for example, riveting, welding, cutting, burning, and heating).

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): any condition that would interfere with an individual's ability to escape unaided from a permit space and that poses a threat to life or that would cause irreversible adverse health effects.

Note: Some materials-hydrogen fluoride gas and cadmium vapor, for example—may produce immediate transient effects that, even if severe, may pass without medical attention, but

are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" after recovery from transient effects until collapse. Such materials in hazardous quantities are “immediately” dangerous to life or health.

INERTING: displacing the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Note: This procedure produces an IDLH oxygen-deficient atmosphere.

ISOLATE OR ISOLATION: the process by which employees in a confined space are completely protected against the release of energy and material into the space, and contact with a physical hazard, by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; blocking or disconnecting all mechanical linkages; or placement of barriers to eliminate the potential for employee contact with a physical hazard.

LIMITED OR RESTRICTED MEANS FOR ENTRY OR EXIT: a condition that has a potential to impede an employee’s movement into or out of a confined space. Such conditions include, but are not limited to, trip hazards, poor illumination, slippery floors, inclining surfaces and ladders.

LINE BREAKING: the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

LOCKOUT: the placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

LOWER FLAMMABLE LIMIT OR LOWER EXPLOSIVE LIMIT: the minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion.

MONITOR *or* **MONITORING:** the process used to identify and evaluate the hazards after an authorized entrant enters the space. This is a process of checking for changes that are performed in a periodic or continuous manner after the completion of the initial testing or evaluation of that space.

NON-ENTRY RESCUE: occurs when a rescue service, usually the attendant, retrieves employees in a permit space without entering the permit space.

NON-PERMIT CONFINED SPACE: a confined space that meets the definition of a confined space but does not meet the requirements for a permit-required confined space, as defined in Article 37.

OXYGEN DEFICIENT ATMOSPHERE: an atmosphere containing less

than 19.5 percent oxygen by volume.

OXYGEN ENRICHED ATMOSPHERE: an atmosphere containing more than 23.5 percent oxygen by volume.

PERMIT-REQUIRED CONFINED SPACE (PERMIT SPACE): a confined space that has one or more of the following characteristics: (1) Contains or has a potential to contain a hazardous atmosphere; (2) Contains a material that has the potential for engulfing an entrant; (3) 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; or (4) Contains any other recognized serious safety or health hazard.

PERMIT-REQUIRED CONFINED SPACE PROGRAM (PERMIT SPACE PROGRAM): the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

PHYSICAL HAZARD: an existing or potential hazard that can cause death or serious physical damage. Examples include but are not limited to: explosives (as defined by Section 5237, definition of "explosive"); mechanical, electrical, hydraulic and pneumatic energy; radiation; temperature extremes; engulfment; noise; and inwardly converging surfaces. Physical hazard also includes chemicals that can cause death or serious physical damage through skin or eye contact (rather than through inhalation).

PROHIBITED CONDITION: any condition in a permit space that is not allowed by the permit during the period when entry is authorized. A hazardous atmosphere is a prohibited condition unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee.

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.

REPRESENTATIVE PERMIT SPACE: a mock-up of a confined space that has entrance openings that are like, and is of similar size, configuration, and accessibility to, the permit space that authorized entrants enter.

RESCUE: retrieving, and providing medical assistance to, one or more employees who are in a permit space.

RESCUE SERVICE: the personnel designated to rescue employees from permit spaces.

RETRIEVAL SYSTEM: the equipment (including a retrieval line, chest or full body harness, wristlets or anklets, if appropriate, and a lifting device or anchor) used for non- entry rescue of persons from permit spaces.

SERIOUS PHYSICAL DAMAGE: an impairment or illness in which a body part is made functionally useless or is substantially reduced in efficiency. Such impairment or illness may be permanent or temporary and includes, but is not limited to, loss of consciousness, disorientation, or other immediate and substantial reduction in mental efficiency. Injuries involving such impairment would usually require treatment by a physician or other licensed health-care professional.

TAGOUT: (1) Placement of a tagout device on a circuit or equipment that has been deenergized, in accordance with an established procedure, to indicate that the circuit or equipment being controlled may not be operated until the tagout device is removed; and (2) The employer ensures that (i) tagout provides equivalent protection to lockout, or (ii) that lockout is infeasible and the employer has relieved, disconnected, restrained and otherwise rendered safe stored (residual) energy.

TEST *or* **TESTING:** the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

Note: Testing enables us both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

VENTILATE *or* **VENTILATION:** controlling a hazardous atmosphere using continuous forced-air mechanical systems that meet the requirements of Section 1530, General Requirements for Mechanical Ventilation Systems.

General Requirements

Before beginning work at a worksite, we must ensure that a competent person both identifies all confined spaces in which one or more of the employees that we direct may work **and** identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing, as necessary.

If the workplace contains one or more permit spaces (or if we receive notice of a permit space from another contractor) we must:

a. Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space; and

   Note: A sign reading "DANGER – PERMIT- REQUIRED CONFINED SPACE, DO NOT ENTER" or using other similar language would satisfy the requirement above for a sign.

b. Inform, in a timely manner and in a manner other than posting,

employees' authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.

If we identify, or receive notice of, a permit space and do not authorize employees of UDC Corporation to work in that space, we must take effective measures to prevent those employees from entering that permit space, in addition to complying with all other applicable requirements of this standard.

If we decide that employees of UDC Corporation will enter a permit space, we must have a written permit space program that complies with Section 1953 implemented at the construction site. Our written permit space program must be made available prior to and during entry operations for inspection by our employees and their authorized representatives.

We may use the **alternate procedures** for entering a permit space only under the conditions below:

Note: If employees of UDC Corporation enter a permit space using alternate procedures, we do not have to comply with the requirements of:

Section 1953 Permit-required confined space program.
Section 1954 Permitting process.
Section 1955 Entry permit.
Section 1957 Duties of authorized entrants.
Section 1958 Duties of attendants.
Section 1959 Duties of entry supervisors.
Section 1960 Rescue and emergency services.

Conditions Required to Use Alternate Procedures:

a. We can demonstrate that all physical hazards in the space are eliminated or isolated through engineering controls so that the only hazard posed by the permit space is an actual or potential hazardous atmosphere.

b. We can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry, and that, in the event the ventilation system stops working, entrants can exit the space safely.

c. We develop monitoring and inspection data that supports the demonstrations required by preceding two paragraphs (a & b)

d. If an initial entry of the permit space is necessary to obtain the data required by paragraph preceding paragraph above (c), the entry will be performed in compliance with:

Section 1953 Permit-required confined space program.
Section 1954 Permitting process.
Section 1955 Entry permit.

