Millerick Engineering, Inc.

Injury and Illness Prevention Program
[High Hazard]

Prepared by:
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in association with:
U.S. Compliance Systems, Inc.
dba OWYN Safety

This Injury and Illness Prevention Program is current as of: 1/6/2025

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Millerick Engineering, Inc.

Policy Statements

This policy will be in effect until February 3rd, 2025, and recordkeeping will apply until February 3rd, 2026.

All employees of must adhere to the following COVID-19 Prevention Program requirements, except under the following circumstances:

a. Work locations with one employee who does not have contact with other people.
b. Employees working from home.
c. Employees with occupational exposure as defined by section 5199 - Aerosol Transmissible Diseases.

Note: Maintenance, renovation, service, or repair operations involving air handling systems or equipment or building areas that may reasonably be anticipated to be contaminated with aerosol transmissible pathogens (ATPs) or ATPs-L, including:

a. Areas in which Airborne Infectious Disease (AirID) cases and suspected cases are treated or housed.
b. Air handling systems that serve airborne infection isolation rooms or areas (AIIRs).
c. Equipment such as laboratory hoods, biosafety cabinets, and ventilation systems that are used to contain infectious aerosols.
d. Employees teleworking from a location of the employee's choice, which is not under the control of Millerick Engineering, Inc..

Employees may have to follow more protective or stringent state or local health department mandates or guidance than described below in our COVID-19 Prevention Program.

Definitions

The following definitions apply to this COVID-19 Prevention Program.

Close contact means the following, unless otherwise defined by regulation or order of the California Department of Public Health, in which case the CDPH definition shall apply:

a. In indoor spaces of 400,00 or fewer cubic feet per floor, a close contact is defined as sharing the same indoor airspace as a COVID-19 case for a cumulative total of 15 minutes or more over a 24-hour period during COVID-19 case's infectious period, as defined by this section, regardless of the use of face coverings.
b. In indoor spaces greater than 400,000 cubic feet per floor, a close contact is defined as being within 6 feet of the COVID-19 case for a cumulative total of 15 minutes or more over a 24-hour period during the COVID-19 case's infectious period, as defined by this section, regardless of the use of face coverings.
c. Offices, suites, rooms, waiting areas, break or eating areas, bathrooms, or other spaces that are separated by floor-to-ceiling walls shall be considered distinct indoor spaces.

Exception: Employees have not had close contact if they wore a respirator required by the employer and used in compliance with section 5144 whenever they would otherwise have had a close contact under subsections 3205(b)(1)(A) or (b)(1)(B).

COVID-19 (Coronavirus Disease 2019) means the disease caused by SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2).

COVID-19 Case means a person who:

a. Has a positive “COVID-19 test”; or
b. Has a positive COVID-19 diagnosis from a licensed health care provider; or
c. Is subject to a COVID-19-related order to isolate issued by a local or state health official; or
d. Has died due to COVID-19, in the determination of a local health department or per inclusion in the COVID-19 statistics of a county.

COVID-19 Hazard means potentially infectious material that may contain SARS-CoV-2, the virus that causes COVID-19. Potentially infectious materials include airborne droplets, small particle aerosols, and airborne droplet nuclei, which most commonly result from a person or persons exhaling, talking or vocalizing, coughing, sneezing or from procedures performed on persons which may aerosolize saliva or respiratory tract fluids. This also includes objects or surfaces that may be contaminated with SARS-CoV-2.

COVID-19 Symptoms means a fever of 100.4 degrees Fahrenheit or higher, chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, or diarrhea, unless a licensed health care professional determines the person's symptoms were caused by a known condition other than COVID-19.

COVID-19 Test means a test for SARS-CoV-2 that is:

a. Cleared, approved, or authorized, including in an Emergency Use Authorization (EUA), by the United States Food and Drug Administration (FDA) to detect current infection with the SARS-CoV-2 virus (e.g., a viral test).
b. Administered in accordance with the authorized instructions; and
c. To meet the return-to-work criteria set forth in subsection 3205(c)(5), a COVID-19 test may be both self-administered and self-read on if another means of independent verification of the results can be provided (e.g., a time-stamped photograph of the results).

Exposed Group means all employees at a work location, working area, or a common area at work, where a COVID-19 case was present at any time during the high-risk exposure period. Common areas at work include bathrooms, walkways, hallways, aisles, break or eating areas and waiting areas. The following exceptions apply:

a. For the purpose of determining the exposed group, a place where persons momentarily pass through while everyone is wearing face coverings, without congregating, is not a work location, working area, or a common area at work.
b. If the COVID-19 case was part of a distinct group of employees who are not present at the workplace at the same time as other employees, for instance a work crew or shift that does not overlap with another work crew or shift, only employees within that distinct group are part of the exposed group.
c. If the COVID-19 case visited a work location, working area, or a common area at work for less than 15 minutes during the high-risk exposure period, and the COVID-19 case was wearing a face covering during the entire visit, then other people at the work location, working area, or common area are not part of the exposed group.

Note: An exposed group may include the employees of more than one employer.

Face Covering means a surgical mask, a medical procedure mask, a respirator worn voluntarily, or a tightly woven fabric or non-woven material of at least two layers (i.e., fabrics that do not let light pass through when held up to a light source) that completely covers the nose and mouth and is secured to the head with ties, ear loops, or elastic bands that go behind the head. If gaiters are worn, they will have two layers of fabric, or be folded to make two layers. A face covering is a solid piece of material without slits, visible holes, or punctures, and must fit snugly over the nose, mouth and chin with no large gaps on the outside of the face. A face covering does not include a scarf, ski mask, balaclava, bandana, turtleneck, collar, or single layer of fabric.

This definition includes clear face coverings or cloth face coverings with a clear plastic panel that, despite the non-cloth material allowing light to pass through, otherwise meet this definition and which may be used to facilitate communication with people who are deaf or hard-of-hearing or others who need to see a speaker's mouth or facial expressions to understand speech or sign language respectively.

Infectious Period means the following time period, unless otherwise defined by CDPH regulation or order, in which case the CDPH definition shall apply:

a. For COVID-19 cases who develop COVID-19 symptoms, from two days before the date of symptom onset until:
    1. Ten days have passed after symptoms first appeared, or through day five if testing negative on day five or later; and
    2. Twenty-four hours have passed with no fever, without the use of fever-reducing medications, and symptoms have improved.
b. For COVID-19 cases who never develop COVID-19 symptoms, from two days before the positive specimen collection date through 10 days (or through day five if testing negative on day five or later) after the date on which the specimen for their first positive test for COVID-19 was collected.

Respirator means a respiratory protection device approved by the National Institute for Occupational Safety and Health (NIOSH) to protect the wearer from particulate matter, such as an N95 filtering facepiece respirator.

Returned case means a COVID-19 case who was excluded from work but returned pursuant to subsection 3205(c)(5)(A) and did not develop any COVID-19 symptoms after returning. A person shall only be considered a returned case for 30 days after the initial onset of COVID-19 symptoms or, if the person never developed COVID-19 symptoms, for 30 days after the first positive test. If a period other than 30 days is required by a CDPH regulation or order, that period shall apply.