Section 1956 Training.
Section 1957 Duties of authorized entrants.
Section 1958 Duties of attendants.
Section 1959 Duties of entry supervisors.
Section 1960 Rescue and emergency services.

e. The above determinations and supporting data required by the above paragraphs are documented and are made available to each employee who enters the permit space under the terms of the alternate procedures or to that employee's authorized representative; and

f. Entry into the permit space using the alternate procedures must be performed following the requirements of Section 1952(e)(2).

The following requirements apply to entry into permit spaces that meet the conditions set forth above.

a. Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.

b. When entrance covers are removed, the opening shall be immediately guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.

c. Before an employee enters the space, the internal atmosphere shall be tested, with a calibrated direct-reading instrument, for oxygen content, flammable gases and vapors, and potential toxic air contaminants, in that order. Any employee who enters the space, or that employee's authorized representative, shall be provided an opportunity to observe the pre-entry testing required by subsection (e).

d. No hazard atmosphere is permitted within the space whenever any employee is inside the space.

e. Continuous forced air ventilation shall be used as follows:

1. An employee shall not enter the space until the forced air ventilation has eliminated any hazardous atmosphere

2. The forced air ventilation shall 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

3. The air supply for the forced air ventilation shall be from a clean

source and shall not increase the hazards in the space.

f. The atmosphere within the space shall be continuously monitored unless we, as the entry employer, can demonstrate that equipment for continuous monitoring is not commercially available or periodic monitoring is sufficient. If continuous monitoring is used, we will ensure that the monitoring equipment has an alarm notifying all entrants if a specified atmospheric threshold is achieved, or that an employee will check the monitor with sufficient frequency to ensure that entrants have adequate time to escape. If we do not use continuous monitoring, periodic monitoring is required. All monitoring will ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee's authorized representative, will be provided with an opportunity to observe the required testing.

g. If a hazard is detected during entry:

   1. Each employee will leave the space immediately.
   2. The space shall be evaluated to determine how the hazard developed; and
   3. We will implement measures to protect employees from the hazard before any subsequent entry takes place.

h. We will ensure a safe method of entering and exiting the space. If a hoisting system is used, it will be designed and manufactured for personnel hoisting. However, a job-made hoisting system is permissible if it is approved for personnel hoisting by a registered professional engineer, in writing, before use.

i. We will verify that the space is safe for entry and that required pre-entry measures have been taken through a written certification that contains the date, location of the space, and signature of person providing the certification. The certification will be made before entry and will be available to any employee entering the space or that employee's authorized representative.

Classification/Reclassification of a Space

When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, or some indication that the initial evaluation of the space may not have been adequate, as an entry employer, we must have a competent person reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

A space that we have classified as a permit-required confined space may only be **reclassified as a non-permit confined space** when a competent person determines that all the below applicable requirements have been met:

a. If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated or isolated without entry into the space (unless we can demonstrate that doing so without entry is infeasible), the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated or isolated.

b. As the entry employer, we eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit space to eliminate or isolate hazards, the entry will be performed in compliance with:

Section 1953	Permit-required confined space program.
Section 1954	Permitting process.
Section 1955	Entry permit.
Section 1956	Training.
Section 1957	Duties of authorized entrants.
Section 1958	Duties of attendants.
Section 1959	Duties of entry supervisors.
Section 1960	Rescue and emergency service

If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated.

Note: Control of atmospheric hazards through forced air ventilation does not constitute elimination or isolation of the hazards. These alternate procedures cover permit space entry where it can be demonstrated that forced air ventilation alone will control all hazards in the space.

c. As the entry employer, we must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification must be made available to each employee entering the space or to that employee's authorized representative; and

d. If hazards arise within a permit space that has been reclassified as a non-permit, each employee in the space must exit the space. As the entry employer, we must then reevaluate the space and reclassify it as a permit space as appropriate in accordance with all other applicable provisions of Confined Spaces in Construction standard.

Permit Space Entry Communication and Coordination

Note: Unless a host employer or controlling contractor has or will have employees in a confined space, it is not required to enter any confined space to collect information specified below. If there is no controlling contractor present at the worksite, the requirements for and role of controlling contractors in Section 1952 will be fulfilled by the host employer or other employer who arranges to have employees of another employer perform work that involves permit space entry.

Before entry operations begin on a multi-contractor worksite, the host employer will provide the following information, if available, to the controlling contractor:

a. The location of each known permit space

b. The hazards, real or potential, in each space or the reason it is a permit space

c. Any precautions that the host employer or any previous controlling contractor or entry employer implemented for the protection of employees in the permit space.

Before entry operations begin on a multi-contractor worksite, the controlling contractor will:

a. Obtain the host employer's information about the permit space hazards and previous entry operations; and

b. Provide the following information to each entity entering a permit space and any other entity at the worksite whose activities could foreseeably result in a hazard in the permit space:

   1. The information received from the host employer.

   2. Any additional information the controlling contractor has about the subjects listed above; and

   3. The precautions that the host employer, controlling contractor, or other entry employers implemented for the protection of employees in the permit spaces.

Before entry operations begin on a multi-contractor worksite, each entry employer will:

a. Obtain all the controlling contractor's information regarding permit space hazards and entry operations; and

b. Inform the controlling contractor of the permit space program that the entry employer will follow, including any hazards likely to be confronted or created in each permit space.

The controlling contractor and entry employer(s) on a multi-contractor worksite will coordinate entry operations when:

a. More than one entity performs permit space entry at the same time or
b. Permit space entry is performed while any activities that could foreseeably result in a hazard in the permit space are performed.

After entry operations on a multi-contractor worksite, the following will occur:

a. The controlling contactor shall debrief each entity that entered a permit space regarding the permit space program followed and any hazards confronted or created in the permit space(s) during entry operations.
b. The entry employer(s) will inform the controlling contractor in a timely manner of the permit space program followed and of any hazards confronted or created in the permit space(s) during entry operations; and
c. The controlling contractor will notify the host employer of the information exchanged with the entry employer(s).

Permit-required confined space program

As an entry employer, we must:

a. Implement the measures necessary to prevent unauthorized entry;
b. Identify and evaluate the hazards of permit spaces before employees enter them.
c. Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:
    1. Specifying acceptable entry conditions.
    2. Providing each authorized entrant or that employee's authorized representative with the opportunity to observe any monitoring or testing of permit spaces.
    3. Isolating the permit space and physical hazard(s) within the space.
    4. Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards.

        Note: When we are unable to reduce the atmosphere below 10 percent LFL, we may only enter if we <u>inert</u> the space so as to render the entire atmosphere in the space <u>non-combustible</u>, and we use PPE to address any other atmospheric hazards (such as oxygen deficiency), and we eliminate or isolate all physical hazards in the space.

5. Determining that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space
6. Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards
7. Verifying those conditions in the permit space are acceptable for entry throughout the duration of an authorized entry, and ensuring that employees are not allowed to enter, or remain in, a permit space with a hazardous atmosphere unless we can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee; and
8. Eliminating any conditions (for example, high pressure) that could make it unsafe to remove an entrance cover.

d. Provide the following equipment at no cost to each employee, maintain that equipment properly, and ensure that each employee uses that equipment properly:
   1. Testing and monitoring equipment needed to comply with Section 1953(a)(5)
   2. Ventilating equipment needed to obtain acceptable entry conditions
   3. Communications equipment including any necessary electronic communication equipment for attendants assessing entrants' status in multiple spaces
   4. Personal protective equipment insofar as feasible engineering and work-practice controls do not adequately protect employees

      Note: The requirements of Article 3 of the Construction Safety Orders, Article 10 of the General Industry Safety Orders, and other PPE requirements continue to apply to the use of PPE in a permit space. For example, if employees of UDC Corporation use respirators, then the respirator requirements in Section 5144 (Respiratory Protection) must be met.

   5. Lighting equipment that meets the minimum illumination requirements in Section 1523 that is approved for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present, and that is sufficient to enable employees to see well enough to work safely and to exit the space quickly in an emergency

6. Barriers and shields for isolation of the space
7. Equipment, such as ladders, needed for safe ingress and egress by authorized entrants.
8. Rescue and emergency equipment needed to comply with Section 1953(a)(9), except to the extent that the equipment is provided by rescue services; and
9. Any other equipment necessary for safe entry into, safe exit from, and rescue from, permit spaces.

e. When entry operations are conducted, we must evaluate the permit space conditions both before and during operation as follows:
   1. Test conditions in the permit space to determine if acceptable entry conditions exist before changes to the space's natural ventilation are made, and before entry is authorized to begin, except that, if we demonstrate that isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), we must:
      i. Perform pre-entry testing to the extent feasible before entry is authorized; and,
      ii. If entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working, except that we may use periodic monitoring for monitoring an atmospheric hazard if we can demonstrate that equipment for continuously monitoring that hazard is not commercially available.
      iii. Provide an early-warning system that continuously monitors for non-isolated engulfment hazards. The system must alert authorized entrants and attendants in sufficient time for the authorized entrants to safely exit the space.
   2. Continuously monitor atmospheric hazards unless we can demonstrate that the equipment for continuously monitoring a hazard is not commercially available or that periodic monitoring is of sufficient frequency to ensure that the atmospheric hazard is being controlled at safe levels. If continuous monitoring is not used, periodic monitoring is required with sufficient frequency to ensure that acceptable entry conditions are being maintained during entry operations.
   3. When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.

4. Provide each authorized entrant or that employee's authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces
5. Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that we conduct such reevaluation because there is some indication that the evaluation of that space may not have been adequate; and
6. Immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted in accordance with this section.

f. Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations:
   1. Attendants may be assigned to more than one permit space provided all the duties of the attendant, see Duties of Attendants, can be effectively performed for each permit space.
   2. Attendants may be stationed at any location outside the permit space as long as the duties can be effectively performed for each permit space to which the attendant is assigned.

g. Designate each person who is to have an active role (such as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the required training. See Training.

h. Develop and implement procedures for summoning rescue and emergency services (including procedures for summoning emergency assistance in the event of a failed non-entry rescue), for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue

i. Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this standard, including the safe termination of entry operations under both planned and emergency conditions

j. Develop and implement procedures to coordinate entry operations, in consultation with the controlling contractor, when employees of more than one employer are working simultaneously in a permit space or elsewhere on the worksite where their activities could, either alone or in conjunction with the activities within a permit space, foreseeably result in a hazard within the confined space, so that employees of one employer do not endanger the employees of any other employer

k. Develop and implement procedures (such as closing off a permit space and canceling the permit) necessary for concluding the entry after entry operations have been completed

l. Review entry operations when the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized; and

Note: Examples of circumstances requiring the review of the permit space program include but are not limited to: Any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

m. Review the permit space program using the canceled permits we retain for at least 1 year after each entry and revise the program as necessary to ensure that employees participating in entry operations are protected from permit space hazards.

Note: We may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

Permitting process

Before entry is authorized, as an entry employer, we must **document** the completion of measures required by Section 1953(a)(3), by preparing an entry permit.

Before entry begins, the entry supervisor identified on the permit must sign the entry permit to authorize entry.

The completed permit must be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.

The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.

The entry supervisor must terminate entry and take the following action when any of the following apply:

a. Cancel the entry permit when the entry operations covered by the entry permit have been completed; or

b. Suspend or cancel the entry permit and fully reassess the space before allowing reentry when a condition that is not allowed under the entry permit arises in or near the permit space and that condition is temporary in nature and does not change the configuration of the space or create any new hazards within it; and

c. Cancel the entry permit when a condition that is not allowed or covered under the entry permit arises in or near the permit space.

The entry employer must retain each canceled entry permit for at least one (1) year to facilitate the required (within 1 year **after** each entry) review of the permit-required confined space program. Any problems encountered during an entry operation must be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.

Entry permit:

The entry permit that documents our compliance requirements and authorizes entry to a permit space must identify:

a. The permit space to be entered

b. The purpose of the entry

c. The date and the authorized duration of the entry permit

d. The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space

Note: This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.

e. Means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working

f. Each person, by name, currently serving as an attendant

g. The individual, by name, currently serving as entry supervisor, and the signature or initials of each entry supervisor who authorizes entry

h. The hazards of the permit space to be entered

i. The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;

Note: Those measures can include, but are not limited to, the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.

j. The acceptable entry conditions

k. The results of tests and monitoring performed under the provisions of our Permit-required confined space program, accompanied by the names or initials of the testers and by an indication of when the tests were performed

l. The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services

m. The communication procedures used by authorized entrants and attendants to maintain contact during the entry

n. Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this standard

o. Any other information necessary, given the circumstances of the confined space, to ensure employee safety; and

p. Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

Training

We will provide training to each employee whose work is regulated by Article 37—Confined Spaces in Construction, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard. This training must result in an understanding of the hazards in the permit space and the methods used to isolate, control or in other ways protect employees from these hazards, and for those employees not authorized to perform entry rescues, in the dangers of attempting such rescues.