Worksite, for the limited purposes of COVID-19 prevention regulations only, means the building, store, facility, agricultural field, or other location where a COVID-19 case was present during the infectious period. It does not apply to an employer’s buildings, floors, or other locations where a COVID-19 case did not enter.

Written COVID-19 Prevention Program

Millerick Engineering, Inc. has established, implemented, and maintains an effective COVID-19 Prevention Program. Our program may be integrated into our Injury and Illness Prevention Program or be maintained in a separate document.

We will allow employees and their representative(s) to participate in the evaluation, identification, and prevention of COVID-19 hazards.

Application of Section 3203

When determining ways to prevent the transmission of COVID-19 and how to identify and correct COVID-19 hazards, Millerick Engineering, Inc. will consider all persons to be potentially infectious, regardless of symptoms, vaccination status, or negative COVID-19 test results.

When deciding ways to prevent Covid-19 transmission and to identify and correct COVID-19 hazards, Millerick Engineering, Inc. will review applicable orders and guidance related to COVID-19 from the State of California and the local health department with jurisdiction over the workplace and will treat COVID-19 as an airborne infectious disease. Prevention controls include remote work, physical distancing, reducing the density of people indoors, moving indoor tasks outdoors, implementing separate shifts and/or break times, restricting access to the work area, and any additional measures necessary to prevent transmission of COVID-19.

All Millerick Engineering, Inc. employees will receive COVID-19 training in accordance with subsection 3203(a)(7).

Procedures for investigating COVID-19 illnesses in the workplace, as required by 3203(a)(5), will include the following:

a. Millerick Engineering, Inc. will determine the day and time a COVID-19 case was last present and, to the extent possible, the date of the positive COVID-19 test(s) and/or diagnosis, and the date the COVID-19 case first had one or more COVID-19 symptoms, if any were experienced.
b. Millerick Engineering, Inc. will effectively identify and respond to persons with COVID-19 symptoms at the workplace. Employees will be encouraged to report COVID-19 symptoms and to stay at home when ill.

Millerick Engineering, Inc. will respond to COVID-19 cases at the workplace with the following methods and/or procedures:

a. Millerick Engineering, Inc. will immediately exclude from the workplace all COVID-19 cases and employees excluded under section 3205.1. The following requirements will be applicable:
    1. COVID-19 cases who do not develop COVID-19 symptoms will not return to work during the infectious period.
    2. COVID-19 cases that develop COVID-19 symptoms will not return to work during the shorter of the following: infectious period; or through 10 days after the first symptoms and at least 24 hours have passed since a fever of 100.4 degrees Fahrenheit or higher has been resolved without the use of fever-reducing medication.
    3. Regardless of vaccination status, previous infection, or lack of COVID-19 symptoms, a COVID-19 case shall wear a face covering in the workplace until 10 days have passed since the date COVID-19 symptoms first began or, if the person did not have COVID-19 symptoms, from the date of their first positive COVID-19 test.
    4. The requirements of 3205(c)(5)(A)1. And (c)(5)(A)2. apply regardless of whether an employee has previously been excluded or other precautions were taken in response to an employee’s close contact or membership in an exposed group.

b. Millerick Engineering, Inc. will review current CDPH guidance for employees who had close contacts, including any guidance regarding quarantine or other measures to be taken to reduce transmission. We will continue to develop, implement, and maintain effective policies to prevent the transmission of COVID-19 by those persons who had close contact.
c. If an employee is ordered to isolate, quarantine, or exclude from work by a local or state health official, the employee will not return to work until the period of isolation or quarantine is completed or the order if lifted.
d. If no violations of local or state health official orders for isolation, quarantine, or exclusion would result, the Division, upon request, may allow employees to return to work on the basis that the removal of an employee would create undue risk to the community's health and safety. In such cases, Millerick Engineering, Inc. will develop, implement, and maintain effective control measures to prevent transmission in the workplace including providing isolation for the employee at the workplace and, if isolation is not feasible, the use of respirators in the workplace.
e. If an employee is excluded from the workplace based on COVID-19 or a close contact, we will provide the employee with information regarding COVID-19 related benefits that the employee may be entitled to under applicable federal, state, or local laws. This includes any benefits available under legally mandated sick leave, if applicable, workers' compensation law, government requirements, our own leave policy, and leave guaranteed per contract.

Testing of Close Contacts

We will make COVID-19 tests available at no cost, during paid time, to all of our employees who may have had a close contact in the workplace, with the exception of returned cases as defined in subsection 3205(b)(11) and provide them with the information on benefits described in 3025(c)(5)(E).

Notice of COVID-19 Cases

Millerick Engineering, Inc. will inform all employees and independent contractors who had a close contact, as well as any employer whose employee had a close contact. Notice will be given as soon as possible, and in no case longer than the time required to ensure that the exclusion requirements of subsection 3205(c)(5)(A) are met.

When Labor Code section 6409.6 or any successor law is in effect, we will provide notice of a COVID-19 case, in a form readily understandable to employees. Notice will be given to all employees, employers, and independent contractors at the worksite in accordance with the applicable law.

When Labor Code section 6409.6 or any successor law is in effect, we will provide notice in accordance with the applicable law to the authorized representative, if any, of the COVID-19 case and of any employees who had a close contact. We will also provide in accordance with applicable law to the authorized representative, if any, of all employees on the premises at the same worksite as the COVID-19 case during the infectious period.

Face Coverings

Millerick Engineering, Inc. will provide face coverings and ensure they are worn by all employees when required by a CDPH regulation or order. When a CDPH regulation or order requires face coverings indoors, that also includes spaces within vehicles. Face coverings will be clean, undamaged, and worn over the mouth and nose.

When employees are required to wear face coverings under this section or section 3205.1 through 3205.3, the following exception apply:

a. When an employee is alone in a room or vehicle.
b. When eating or drinking at the workplace, as long as employees are at least six feet apart and, if indoors, the supply of outside or filtered air is being maximized to the extent feasible.
c. When employees are required to wear respirators and are used in compliance with section 5144.
d. Employees who are unable to wear face coverings due to a medical or mental condition or disability, or who are hearing-impaired or communicating with a hearing-impaired person. These employees will wear an effective non-restrictive alternative, such as a face shield with a drape on the bottom, if condition or disability allows it.
e. During tasks that cannot feasibly be performed while wearing a face covering. This exception is limited to the time period while the task(s) is/are actually being performed.

Respirators

Millerick Engineering, Inc. will provide employees who are working indoors or in a vehicle with one or more persons with respirators for voluntary use upon request. The voluntary use will be in compliance with subsection 5144(c)(2). When respirators are provided for voluntary use, we will encourage them to be used and ensure that employees are provided with a respirator of the appropriate size. Employees will be trained how to properly wear their respirator, perform a seal check per the manufacturer's instructions before each use, and how facial hair interferes with the seal of the respirator.