Training required must be provided to each affected employee:

a. In both a language and vocabulary that the employee can understand
b. Before the employee is first assigned duties under this standard
c. Before there is a change in assigned duties
d. Whenever there is a change in permit space entry operations that presents a hazard about which an employee has not previously been trained; and
e. Whenever there is any evidence of a deviation from the permit space entry procedures required permit-required confined space program or there are inadequacies in the employee's knowledge or use of these procedures.

The training must establish employee proficiency in the duties required by this standard and must introduce new or revised procedures, as necessary, for compliance with this standard.

We will maintain training records to show that the training required above has been accomplished. The training records must contain each employee's name, the name of the trainers, and the dates of training. The documentation must be available for inspection by employees and their authorized representatives, for the period the employee is employed by that employer.

Duties of authorized entrants

As the entry employer, we must ensure that all authorized entrants:

a. Are familiar with and understand the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure
b. Properly use equipment as required by permit-required confined space program
c. Communicate with the attendant as necessary to enable the attendant to assess entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required duties of attendants.
d. Alert the attendant whenever:
    1. There is any warning sign or symptom of exposure to a dangerous situation; or
    2. The entrant detects a prohibited condition; and
e. Exit from the permit space as quickly as possible whenever:

1. An order to evacuate is given by the attendant or the entry supervisor
2. There is any warning sign or symptom of exposure to a dangerous situation
3. The entrant detects a prohibited condition; or
4. An evacuation alarm is activated.

Duties of attendants

As the entry employer, we must ensure that each attendant:

a. Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure

b. Is aware of possible behavioral effects of hazard exposure in authorized entrants

c. Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants under entry permit accurately identifies who is in the permit space

d. Remains outside the permit space during entry operations until relieved by another attendant

Note: Once an attendant has been relieved by another attendant, the relieved attendant may enter a permit space to attempt a rescue when our permit space program allows attendant entry for rescue and the attendant has been trained and equipped for rescue operations as required by our rescue and emergency services procedures.

e. Communicates with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space as quickly as possible

f. Assesses activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:

1. If there is a prohibited condition
2. If the behavioral effects of hazard exposure are apparent in an authorized entrant
3. If there is a situation outside the space that could endanger the authorized entrants; or
4. If the attendant cannot effectively and safely perform all the duties required under this section

g. Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards

h. Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:

   1. Warns the unauthorized persons that they must stay away from the permit space

   2. Advises the unauthorized persons that they must exit immediately if they have entered the permit space; and

   3. Informs the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space

i. Performs non-entry rescues as specified by our rescue procedure; and

j. Performs no duties that might interfere with the attendant's primary duty to assess and protect the authorized entrants.

Duties of entry supervisors

As the entry employer, we must ensure that each entry supervisor:

a. Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure

b. Verifies, by 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. Terminates the entry and cancels or suspends the permit as required by our permitting process

d. Verifies that rescue services are available and that the means for summoning them are operable, and that we will be notified as soon as the services become unavailable

e. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and

f. Determines, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained

Rescue and emergency services

When designating our rescue and emergency services per our permit-required confined space program, we must:

a. Evaluate a prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified

   Note: What will be considered timely will vary according to the specific hazards involved in each entry. For example, Section 5144 (Respiratory protection) requires that employers provide a standby person or persons capable of immediate action to rescue employee(s) wearing respiratory protection while in work areas defined as IDLH atmospheres.

b. Evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the permit space or types of permit spaces identified

c. Select a rescue team or service from those evaluated that:

   1. Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified
   2. Is equipped for, and proficient in, performing the needed rescue services
   3. Agrees to notify us immediately if the rescue service becomes unavailable
   4. Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and
   5. Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue team or service can develop appropriate rescue plans and practice rescue operations

If the employees of UDC Corporation have been designated to provide permit space rescue and/or emergency services, we must take the following measures and provide all equipment and training at no cost to those employees:

a. Provide each affected employee with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train each affected employee so the employee is proficient in the use of that PPE

b. Train each affected employee to perform assigned rescue duties. We must ensure that such employees successfully complete the training required and establish proficiency as authorized entrants

c. Train each affected employee in basic first aid and cardiopulmonary resuscitation (CPR). We must ensure that at least one member of the rescue team or service holding a current certification in basic first aid and CPR is available

d. Ensure that affected employees practice making permit space rescues before attempting an actual rescue, and at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces, except practice rescue is not required where the affected employees properly performed a rescue operation during the last 12 months in the same permit space the authorized entrant will enter, or in a similar permit space. Representative permit spaces must, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.

Non-entry rescue is required unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. We must designate an entry rescue service whenever non-entry rescue is not selected. Whenever non-entry rescue is selected, the entry employer must ensure that retrieval systems or methods are used whenever an authorized entrant enters a permit space, and must confirm, prior to entry, that emergency assistance would be available if non-entry rescue fails.

Retrieval systems must meet the following requirements:

a. Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which we can establish presents a profile small enough for the successful removal of the entrant. Wristlets or anklets may be used in lieu of the chest or full body harness if we can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets or anklets is the safest and most effective alternative.

b. The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 meters) deep.

c. Equipment that is unsuitable for retrieval must not be used, including, but not limited to, retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines used by other authorized

entrants, or retrieval lines that will not work due to the internal configuration of the permit space.

If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be made available to the medical facility treating the exposed entrant.

Employee participation

We will consult with affected employees and their authorized representatives on the development and implementation of all aspects of our permit space program.

We will make available to each affected employee and his/her authorized representatives all information required to be developed by the Confined Spaces in Construction standard.

Provision of documents to Chief

For each document required to be retained in the Confined Spaces in Construction standard, as the retaining employer, we must make the document available on request to the Chief of the Division of Occupational Safety and Health or the Chief's designee.

UDC Corporation

Emergency Phone Numbers

(To be accessible to attendant)

Main Office:	714-630-8580
Police:	911
Fire:	911
Ambulance:	911
Hospital Name:	
Mark Sandwall Safety Manager	Work: 714-630-8580 Cell: 714 936-3906

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:

UDC Corporation

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 <u>Confined</u> 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 **<u>not</u>** 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 <u>Permit</u> 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.

UDC Corporation

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
(Client Representative)
information and understand that permit space entry is allowed only through compliance with a Permit Space Program meeting the requirements of Section 1953.

If employees from UDC Corporation 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)

_____ _____
Mark Sandwall (Date)
Safety Manager

UDC Corporation

Entry Roster

CONFINED SPACE DATE: _____

SPACE IDENTIFICATION _____
SPACE LOCATION: _____

AUTHORIZED ENTRANT	TIME IN	TIME OUT	TIME IN	TIME OUT	TIME IN	TIME OUT	TIME IN	TIME OUT

UDC Corporation

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.