Ventilation

For all indoor workspaces, Millerick Engineering, Inc. will use the CDPH and the Division guidance for proper ventilation. "Interim Guidance for Ventilation, Filtration, and Air Quality in Indoor Environments" will be one resource used to determine the best ventilation practices.

We will use at least one of the following methods to ensure proper ventilation:

a. Maximize the amount of outside air by opening doors and windows. This method cannot be used if the EPA AQI is greater than 100 for any pollutant or if opening doors and windows or maximizing outdoor fresh air another way will cause a different hazard to employees, such as excessive heat or cold.
b. When working in buildings and structures with mechanical ventilation, air will be circulated through a filter with a Minimum Efficiency Reporting Value (MERV)-13, or the highest level of filtration efficiency compatible with the existing mechanical ventilation system.

c. We will use High Efficiency Particulate Air (HEPA) filtration units in accordance with manufacturers' recommendations in indoor areas occupied by employees for extended periods when ventilation is inadequate to reduce the risk of COVID-19 transmission.

When required to follow section 5142 or 5143, we will comply with those sections, as applicable.

Note: Section 5142 requires heating, ventilating, and air-conditioning (HVAC) systems to be operated continuously during working hours, with limited exceptions.

In vehicles, we will maximize the supply of outside air to the extent feasible, except when doing so would cause a hazard to employees or expose them to inclement weather.

Workplaces subject to section 3205.1 after February 3, 2023, will continue to comply with the ventilation requirements of subsection 3205.1(f) even after the outbreak has passed and section 3205.1 is no longer applicable.

Aerosolizing Procedures

When employees are in a work setting that is exempt from section 5199 in accordance with the conditions in subsection 5199(a)(2)(B), who are exposed to procedures that may aerosolize potentially infectious material such as saliva or respiratory tract fluid, we will evaluate the need for respiratory protection to prevent COVID-19 transmission under section 5144 and will comply with that section.

Reporting and Recordkeeping

We will keep record of and track all COVID-19 cases with the employee's name, contact information, occupation, location where the employee worked, the date of the last day at the workplace, and the date of the positive COVID-19 test and/or COVID-19 diagnosis. The records will be retained for two years beyond the time period in which the record is necessary to meet requirements of this section or sections 3205.1 through 3205.3.

We will retain all notices required by subsection 3205(e) in accordance with Labor Code section 6409.6 or any successor law.

Personal identifying information of COVID-19 cases or persons with COVID-19 symptoms, and any employee medical records required by this section or by sections 3205.1 through 3205.3, will be kept confidential unless disclosure is required or permitted by law. Unredacted information about COVID-19 cases will be provided to the local health department with jurisdiction over the workplace, CDPH, the Division, and NIOSH immediately upon request and when required by law.

Orders

Pursuant to title 8, section 332.3, the Division may require us to take additional actions to protect employees against COVID-19 hazards through the issuance of an Order to Take Special Action.

3205.1 COVID-19 Outbreaks

Scope

The following applies until February 3, 2025

a. The following section applies to all workplaces covered by section 3205 if three or more employee COVID-19 cases within an exposed group, as defined by subsection 3205(b)(7), visited the worksite during the infectious period at any time during a 14 day period, unless a California Department of Public Health (CDPH) regulation or order defines an outbreak using a different number of COVID-19 cases and/or a different time period, in which case this section applies when the number of cases at the worksite constitutes an outbreak under CDPH's definition.

b. This section will continue to be implemented until there are one or no new COVID-19 cases detected in the exposed group for a 14-day period.

COVID-19 Testing

Immediately upon implementing this section, we will make COVID-19 testing available at no cost to its employees within the exposed group, regardless of vaccination status, during employees' paid time, except for returned cases and employees who were not present at the workplace during the relevant 14-day period(s) under subsection 3205.1(a).

We will then make testing available on a weekly basis to all employees in the exposed group who remain at the workplace.

Employees who had close contacts will have a negative COVID-19 test taken within three to five days after the close contact or will be excluded and follow the return-to-work requirements of subsection 3205(c)(5) starting from the date of the last known close contact.

Face Coverings

Employees who are part of the exposed group, regardless of vaccination status, will wear face coverings when indoors, or when outdoors and unable to maintain a six-foot separation from other workers, unless one of the exceptions in subsection 3205(f)(2) applies.

Respirators

We will notify employees of their right to request and receive a respirator for voluntary use under subsection 3205(g).

COVID-19 Investigation, Review, and Hazard Correction

Millerick Engineering, Inc. will conduct a review of potentially relevant COVID-19 policies, procedures, and controls and implement changes as needed to prevent further spread of COVID-19 when this section initially applies and periodically thereafter. The review will be documented and include the following:

a. Investigation of new or unabated COVID-19 hazards including our company leave policies and practices and whether employees are discouraged from remaining home while sick; our COVID-19 testing policies; insufficient supply of outside air to indoor workplaces; insufficient air filtration; and insufficient physical distancing.

b. The review will be updated every 30 days while this section is being implemented, in response to new information or to new or previously unrecognized COVID-19 hazards, or when otherwise necessary.
c. All changes implemented to reduce the transmission of COVID-19 based on the investigation and review, which may include moving indoor tasks to outdoors spaces or having them performed remotely; increasing the supply of outside air while working indoors; improving air filtration; increasing physical distancing to the extent feasible; requiring respiratory protection in compliance with section 5144; and any other applicable controls.

Ventilation

In buildings and structures with mechanical ventilation, we will filter recirculated air with Minimum Efficiency Reporting Value (MERV)-13 or higher efficiency filters if compatible with the ventilation system. If MERV-13 or higher filters are not compatible with the ventilation system, we will use filters with the highest compatible filtering efficiency. We will use High Efficiency Particulate Air (HEPA) air filtration units in accordance with the manufacturers' recommendations in indoor areas occupied by employees for extended periods, where ventilation is inadequate to reduce the risk of COVID-19 transmission.

Major Outbreaks

When there are 20 or more employee COVID-19 cases in an exposed group, as defined by subsection 3205(b)(7), visited the worksite during the infectious period within a 30-day period, we will do the following while section 3205.1 applies:

a. The COVID-19 testing described in subsection 3205.1(b) will be required for all employees in the exposed group, regardless of vaccination status, twice a week or more frequently if recommended by the local health department with jurisdiction over the workplace. Employees in the exposed group will be tested or will be excluded and follow the return-to-work requirements of subsection 3205(c)(5).
b. We will report the outbreak to the Division. This subsection will not limit our obligation to report employee deaths, serious injuries, or serious illnesses when required by subsection 342(a).
c. We will provide respirators for voluntary use in compliance with subsection 5144(c)(2) to employees in the exposed group, will encourage their use, and will train employees provided respirators for voluntary use, as set forth in subsection 3205(g)
d. All employees in the exposed group who are not wearing respirators that we require to be used in compliance with section 5144 will be separated from other persons by at least six feet, except where we can demonstrate that at least six feet of separation is not feasible, and except for momentary exposure while persons are in movement. Methods of physical distancing include: telework or other remote work arrangements; reducing the number of persons in an area at one time, including visitors; visual cues such as signs and floor markings to indicate where employees and others should be located or their direction and path of travel; staggered arrival, departure, work, and break times; and adjusted work processes or procedures, such as reducing production speed, to allow greater distance between employees. When it is not feasible to maintain a distance of at least six feet, individuals will be as far apart as possible.