PERMIT VALID FOR_____HOURS

CONFINED SPACE-HAZARDOUS AREA:

CONFINED SPACE IDENTIFICATION: _____ START 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:

_____ (Type)	_____ (Model and/or Serial Number)	_____ (Calibration date)
_____ (Type)	_____ (Model and/or Serial Number)	_____ (Calibration date)
_____ (Type)	_____ (Model and/or Serial Number)	_____ (Calibration date)

_____

(Signature of Entry Supervisor/Date) **(Mark Sandwall/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.

_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)
_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)
_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)
_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)

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)

Date: _____ **Time:** _____		**Acceptable Parameters**	**Tester's Initials**
Oxygen: _____% _____%		**>19.5% <23.5%**	_____
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)

Time: _____	**Acceptable Parameters**	**Tester's Initials**
Oxygen: _____% _____%	**>19.5% <23.5%**	_____
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:

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

HAZARDS NOT COMPLETELY ELIMINATED BY ENGINEERING CONTROLS AND SAFETY GEAR REQUIRED (i.e., respirators (specific type), special boots, gloves, suits, eye protection, etc.):

(HAZARD) (SAFETY GEAR)

(HAZARD) (SAFETY GEAR)

(HAZARD) (SAFETY GEAR)

COMMUNICATIONS PROCEDURES:

Note: Acceptable, non-electrical, suggestions include, but are not limited to, predetermined tapping 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.

REQUIREMENT COMPLETED	DATE	TIME	REQUIREMENT COMPLETED	DATE	TIME
Lock Out/De-energize/Try Out			Full Body Harness w/"D" ring		
Lines Broken/Capped/blanked			Emergency Escape Retrieval Equipment		
Purge-Flush & Vent					
Ventilation			Lifelines		
Secure Area (Post & Flag)			Fire Extinguishers		
Breathing Apparatus			Lighting (Explosion Proof)		
Resuscitator-Inhalator			Protective Clothing		
Standby Safety Personnel			Respirator(s) (Air Purifying)		
Hoisting Equipment			Direct reading gas monitor tested		
All electric equipment listed Class I, Division I, Group D			Non-Sparking Tools		
SCBA's for entry & standby			Powered Communications		
Other: _____			Burning & Welding Permit		
Other: _____			Other: _____		

EMERGENCY AND RESCUE PROCEDURES

	YES	NO	N/A
Rescue Procedures will be implemented by Company Employees.	☐	☐	☐
Company Rescue Personnel have had training in:			
a. Use of Personal Protective Equipment.	☐	☐	☐
b. Use of Rescue Equipment.	☐	☐	☐
c. 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.	☐	☐	☐

	YES	NO	N/A
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:

Record of Continuous Monitoring

[The results of continuous monitoring, if applicable, are to be recorded below every two (2) hours.]

TESTS TO BE TAKEN	Permissible Entry Level	TIME/ RESULTS	TIME/ RESULTS	TIME/ RESULTS	TIME/ RESULTS	TESTER'S INITIALS	DATE
PERCENT OF OXYGEN	19.5 to 23.5%	/	/	/	/		
LOWER EXPLOSIVE LIMIT	Under 10%	/	/	/	/		
	* **	/	/	/	/		
	* **	/	/	/	/		
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***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 has 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)

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/**Cal OSHA Guide for Cranes and Derricks in Construction**. Employers and employees, to maintain safe and healthful working conditions, must ensure that:

a. All requirements including prohibitions are met.
b. Manufacturer's instructions are followed.
c. All crane operators have a valid certificate of competency for the specific type of crane that they are operating.
d. Necessary tools, protective equipment, and trainings are provided.
e. Employees comply with all requirements of crane operation and always perform tasks safely.

Below is a summary of the regulatory requirements for cranes and derricks used in construction.

General Requirements

General requirements for cranes and derricks are given in the Subsections within Section 1610 and include:

a. Scope - applies to power operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. 1610.1
b. Design requirements are given in 1610.2 and 4884.
c. Definitions as per 1610.3.
d. Design, construction and testing of cranes and derricks with over

2000 lbs of hoisting/lifting capacity must meet requirements in 1610.4.

e. 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.

f. 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.

g. 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.

h. 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.

i. 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.

Assembly and Disassembly Operations

Section 1611 and its subsections 1611.1 through 1611.5 address all the safety requirements related to assembly and disassembly operations including the following:

a. When assembling or disassembling equipment (or attachments), the employer must comply with all applicable manufacturer prohibitions and requirements in 1611.1.

b. The general requirements for assembly and disassembly operations including supervision, review of procedures, crew instructions, etc. are given in 1611.2.

c. Employers/operators must also follow the requirements for dismantling of booms and jibs as specified in 1611.3.

d. Employer procedures for assembly/ disassembly shall be developed by a qualified person. 1611.4

e. 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.

Power Lines

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:

a. 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.

b. For power lines over 350 kV, the employer shall follow all of the requirements of 1611.5 and 1612.1. See exceptions.

c. 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

d. 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.

Inspections

Requirements for inspections of cranes and derricks are given in T8CCR 1613. Specific requirements include:

a. 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**.

b. Inspections of repaired/adjusted Equipment are subject to the requirements in **1613.2**.

c. Post assembly inspections are subject to the requirements in **1613.3**

d. The inspections done each shift are subject to the requirements in **1613.4**

e. 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**

f. Annual/Comprehensive inspections need to be done as per **1613.6**

g. 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**

h. 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**

i. General inspections must comply with **1613.9**.

j. Inspections of wire ropes are subject to the requirements of **1613.10**.

Wire Rope Selection

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.

Safety Devices and Operational Aids

Requirements for the safety devices and operational aids are given in **1615** and include:

a. Safety devices such as crane level indicator, horn, jib stops, boom stops etc. are required on all equipment unless otherwise specified. **1615.1**

b. 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

Operation

Requirements for the operation of cranes and derricks are given in T8CCR 1616 and include:

a. 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.

b. 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**

c. Work area control including protecting employees in hazardous areas, communication among operators and signal persons shall be followed as per **1616.3**.

d. 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 workspaces 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.

e. 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)**.

f. 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)**

g. 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.

h. 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.

Signals

The general requirements for using signals during the operation of cranes and derricks are given in **1617** and include:

a. 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.

b. The devices transmitting signals shall be tested on site before start of operations and the devices/ signaling shall meet requirements in **1617.2**

c. Follow the additional requirements in **1617.3** for voice signals.

Note: Employees shall not text or talk unless it is for signaling purposes.

Operator Qualification, Training and Certification

The requirements for operator qualification, training and certification are given in 1618 and its subsections. They include:

a. Operator qualifications/certification/in-training must comply with **1618.1**.

b. Make sure that each signal person meets the qualification requirements in **1618.2** prior to giving any signals.

c. Maintenance, inspection, and repair personnel are permitted to operate the equipment only where all of the requirements of **1618.3** are met.

d. 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**.

Supplemental Requirements

T8 CCR **1619** has supplemental requirements for certain types of cranes and derricks. Supplemental requirements include:

a. Section **1619.1** contains supplemental requirements for erecting, climbing, operating, dismantling, and all other operations and devices used regarding tower cranes.

b. The supplemental requirements for derricks, whether temporarily or permanently mounted, are given in **1619.2**.

c. 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.

d. Overhead and gantry cranes, whether permanently or temporarily installed, are subject to the requirements of **1619.4**.

e. The supplemental requirements for dedicated pile drivers are given in **1619.5**.

f. Side-boom cranes mounted on wheel or crawler tractors shall meet all the requirements of **1694(d)**.

g. 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**.

h.

§1670. Personal Fall Arrest Systems, Personal Fall Restraint Systems and Positioning Devices
§1671.1. Fall Protection Plan
§1724. Roofing--General
§1730. Roof Hazards

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.
4. Self-rescue is not required by 29 CFR 1926.502(d)(20).

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, Mark Sandwall 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 suspended height of the person.
    d. Known or suspected injuries.

_____

Mark Sandwall

Safety Manager

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 Mark Sandwall, our Fall Protection Program Administrator.

Duties of the Program Administrator

The duties of Mark Sandwall include:

a. Training of personnel.
b. Random, unannounced job site inspections to assure compliance with both OSHA standards and company safety policies.
c. Resolution of specific problems that may present themselves regarding a particular job site situation.
d. 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 can support both our personnel and equipment.

Mark Sandwall 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 always maintained. 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 several 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.]

CFR: Code of Federal Regulations.

COMPETENT PERSON: one who can identify 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 ***carabiner***, 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, because 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 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 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 6 feet. All employees must be aware that if there is a possibility of falling 6feet 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 6 feet or more above a lower level, shall be protected from falling using guardrail systems, safety net systems, or personal fall arrest systems.

LEADING EDGES:

Each employee who is constructing a leading edge 6 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 6 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 6 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 6 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:

a. 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

b. 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 6 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 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 6 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 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:

Vertical distance from working level to horizontal plane of net.	M*inimum required horizontal distance of outer edge of net from the edge of working surface*
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet but not to exceed 30 feet.	13 feet

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 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 Mark Sandwall 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 Mark Sandwall, 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.

UDC Corporation

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 straight forward, 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:

1041 Kraemer Place

Anaheim, CA 92806

714-630-8580

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 using 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 follow 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.

UDC Corporation

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:

_____
_____
_____
_____
_____
_____
_____
_____

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
(Name(s) of Competent Person)
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:

_____ _____ _____
_____ _____ _____
_____ _____ _____

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).

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 Mark Sandwall, 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, Mark Sandwall, 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 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, no person shall operate one of our trucks unless authorized in writing. Prior to authorization, the operator will have read this program, received training, passed a quiz on truck operations, and been evaluated on operational skills.

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, 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 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.

No riders are allowed on our forklift unless the truck is specifically designed for such use.

Note: Forklifts are generally designed to move product, supplies and equipment, not personnel.

Mark Sandwall 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.

An operator who has lost his authorization to operate a truck will be retrained, reevaluated, and, if appropriate, re-certified.

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 Mark Sandwall 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.

<u>HITTING A PERSON OR OBJECT</u>

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:

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 forklift, 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 can support 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 Mark Sandwall and Jorge Briseno. 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.

Mark Sandwall 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. 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 more than 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 need 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 Jorge Briseno, 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

Jorge Briseno or Mark Sandwall 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.

New truck 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 does not endanger themselves or others.

will ensure that all truck operators have a complete understanding of the below listed topics:

<u>Truck-Related Topics:</u>

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.

Refresher training in relevant topics will be provided to the operator when:

a. If unsafe truck operations are observed.
b. After an accident or near-accident.
c. Operator has received an evaluation that reveals that the operator is not operating the truck safely
d. If the operator is to be assigned to drive a different type of truck.
e. If work area changes could affect safe operation of the truck.

An evaluation of each powered industrial truck operator's performance must be conducted at least once every three years and refresher training will be provided as needed.

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

Per 29 CFR 1926.451(c)(2)(v), 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 forklift 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.

UDC Corporation

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.

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Mark Sandwall

Safety Manager

Hazard Communication

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 workplace in such a manner that employees may be exposed under normal conditions of use or in a reasonably foreseeable emergency resulting from workplace 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:

a. Product identifier
b. Signal word
c. Hazard statement(s)
d. Pictogram(s)
e. Precautionary statement(s)
f. 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.

Example below for labeling:

HS85
Batch number: 85L6543

Warning
Harmful if swallowed

Wash hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. Dispose of contents/container in accordance with local, state and federal regulations.

First aid:
If swallowed: Call a doctor if you feel unwell. Rinse mouth.

GHS Example Company, 123 Global Circle, Anyville, NY 130XX Telephone (888) 888-8888

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, if 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 at UDC Corporation in their work area throughout each work shift. We 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 <u>are not required</u> 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. If we have employees who speak languages other than English, we will add the information to the presented material translated to the appropriate language and the information will be presented in their language.

Note: OSHA pictograms do not replace the diamond shaped labels that the U.S. Department of Transportation (DOT) requires for the transport of chemicals, including chemical drums, chemical totes, tanks, or other containers. Those labels must be on the external part of a shipped container and meet the DOT requirements set forth in 49 CFR 172, Subpart E.

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:

a. Employees shall be informed of the requirements of §5194. Hazard Communication (adopted on May 6, 2013).

b. Employees shall be informed of any operations in their work area where hazardous chemicals are present.

c. 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.

d. 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.).

e. 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.

f. 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:

a. employee name or another identifier
b. training dates
c. type(s) of training
d. training providers

Employees will be informed employees of the right:

a. To personally receive information regarding hazardous substances to which they may be exposed, according to the provisions of this section
b. 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
c. 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.

UDC Corporation

List of Hazardous Chemicals

The Safety Data Sheets for Hazardous Chemicals are in the UDC shop in Anaheim and in all our trucks provided to the Foremen.