3205.2 COVID-19 Prevention in Employer-Provided Housing

Scope

This section applies to employer-provided housing until February 3, 2025. Employer-provided housing is any place or area of land, any portion of any housing accommodation, or property upon which a housing accommodation is located, consisting of living quarters, dwelling, boardinghouse, tent, bunkhouse, maintenance-of-way car, mobile home, manufactured home, recreational vehicle, travel trailer, or other housing accommodations. Employer-provided housing includes a “labor camp” as that term is used in title 8 of the California Code of Regulations or other regulations or codes. Our employer-provided housing may be maintained in one or more buildings or one or more sites, including hotels and motels, and the premises upon which they are situated, or the area set aside and provided for parking of mobile homes or camping. Employer-provided housing is housing that is arranged for or provided by our company, other person, or entity to workers, and in some cases to workers and persons in their households, in connection with the workers’ employment, whether or not rent or fees are paid or collected.

The following exceptions apply:

a. This section does not apply to housing provided for the purpose of emergency response, including firefighting, rescue, and evacuation, and support activities directly aiding response as utilities, communications, and medical operations, if:
    1. The company is a government entity; or
    2. The housing is provided temporarily by a private employer and is necessary to conduct emergency response operations.
b. This section does not apply to housing in which all residents maintain a household together prior to residing in employer-provided housing, such as family members.
c. This section does not apply to employees with occupational exposure as defined by section 5199, when covered by that section.
d. This section does not apply to employer-provided housing used exclusively to house COVID-19 cases or where a housing unit houses one employee.

Assignment of Housing Units

To the extent feasible, we will assign housing to cohorts that travel and work together, separate from other workers. To the extent feasible, residents who usually live together will be housed in a single housing unit without other people.

Ventilation

In housing units, we will maximize the quantity and supply of outdoor air and increase filtration efficiency to the highest level compatible with the existing ventilation system. If there is not a Minimum Efficiency Reporting Value (MERV)-13 or higher in use, portable or mounted High Efficiency Particulate Air (HEPA) filtration units will be used, to the extent feasible, in all sleeping areas.

Face Coverings

We will provide face coverings to all residents and provide information to residents on when they should be used in accordance with state or local health department orders or guidance.

Reporting Systems

We will encourage residents to report any COVID-19 symptoms to their supervisor.

COVID-19 Testing

We will establish, implement, and maintain effective policies and procedures for COVID-19 testing of residents who had close contact or COVID-19 symptoms. These policies and procedures will be communicated to the residents.

COVID-19 Cases and Close Contacts

We will effectively isolate COVID-19 cases from all residents who are not COVID-19 cases, for the period established by subsection 3205(c)(5)(A). Effective isolation will include housing COVID-19 cases only with other COVID-19 cases and providing COVID-19 case residents with a sleeping area and bathroom that is not shared by non-COVID-19 case residents.

We will effectively quarantine residents who have had a close contact from all other residents, in accordance with subsection 3205(c)(5)(B). Effective quarantine will include providing residents who had a close contact with a private bathroom and sleeping area.

3205.3 COVID-19 Prevention in Employer-Provided Transportation

Scope

This section applies until February 3, 2025, to employer-provided motor vehicle transportation to and from work, during the course and scope of employment, which is provided, arranged for, or secured by our company regardless of the travel distance or duration involved, with the following exceptions:

a. Employees alone in a vehicle, employees taking public transportation, or vehicles in which the driver and passenger are from the same household outside of work, not subject to section 3205.2.
b. Employer-provided transportation necessary for emergency response, including firefighting, rescue, and evacuation, and support activities directly aiding response such as utilities, communications, and medical operations.
c. Employees with occupational exposure as defined by section 5199, when covered by that section.

We will comply with the requirements of 3205 within a vehicle and shall respond to a COVID-19 case within the vehicle in accordance with the requirements of that section.

Assignment of Transportation

To the extent feasible, we will assign transportation such that cohorts travel and work together, separate from other workers. To the extent feasible, employees who usually live together will travel together.

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 (click here).

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. Recordkeeping

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 & perform individual tasks in a safe manner, but also that they are aware of their surroundings & 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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Christopher Millerick

Safety Director

Millerick Engineering, Inc.

New Hire Safety Orientation Policy Statement

Christopher Millerick, the safety director at Millerick Engineering, Inc., or a designated competent person, will ensure that all new hires are aware of the accessibility of the 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 Acknowledgement form which states:

> I have read and understand the contents of the Millerick Engineering, Inc. 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 the workplace supervisor or competent person 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 the address below and is available for my review:
>
> PO Box 3338
>
> Turlock, CA 95381
>
> 2099857750

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

Lastly, all new hires will be informed of the importance of the inspection and enforcement policies and procedures of Millerick Engineering, Inc..

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Christopher Millerick

Safety Director

Millerick Engineering, Inc.

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.

_____

Christopher Millerick

Safety Director

Millerick Engineering, Inc.
Section I
General Policies & Procedures

Standards:

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

Code of Safe Practices

Below are core safety rules that apply in all situations:

a. Never do anything that is unsafe for any reason. If an unsafe condition is found, report it to your supervisor.
b. Do not remove or disable any safety device. Keep all guards in place at all times on operating machinery, equipment, and power tools.
c. Do not perform any work task unless trained prior to initial assignment.
d. Never operate a piece of equipment unless trained and authorized.
e. Use your personal protective equipment whenever it is required.
f. Obey all safety warning signs.
g. Working under the influence of alcohol or illegal drugs or using them at work is prohibited.
h. Do not bring firearms or explosives on to company property or on to any job site.
i. Horseplay, running, and fighting is prohibited.
j. Clean up spills immediately.
k. Replace all tools and supplies after use.
l. Do not allow debris to accumulate. Practice good housekeeping.
m. Walk-around safety inspections will be conducted at the beginning of each job and at least weekly thereafter.
n. Foremen will insist on employees observing and obeying every rule, regulation, and order as is necessary to the safe conduct of the work and will take such action as is necessary to obtain observance.
o. All employees will be given frequent accident prevention instructions. Instructions will be given at least every 10 working days. When applicable, the accident prevention instructions will also include specific instruction on the safe use, care and maintenance of fall protection equipment (i.e. fall arrest systems, positioning device systems, safety nets, etc.) used at the jobsite.
p. Work will be well planned and supervised to prevent injuries in the handling of materials and in working together with equipment.
q. Employees will not enter manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter.
r. All injuries will be reported promptly to the foreman or superintendent so that arrangements can be made for medical or first aid treatment.
s. When lifting heavy objects, the large muscles of the leg instead of the smaller muscles of the back will be used.
t. Inappropriate footwear or shoes with thin or badly worn soles will not be worn.
u. Employees will cleanse thoroughly after handling hazardous substances and follow special instructions from authorized sources.

v. No burning, welding, or other source of ignition will be applied to any enclosed tank or vessel, even if there are some openings, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the foreman or superintendent.

w. Any damage to scaffolds, falsework, or other supporting structures will be immediately reported to the foreman and repaired before use.