Heat Illness Prevention Program

To lessen this threat and to comply with Heat Illness Prevention Standard Title 8 CCR 3395, this program has been prepared.

Our Contact Person/Program Administrator is: Mark Sandwall

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

The following are standard procedures during an emergency:

a. Call 911 or the emergency response number posted on the job site.
b. 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.
c. Provide any medical assistance he/she is trained and certified to do. See basic first aid for heat illness below.
d. **DO NOT** provide any medical assistance he/she is not trained to do.
e. **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 criterion, 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

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 near 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 80ºF, 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 80ºF at the work site. For temperatures above 80ºF, 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 many 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, 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:

a. Establish effective communication by voice, observation, or electronic means.
b. 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:
    1. Supervisor or designee observation of 20 or fewer employees
    2. 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.

    3. Regular communication via radio or cell phone with an employee who is working alone in a distant area
    4. Any other effective means of observation
c. 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.

d. Remind employees to drink water throughout the shift.
e. Conduct pre-shift meetings that cover the following:
    1. Staying hydrated and taking preventative cool-down rests
    2. Identifying the employees who should call for emergency services when needed
    3. Observing employees for signs of heat illness

        Note: Pre-shift meetings can take place via phone or radio for employees who work remotely.

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:

a. Environmental and personal risk factors for heat illness, as well as additional factors like exertion, clothing, and personal protective equipment

b. Our procedures for complying with the Heat Illness Prevention standard

c. 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

d. The importance of acclimatization

e. Different types of heat illness and their common signs and symptoms

f. The importance of reporting to a supervisor the signs and symptoms of heat illness in themselves and others

g. Our procedures for responding to symptoms of heat illness, including how emergency medical services will be provided

h. 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

i. 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. Mark Sandwall will ensure that supervisors are well versed in the hazards of, and prevention of, heat related illnesses.

Supervisor training will focus on:

a. All the information covered in employee training (see above)

b. The procedures he or she is to follow to implement applicable provisions of the program

c. The procedures to follow when an employee displays symptoms of heat illness, including emergency response procedures

d. How to monitor weather reports and how to respond to hot weather advisories.

§3395. Heat Illness Prevention

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 several 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 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 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, adjusting, 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 counterweights, 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. Example: Energy Source: Pneumatic. Magnitude: 125 psi.

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 using a lock. Examples of additional safety measures include, but are not limited to the:

1. Removal of an isolating circuit element.
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 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 using 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 using 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 because of inadvertently induced voltage or unrelated voltage back feed 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.

Shift and/or Personnel Changes

If 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

Mark Sandwall, our Safety Manager, 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 Mark Sandwall other than the person who 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.

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.

UDC Corporation

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: _____

ENERGY SOURCE	MAGNITUDE (Volts; Amps; Phase; HP; Lbs.; RPM; Ft-lbs.; psi.; F/C; Highly Reactive)	LOCATION OF ISOLATING DEVICE	MEANS OF ISOLATION	COMMENTS
CAPACITOR				
CHEMICAL				
COUNTER WEIGHT				
ELECTRICAL				
ENGINE				
FLYWHEEL				
HYDRAULIC				
PNEUMATIC				
SPRING				
THERMAL				
OTHER				
OTHER				

NOTE: This form must be completed by an Authorized Employee.

EVALUATION CONDUCTED BY:

NAME:_____DATE:_____

(MUST BE AN AUTHORIZED EMPLOYEE)

UDC Corporation

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] The energy isolating devices. Lock and tag devices will be color coded and they will contain the identity of the Authorized Employee 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: _____

_____

_____

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:

UDC Corporation

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 Mark Sandwall, our Safety Manager no, complete the below section, sign the form, and return to Mark Sandwall, our Safety Manager

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

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 Mark Sandwall, 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 Mark Sandwall, 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 Mark Sandwall, 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 everyone 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 way 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 Mark Sandwall. 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, 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 on the following page.

§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 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 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 like 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 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 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 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 3

Sound level Duration per day, hours	dBA slow response
8	90
4	95
2	100
1	105
1/2	110

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)=(T(1)divided by L(1))+(T(2)divided by L(2))+ ... + (T(n) divided by 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) = (1/4 divided by 1/2)+(1/2 divided by 2)+(1 1/2 divided by 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.

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 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, 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 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

When purchasing new protective footwear, ensure that it complies with ANSI Z41-1991, “American National Standard for Personal Protection-Protective Footwear.”

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.

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.

UDC Corporation

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 using 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.

_____ _____

Mark Sandwall Date

Personal Protective Equipment
Program Administrator

Personal Protective Equipment - Hearing Conservation

1521 Ear Protection
5096 Exposure Limits for Noise
5097 Hearing Conservation Program

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 time period 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 Mark Sandwall, 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.

PERMISSIBLE NOISE EXPOSURES

Duration per day, hours	Sound level dBA slow response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

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)=(T(1)divided by L(1))+(T(2)divided by L(2))+ ... + (T(n) divided by 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:
110 db A 1/4 hour.
100 db A 1/2 hour.
90 db A 1 1/2 hours.
F(e) = (1/4 divided by 1/2)+(1/2 divided by 2)+(1 1/2 divided by 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, Mark Sandwall 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:

a. 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

b 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 SOUND LEVEL8-hour exposure, would result in the same noise dose as is measured.

Duties of the Program Administrator

The duties of Mark Sandwall, 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.

Mark Sandwall will also be responsible for recordkeeping, testing, and training. Lastly, Mark Sandwall 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 Mark Sandwall. 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:

Sound of:	Approximate Decibels:
Softest sound heard with normal hearing	0 dB
Ordinary speech at conversational distance	65 dB to 70 dB
Telephone dial tone	80 dB
Train whistle at 500 feet	90 dB
Power mower	107 dB
Jet engine at 100 feet	140 dB
Gun Shot	140 dB

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-hour 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 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 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 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:

a. Those employees not using hearing protectors will wear them and be trained in their use and care.
b. 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.

c. 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.

d. The employee will be informed, if necessary, of the need for an ontological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

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, Mark Sandwall 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:

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.
MIDDLE EAR	air filled space that connects outer ear to inner 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 ofthe ear drum.
INNER EAR	transfers sound vibrations to nerveimpulses and sends them to the brain.

Major Components:

Vestibule:	helps maintain balance.
Cochlea:	takes vibrations of the middle ear bones and transfers them into nerve impulses that go 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:	cochlear nerve: connects the cochlea to the brain.
	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 always require hearing protectors, 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 would not 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.

a. All noise level monitoring records.

b All employee exposure measurements.

c. All employee audiometric test records which will include:

1. The employee’s name and job classification.
2. The date of the audiogram.

3. The examiner's name.
4. The date of the last acoustic or exhaustive calibration of the audiometer.
6. The employee's most recent noise exposure assessment.
7. 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.