Below are core safety rules that apply to the use of tools and equipment:

a. All tools and equipment will be maintained in good condition.

b. Damaged tools or equipment will be removed from service and tagged "DEFECTIVE."

c. Only appropriate tools will be used for the job.

d. Wrenches will not be altered by the addition of handle-extensions or "cheaters.'·

e. Files will be equipped with handles and not used to punch or pry.

f. A screwdriver will not be used as a chisel.

g. Portable electric tools will not be lifted or lowered by means of the power cord. Ropes will be used.

h. Electric cords will not be exposed to damage from vehicles.

i. In locations where the use of a portable power tool is difficult, the tool will be supported by means of a rope or similar support of adequate strength.

Below are core safety rules that apply to the use of machinery and vehicles:

a. Only authorized persons will operate machinery or equipment.

b. Loose or frayed clothing, or long hair, dangling ties, finger rings, etc., will not be worn around moving machinery or other sources of entanglement.

c. Machinery will not be serviced, repaired or adjusted while in operation, nor will oiling of moving parts be attempted, except on equipment that is designed or fitted with safeguards to protect the person performing the work.

Copies of our Code of Safe Practices will be posted on job sites.

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 7, General Industry Safety Orders (GISO). These orders establish minimum occupational safety & health standards that apply to all places of employment in California. Fourteen (14) additional specific Safety Orders which, if applicable to our facility/operations, take precedence over the GISO that are found in other subchapters (click here). 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.

Safety demands a commitment from all personnel within Millerick Engineering, Inc.. 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.

Christopher Millerick, our Safety Director, 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.

Employee Access to our IIPP

All employees will be allowed the right and opportunity to examine and receive a copy of our IIPP. Access will be provided in a reasonable time, place, and manner no later than 5 business days after the request for access is received from an employee or their designated representative.

Note: A designated representative is any individual, or organization, who is given written authorization to exercise the right of access. A recognized or certified collective bargaining agent will be automatically treated as a designated representative for the purpose of access to our IIPP.

The written authorization to request a copy must contain the following information:

a. **The name and signature of the employee authorizing a designated representative to access our IIPP on the employee's behalf;**
b. **The date of the request;**
c. **The name of the designated representative (individual or organization) authorized to receive our IIPP on the employee's behalf; and**
d. **The date upon which the written authorization will expire (if less than one (1) year).**

Access to our IIPP will be provide by one of the following:

a. A printed copy of our IIPP will be provided, unless the employee or designated representative agrees to receive an electronic copy.

   Note: One printed copy will be provided free of charge. If additional copies are requested within 1 year of the previous request, and our program has not been updated with new information since the prior copy was provided, we may charge reasonable, non-discriminatory reproduction costs for the additional copies.

   OR

b. Unobstructed access will be provided through a company server or website, which allows an employee to review, print, and email the current version of our IIPP. 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.

The IIPP provided to the employee or designated representative does not need to include any of the records associated with the written program. However, employees and collective bargaining agents may collectively bargain to obtain access to additional information.

If we have distinctly different and separate operations with distinctly separate and different IIPPs, access will be limited to the IIPP (or IIPPs) applicable to the employee requesting it.

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 a cooler!

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 Director

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

Additionally, duties of the safety director 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 Director is Christopher Millerick.

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 our 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 Tayla Millerick.

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 from each manager and supervisor.

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 Director, Christopher Millerick, or by leaving a sealed envelope containing the concern on the Safety Director's desk.

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 of 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 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, they are also documented on our enforcement forms.

Subcontractor Involvement & Responsibilities

It is the responsibility of Millerick Engineering, Inc. 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 Millerick Engineering, Inc. 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 the course of work:

a. Which employer's employees may be exposed to the hazard (the exposing employer);
b. Which employer actually 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 actually 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, Millerick Engineering, Inc. 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, , 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 will be performed by the following competent observer(s) in the following areas of our workplace:

Competent Observer	Area
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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 will 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

All employees will read, or have read to them, the OSHA Booklet 3071 - Job Hazard Analysis and use the information contained therein to complete our Job Task Safety Analysis form.

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

Additionally, training will be provided:

a. An employee is assigned a new job or task.
b. A new subcontractor is brought on.
c. A new process, procedure, equipment is introduced.
d. A new hazard is present.

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

All training will be documented, and records will be maintained by Christopher Millerick. The records will include the employee's name, date of training, types of training, and the name of the competent training provider.

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

a. When workers are first employed, they will 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. We will only permit 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 will 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 every 10 days, 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 safety meetings. These meetings will be documented using the Safety Meeting Attendance Documentation.

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 so as 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:

a. Report all unsafe conditions and equipment to their supervisor or Tayla Millerick, our Injury and Illness Prevention Program Administrator.
b. Report all incidents, injuries and illnesses to their supervisor or Tayla Millerick immediately.
c. Keep means of egress unblocked, well-lit, and unlocked during work hours.
d. Sound the alarm and evacuate in the event of fire.
e. Upon hearing fire alarm, stop work and proceed to the nearest clear exit and then gather at the designated muster location.
f. Not attempt to respond to a fire or other emergency unless trained to do so.
g. Keep stairways clear of items that can be tripped over.
h. Not store combustibles under stairways that are egress routes.
i. Not store materials and equipment against doors or exits, fire ladders or fire extinguisher stations.
j. Keep aisles clear at all times.
k. Maintain work areas in a neat, orderly manner. Place trash and refuse into proper waste containers.
l. Wipe up all spills promptly.
m. 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.
n. Ensure all cords running into walk areas are taped down or inserted through rubber protectors to preclude them from becoming tripping hazards.
o. Never stack material precariously on top of lockers, file cabinets or other high places.
p. Never leave desk or cabinet drawers open that present a tripping hazard. Use care when opening and closing drawers to avoid pinching fingers.
q. Not open more than one upper drawer at a time, particularly the top two drawers on tall file cabinets.
r. 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.
s. Exercise caution when carrying material to ensure firm footing and clear line of sight.

t. 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.
u. Keep individual heaters at work areas clear of combustible materials such as drapes or waste from waste baskets. Heaters which are equipped with tip over switches should be used.
v. Keep appliances such as coffee pots and microwaves in working order and inspected for signs of wear, heat, or fraying of cords.
w. 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.
x. 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.
y. Store cleaning supplies away from edible items on kitchen shelves.
z. Store cleaning solvents and flammable liquids in appropriate containers.
aa. Keep solutions that may be poisonous or not intended for consumption in well-labeled containers.
ab. Not remove or deface equipment or product ANSI or other warning signs/symbols and they must heed their warnings.
ac. Ensure owner's manuals for office equipment are readily available.
ad. 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 Christopher Millerick, our Safety Director, for inclusion in weekly safety meetings.

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

Potable Water:

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

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

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

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

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

Non-Potable Water:

Outlets of non-potable water should be clearly identified as such, through appropriate signage, and non-potable water may never be used for drinking, washing, or cooking.

Toilets:

Note: The following doesn't apply to mobile crews having readily available transportation to nearby toilet facilities.

A minimum of one separate toilet facility will 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 will 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 will 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 will 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 Director 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 of 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 so as 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 be followed at all times.

Investigation of Injuries

The Safety Director 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 Millerick Engineering, Inc. to hire only persons free from any evidence of illegal use of controlled substances or other drugs including alcohol.

With the exception of 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 Christopher Millerick, our Safety Director.

Note: OSHA has determined that drug testing after injuries or illnesses that occur at the workplace can be considered retaliatory or discriminatory, and thus discourage employees from properly reporting the injury or illness. This can be the case in situations where the injury or illness wouldn't 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.

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

Chemical dependency is a devastating problem for not only the employee, but also the employee's family and co-workers. For obvious safety reasons, it cannot be tolerated in the workplace. Those with such a problem should seek professional help. Christopher Millerick 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 located 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. Prescriptions more than 30 days old will not be allowed.
    3. The over-the-counter medication will be in its original package or container.
    4. The employee may only possess enough medication for his/her normal shift.
c. Alcoholic beverages.
d. Firearms, weapons, explosives, and ammunition.
e. Unauthorized items such as stolen property.

Workplace Violence

According to OSHA, workplace violence is the second leading cause of fatal occupational injuries in the US. It's important that our company have a Workplace Violence Prevention Plan in place to protect our employees. Our prevention plan complies with the amended California Labor Code section 6401.7 and the newly codified California Labor Code section 6401.9. Our Safety Director, Christopher Millerick, will ensure that our prevention program is implemented across the company no later than July 1st, 2024.

To successfully implement this prevention plan, participation is required of all employees, regardless of their position within the company.

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; and
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:

Types of workplace violence:

Type 1: 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: Workplace violence directed at employees by customers, clients, or visitors.

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

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

Site Assessments

An assessment will be conducted to help with the development of a site-specific plan to be used in the event of a workplace violence incident. A competent person will develop the plan with help and input from other employees and/or employers. We encourage all employees to provide any input they may have regarding our prevention plan, including how to handle and respond to an incident.

On sites with other contractors, we will work with them to determine what the best policies and procedures are for the site. A joint plan will ensure that all employees respond in the same manner should an incident occur.

Site assessments will be performed when starting work at a new site/facility, when deficiencies are found in the assessment, after an incident occurs, and during scheduled intervals.

The final site assessment will be communicated to all employees and made available for review upon request. A copy of the assessment will be maintained at the work site at all times.

Communication

Employees will participate in a workplace violence training course. Our company will also utilize safety meeting/toolbox talks to discuss and answer questions about workplace violence issues. Employees are encouraged to speak to management if they have any questions or concerns about our Workplace Violence Prevention Plan.

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. Train on specific workplace violence events, such as responding to an active shooter.
e. Performing appropriate background checks and reference verification on new hires.
f. Lock exterior doors to prevent unwanted entry; never prop open locked doors.

Emergency Response Protocols

Depending on the circumstances of a workplace violence incident, employees may need to either evacuate the premises or shelter-in-place. During an evacuation of a site, employees should use the emergency evacuation routes that are posted around the site. If an evacuation is required, all employees must be accounted for. Once in a safe location, 911 or the local police will be contacted immediately.

Training

All current employees will receive workplace violence training to learn how to identify it and respond accordingly. All new hires will be required to take the workplace violence training prior to beginning work at a site. Retraining will be required annually after initial training. The workplace violence training will include at a minimum:

a. Explanation of the prevention plan; and
b. Definitions and requirements of Labor Code section 6401.9; and
c. Different types of workplace violence incidents; and
d. Process for reporting workplace violence incidents; and
e. Job-specific violence hazards and preventative measures; and
f. Reason for the violent incident log and how they may obtain related records; and
g. Emergency response protocols; and
h. Opportunity to discuss and ask questions about the prevention plan.

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

Reporting

Employees should immediately inform management of any workplace violence incident they have been the victim of or have witnessed. Millerick Engineering, Inc. strictly prohibits any retaliation against an employee reporting a workplace violence incident. The incident will be investigated, and all findings will be documented.

Investigation

Investigations will be conducted by our Safety Director, Christopher Millerick. The investigation process will consist of the following:

a. Completion of a Violent Incident Log; and
b. Collect any additional information relevant to the incident; and
c. Determine what corrective actions need to be taken; and
d. Implement and enforce the corrective action(s); and
e. Determine how the incident could be avoided in the future; and
f. Update policies and procedures, if needed; and
g. If updates are made to the plan, communicate the updated policies and procedures to all employees; and
h. Retain all investigation information records.

Violent Incident Log

Millerick Engineering, Inc. will maintain a Violent Incident Log for all reported cases. The logs will include the following:

a. Incident date, time, and location; and
b. Workplace violence “Type” (1, 2, 3, and/or 4); and
c. Detailed description of the incident; and
d. Identification of who committed the violence; and
e. The circumstances at the time of the incident; and
f. Specific incident characteristics, including but not limited to:
    1. Physical attacks; or
    2. Weapon attacks; or
    3. Threats; or
    4. Sexual assault; or
    5. Animal incidents
g. The results of the incident, including whether law enforcement was involved; and
h. The steps that were taken to protect employees from further threats or hazards; and
i. Information about the person completing the log, including name, job title, and the date completed.

All violent incident logs will be maintained for a minimum of 5 years.

Note: No personally identifiable information (PII) will be included in the log that would identify any person involved in the incident.

Additional Incident Information

There may be additional information that needs to be collected and recorded as part of the investigation. Additional incident information includes police reports, medical reports, photos/videos, witness interviews and any other documentation that may be relevant to the investigation.

Corrective Actions

During the investigation it will be determined what corrective action needs to be taken. Corrective actions will vary depending on the type of incident that occurred.

When an employee or employees have been found to have committed an act that is considered a violent incident they will be reprimanded. Employee reprimands will range from written warnings up to and including termination. In severe cases, local law enforcement may also be involved.

Incidents that are caused by an outside source are incidents that were not committed by an employee. The incident may be caused by several potential outside sources, from an acquaintance of an employee to a random stranger to a wild animal. The corrective actions for these types of events may include, but are not limited to, increased site security, restraining orders, or securing small access areas from animals.

All corrective actions taken will be communicated to the employees.

Avoiding Future Incidents

Upon completing the review of the information regarding a workplace violence incident, we will determine the best way to prevent the same or similar type of incident from occurring again. All updates will be implemented immediately and communicated to employees as soon as possible.

Periodic Review of Plan

Our workplace violence policies and procedures will be evaluated at least annually to ensure that the program continues to be as effective as possible. If there are any deficiencies found in our policies or procedures, they will be updated and corrected immediately. Any updates made to the program will be communicated to all employees in a timely manner.