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, using 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

Mark Sandwall, 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, Mark Sandwall 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 several 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 evaluate the fit of a respirator qualitatively or quantitatively 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 based on 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 Mark Sandwall 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.

Mark Sandwall will rely on 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.3. "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.

      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.

Mark Sandwall 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 Mark Sandwall 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:

Protocol/Fit Test Procedure	Appendix A to 29 CFR 1910.134
a. Isoamyl Acetate	Paragraph B2
Fit Test Procedure	Paragraph B2(b)
b. Saccharin Solution Aerosol	Paragraph B3
Fit Test Procedure	Paragraph B3(b)
c. BitrexTM Solution Aerosol	Paragraph B4
Fit Test Procedure	Paragraph B4(b)
d. Irritant Smoke (Stannic Chloride)	Paragraph B5
Fit Test Procedure	Paragraph B5(c)

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.

Eyeglasses pose special problems when dealing with respirators. Normal eyeglasses, 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 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.

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, Mark Sandwall, 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.

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 to:

a. Prevent entry of contaminated air into the air-supply system.
b. Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg.C) below the ambient temperature.

c. 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.

d. 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.

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.

Mark Sandwall, 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 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:

a. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator’s limitations.
b. 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.
c. 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.
d. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

UDC Corporation

Respiratory Protection Program Evaluation Form

Mark Sandwall, 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:

	Yes	No
Is the respiratory protection program understood?	☐	☐

Problem areas: _____

Corrective action: _____

	Yes	No
Do respirators fit without interfering with job performance?	☐	☐

Problem areas: _____

Corrective action: _____

	Yes	No
Are respirators being properly maintained?	☐	☐

Problem areas: _____

Corrective action: _____

	Yes	No
Are appropriate respirators selected for the hazard?	☐	☐

Problem areas: _____

Corrective action: _____

_____ _____

(Signature of Person performing evaluation) (Date)

Note: Retain only the latest evaluation.

UDC Corporation

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:

UDC Corporation
Mark Sandwall
1041 Kraemer Place
Anaheim, CA 92806
714-630-8580

UDC Corporation

Medical Opinion for Respirator Wear

_____
(Date)

_____
(Applicant's Name)

_____
(Applicant's SSN)

Return this form to:

UDC Corporation
Mark Sandwall
1041 Kraemer Place
Anaheim, CA 92806
714-630-8580

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)

UDC Corporation

Respirator Fit Test Summary

Name of employee:_____SSN: _____

Date of Testing:_____Test Conducted By: _____

Respirator(s) Selected: _____ _____
(Manufacturer) **(Model/Series)**

☐ Pass

_____ _____

☐ Fail **(Respirator Size)** **(NIOSH Certification #)**

Respirator(s) Selected: _____ _____
(Manufacturer) **(Model/Series)**

☐ Pass

_____ _____

☐ Fail **(Respirator Size)** **(NIOSH Certification #)**

Respirator(s) Selected: _____ _____
(Manufacturer) **(Model/Series)**

☐ Pass

_____ _____

☐ Fail **(Respirator Size)** **(NIOSH Certification #)**

Testing Agent (Protocol): Circle One

a. Isoamyl Acetate Protocol. (Banana Oil)

b. Saccharin Solution Aerosol Protocol. (Saccharin Taste)

c. BitrexTM 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 face-piece seal.
d. There have 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.

UDC Corporation

Record of Inspection

EMERGENCY/UNASSIGNED RESPIRATORS

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.

DATE	SIGNATURE OF INSPECTOR	NOTES

Note: Only the latest record must be retained.

Scaffolds

Article 22 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 planks.

Employees are not authorized to build or dismantle scaffolds on any jobsite. Only certified scaffold erectors are allowed to do this. After the scaffold erectors have signed off the scaffold signifying the scaffold is complete and ready for use, the UDC Safety Manager will inspect it completely before anyone is allowed to use it. The scaffold must have a signed scaffold tag at each access ladder. If there is a red tag, do not use the scaffold. If there is a yellow tag, the scaffold may be used, but with restrictions. If there is a green tag, the scaffold may be used with no restrictions.

Definitions

There are several 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 more than 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 can support 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 using 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:

INSULATED POWER LINES		
Voltage	Minimum Distance	Alternatives
Less than 300 volts	3 feet	
300 volts to 50 kV	10 feet	
More than 50 kV	10 feet plus 0.4” for each 1 kV over 50 kV	2 X’s the length of the line insulator, but never less than 10 feet

UNINSULATED POWER LINES		
Voltage	Minimum Distance	Alternatives
Less than 50 kV	10 feet	
More than 50 kV	10 feet plus 0.4” for each 1 kV over 50 kV	2 X’s the length of the line insulator, but never less than 10 feet

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:

SCAFFOLD TYPE	FALL PROTECTION REQUIREMENTS
Boatswains' Chair, Catenary Scaffold, Float Scaffold, Needle Beam Scaffold, Ladder Jack Scaffold	Personal Fall Arrest System
Single-Point Adjustable, Suspension Scaffold, and a Two-Point Adjustable Suspension Scaffold	Personal Fall Arrest System and a *Guardrail System
Crawling Board (Chicken Ladder)	Personal Fall Arrest System: *Guardrail System or a ¾" diameter grabline or equivalent handhold securely fastened beside each crawling board.
Self-Contained Adjustable Scaffold	*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.
Walkway Located within a Scaffold	*Guardrail System installed within 9½" of and along at least one side of the Walkway.
Supported Scaffolds used while performing Overhand Bricklaying	Personal Fall Arrest System or a *Guardrail System (except at the side next to the wall being laid.)
All Other Scaffolds not specified above	Personal Fall Arrest System and a *Guardrail System
*Guardrail Systems must have a minimum 200-pound top rail capacity.	

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:

        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:

        i. Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold shall be at least 12 inches wide.

        ii. There is no minimum width for boatswain's chairs.

        iii. 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:

        i. For outrigger scaffolds, the maximum distance from the face of the work shall be 3 inches.

        ii. 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 can 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 if 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.

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 barricaded 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. Toeboards will be erected above high traffic areas and above doorways and/or entrances/exits.

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.

Stair towers, if used, must have the bottom step within 24 inches of the supporting level and have

a. A top rail 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. The ladder or stairway 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.

Employees are prohibited from erecting, disassembling, or repairing scaffolds unless given prior approval from the Safety Manager.

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.