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 (in order 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: Tayla Millerick

Phone Number: 2099857750

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: 2099857750
    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:

_____

_____

_____

_____

Note: If none, enter "None."

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.

Alarm Systems

An employee alarm system that has a distinctive signal for each purpose and provides warning for necessary emergency action has been installed and will be properly maintained and certified as required. The employee alarm is capable of being perceived above ambient noise or light levels by all employees in the affected portions of the workplace. If applicable, tactile devices will be used to alert those employees who would not otherwise be able to recognize the audible or visual alarm.

Thorough testing of alarms will be conducted by competent persons every two months and alarms will be repaired or replaced immediately if any deficiencies are found. Manually operated actuation devices for the alarms are unobstructed, conspicuous, and readily accessible. In the event of loss of electricity, an emergency back-up system, such as an air horn or megaphone, will be used to alert employees.

Facility Evacuation Plan

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

_____

(Example: fire bell; three (3) blasts of an air horn; public announcement, etc.)

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

To alert others:

_____

(Example: activate alarm; notify main office, extension number, etc.)

Location of fire extinguishers, nearest listed first:

_____	_____
(Type)	(Location)
_____	_____
(Type)	(Location)
_____	_____
(Type)	(Location)

Rendezvous Point

_____

(Example: parking lot; by dumpster, etc.)

Specific Hazards to be aware of:

_____

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

Evacuation Route

A map or schematic drawing of the evacuation route will be posted.

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.

Name	Title	Duties
_____	_____	_____
_____	_____	_____
_____	_____	_____

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 will 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 will 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 will 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" 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.

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

   _____

   _____

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 actually spread the fire. Using a Type A extinguisher on an electrical fire, for example, could cause serious injury. When a fire occurs, it is imperative to use the proper extinguisher.

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, an employee alarm system that has a distinctive signal for each purpose (including fires) and provides warning for necessary emergency action has been installed and will be properly maintained and certified as required. The employee alarm is capable of being perceived above ambient noise or light levels by all employees in the affected portions of the workplace. If applicable, tactile devices will be used to alert those employees who would not otherwise be able to recognize the audible or visual alarm.

Thorough testing of alarms will be conducted by competent persons every two months and alarms will be repaired or replaced immediately if any deficiencies are found. Manually operated actuation devices for the alarms are unobstructed, conspicuous, and readily accessible. In the event of loss of electricity, an emergency back-up system, such as an air horn or megaphone, will be used to alert employees.

First Aid & First Aid Kits

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

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

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

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

a. Using a nonprescription medication at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes);
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 <u>both</u> 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:

To ensure that first aid kits have the proper contents, the kits will be checked before being sent out to each jobsite by the IIPP Administrator, Tayla Millerick.

First aid kits are worthless if not readily accessible. Therefore, they will not be locked up on job sites. They're also not very valuable if the items you need are missing. It's very important that the kits have the proper items and that they are replenished as they are used. First aid kits will be inspected at least weekly by Tayla Millerick.

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 actually 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 won't 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 won't 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 will 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 will have a means to be mounted in a fixed position and will 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 will have a means to be mounted in a fixed position and will 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.**

Incident Investigation & Reporting

Apparently simple accidents may actually 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 Director 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 Christopher Millerick, our Safety Director.

Christopher Millerick 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 as a result of a work-related incident, either in person or by telephone, the OSHA Area Office nearest to the site of the incident will be notified. Phone Numbers of nearest Cal/OSHA District Offices, ***CLICK HERE***.

Incident Investigation:

Christopher Millerick 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. Camera
f. Small hand tools
g. Marking devices such as flags
h. Tape Recorder
i. Equipment Manuals and Standards

Per our Bloodborne Pathogen Program, all first aid responders will be qualified and certified in First Aid and CPR.

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

At the 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.

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

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, *Annual 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 is 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

Effective February 25th, 2019, certain employers are required to electronically submit injury and illness data from their Cal/OSHA Form 300A Summary of Work-Related Injuries and Illnesses to OSHA. This includes all employers with 250 or more employees and employers with 20-249 employees who have a NAICS code listed in Appendix A to Subpart E of Part 1904 - Recording and Reporting Occupational Injuries and Illness. *Click here to see Appendix A*.

Note: Contact your local worker's compensation office if you're uncertain of your NAICS code.

If Millerick Engineering, Inc. is required to submit records electronically, the information from our 300A must be submitted by March 2 of the following year (for example, 2018 data must be submitted by March 2, 2019).

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

a. Users will be able to manually enter data into a webform.
b. Users will be able to upload a CSV file.
c. Users will have the ability to transmit data electronically via an API if they have an automated recordkeeping system.

Click Here to Access the Injury Tracking Application

Effective January 1st, 2024, if our company exceeds 100 or more employees at any time during the year, we will be required to submit our OSHA Form 300 Log and OSHA Form 301 Incident Report to OSHA the following year, no later than March 2nd. (Example: If we had 107 employees at some point during 2023, we would be required to submit the OSHA 300 LOG and 301 no later than March 2nd, 2024)

The information is to be uploaded to the same OSHA Injury Tracking Application as the OSHA 300 Log Summary, using the link above.

Information that should be included in the OSHA 300 Log and 301 are date, physical location, and severity of the injury or illness; details about the worker who was injured; and details about how the injury or illness occurred.

Retention of Forms:

Old Cal/OSHA Forms 101 and 200, as well as Cal/OSHA Forms 300, 300A, 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 Millerick Engineering, Inc., 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 wouldn't 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 Christopher Millerick, the Safety Director.

Christopher Millerick 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 isn't 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 general rule, the Cal/OSHA Forms 300 and 301 will be maintained in our main office. However, in the event that a project is to last more than one year, that job site will be considered a fixed establishment and maintain its own Cal/OSHA Forms 300 and 301.

Information to Be Reported:

When reporting a fatality, in-patient hospitalization, amputation or loss of an eye to Cal/OSHA, the 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 from 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.

Digital Postings

We will only use digital postings to meet the continuous posting requirement when the following criteria is met:

a. Employees strictly work remotely.
b. Employees typically receive information from our company via electronic means.
c. All employees always have access to digital postings.

If the above requirements cannot be met, a hard-copy posting will be required. All digital postings will be identical in content and as effective as a hard-copy posting.

Access to Employee Medical Records & Exposure Records

All employee exposure records, and medical records are under the control of Tayla Millerick, 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 into employment, and at least annually thereafter, each employee will be informed of the following:

a. The existence, location, and availability of any records covered by *8 CCR Sec. 3204*.
b. The person responsible for maintaining and providing access to records (Christopher Millerick).
c. the employee's rights of access to his/her records.

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

Access to Records

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

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

Upon request, Christopher Millerick 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 will 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 will be transmitted to the Director of the National Institute of 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 will transmit those records to the Director if he requests them within that period.

Enforcement

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

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

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

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

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

a. The hazardous situation will be corrected.
b. The employee will be informed of the correct procedures to follow and will impress upon the individual the severity of the violation and the likely consequences should this type of violation be repeated. The supervisor will ensure that the individual understands the correct procedures and will be cautioned that a reoccurrence could result in disciplinary action up to and including discharge.
c. The supervisor will make a written report of the occurrence using our Enforcement Documentation Form and inform the employee that this documentation will be forwarded to Christopher Millerick for a retention period of one year.

Willful Major Safety Violations: Intentional violation of a safety rule which would reasonably be expected to result in serious injury to the employee or a fellow worker.

a. The hazardous situation will be corrected.
b. The employee will be removed from the job site, the event will be documented and forwarded to Christopher Millerick, and the employee will be discharged.

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

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

Schedule of Enforcement Actions
Violations Occurring within a 1 Year Period
Minor Violation

Offense	Action	Repeat of Same Offense	Action
1st	Written Notice	1st	1 Day Off
2nd	Written Notice	2nd	3 Days Off
3rd	1 Day Off	3rd	Dismissal
4th	2 Days Off		
5th	3 Days Off		
6th	Dismissal		

Major Violation

Offense	Action	Repeat of Same Offense	Action
1st	Written Notice	1st	4 Days Off
2nd	2 Days Off	2nd	Dismissal
3rd	4 Days Off		
4th	Dismissal		

Millerick Engineering, Inc.
Section II
Site/Job Specific Policies & Procedures

Abrasive Blasting

CCR, Title 8, §5151 - Ventilation and Personal Protective Equipment Requirements for Abrasive Blasting Operations

CCR, Title 8, §3301 - Use of Compressed Air or Gases

When performing abrasive blasting operations, from a safety standpoint, there are numerous hazards that must be addressed.

First and foremost are respiratory hazards. During blasting operations, dust hazards are created as the abrasive materials and the surface coatings are shattered and pulverized to particles of respirable size. The composition and **toxicity of the abrasive dust** as well as the coating must be known to determine the:

a. specific respiratory hazards.
b. appropriate respirator to be selected to negate these hazards.

The many types of abrasive materials have varying degrees of hazard – silica sand being probably the most hazardous mineral abrasive used. Whenever possible, its use should be limited and, if possible, a substitute material used. Other types of abrasives include synthetic or natural mineral grains; plastic media; metallic shot or hard grit (made of steel or chilled cast iron); and organic abrasives such as ground corncobs and walnut shells. These and other engineering controls such as containment and ventilation are important for employee safety.

The hazards of steel or cast-iron dust are relatively minimal, however, combustible organic abrasives may be pulverized fine enough to be capable of forming explosive mixtures with air.

The coatings that are being blasted may, for example, contain lead (in paints); arsenic (in furnaces); cadmium (plating); and even silica sand (embedded in the surface of castings). All these types of hazards require specific respiratory protection and are serious health hazards.

Surprisingly, construction standards do not address abrasive blasting as an "all-encompassing" topic – each hazard must be dealt with on its own.

In addition to respiratory hazards, the following safety concerns, which apply to both abrasive blasting workers **and** those who may be exposed to hazards they create, depending on the job, need to be addressed during abrasive blasting operations:

a. Protective clothing and equipment must provide protection to the eyes, face, and body of the **operator**.
   Note: Equipment for the protection of the eyes and face will be supplied to the operator when the respirator design does not provide such protection.
b. Protective clothing and equipment must provide protection to the eyes, face, and body of all personnel working in the vicinity of abrasive blasting operations.
   Note: Equipment for the protection of the eyes and face will be supplied to any other personnel working in the vicinity of abrasive blasting operation.
c. Fall protection.
d. Scaffold & ladder safety.
e. Release of toxic dust.

f. **Potentially explosive mixtures:** The blast nozzle must be bonded and grounded to prevent the buildup of static charge.

Note: Organic abrasives which are combustible will only be used in automatic systems. Reference NFPA 68-1954.

g. High pressure hoses and couplings.

h. Securing the work area to deny unauthorized entry.

i. Working in a permit-required confined space.

j. Injury from the blast, itself. To reduce the likelihood of injury, the **blast cleaning nozzles must be equipped with an operating valve that must be held open manually**. A support will be provided on which the nozzle may be mounted when it is not in use.

Blast-Cleaning Enclosures

Blast-cleaning enclosures will be exhaust ventilated in such a way that a continuous inward flow of air will be maintained at all openings in the enclosure during blasting operations. The following minimum ventilation rates as prescribed in the appendix of ANSI Z9.4-1968, Ventilation and Safe Practices of Abrasive Blasting Operations will be used:

a. Blast-cleaning cabinet: 500 feet per minute calculated on the free opening without the curtains.

b. Rotary blast cleaning tables: 200 feet per minute calculated on the free opening without curtains.

c. Blast-cleaning rooms: 300 feet per minute at air inlets.

In blasting enclosures, safety glass protected by screening or equivalent will be used in observation windows where hard abrasives are used. All access openings in blast-cleaning enclosures will be designed, inspected regularly, and maintained when needed, in order to prevent escape of dust. Blast-cleaning room doors will be flanged and tight when closed and will be operable from both inside and outside.

In installations when the abrasive is recirculated, an abrasive separator will be provided for the removal of fines from the spent abrasive.

Abrasive blasting enclosures will not be opened until visible airborne dust has been removed by the exhaust system.

Operational procedures and general safety: Dust will not be permitted to accumulate on the floor or on ledges outside of an abrasive-blasting enclosure, and dust spills will be cleaned up promptly. Aisles and walkways will be kept clear of steel shot or similar abrasive which may create a slipping hazard.

The PEL for particles not otherwise regulated is 5.0 mg/m³. The PEL for respirable dust containing crystalline silica is determined by the below formula:

PEL = 10 mg/m³ ÷ (%SiO2+2), where %SiO2+2 refers to the amount of crystalline silica measured in the sample.

Below the above 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.

Abrasive blasting or equivalent respirators will be worn by employees under the following conditions:

a. Inside blasting rooms during operations.
b. During continuous blasting operations where concentrations of dust dispersed by abrasive blasting operations may exceed limits prescribed in §5155.
c. During continuous blasting operations where silica sand is used as the blasting abrasive or when toxic materials are blasted. Dust-filter respirators may be used for periods up to 2 hours per shift, providing the concentrations of silica dust do not exceed ten times the time-weighted, 8-hour exposure limit as specified in §5155. Use of respiratory protective equipment is prescribed in §5144.

Per NIOSH:

Type CE abrasive-blast supplied-air respirators are the only respirators suitable for use in abrasive-blasting operations. * Currently, there are four kinds of Type CE abrasive-blast respirators certified by NIOSH. These four kinds of respirators and the NIOSH recommended assigned protection factors (APF) are:

a. A continuous-flow respirator with a loose-fitting hood and an APF of 25;
b. A continuous-flow respirator with a tight-fitting facepiece and an APF of 50;
c. A positive-pressure respirator with a tight-fitting half-mask facepiece and an APF of 1000;
d. A pressure-demand or positive-pressure respirator containing a tight-fitting full facepiece and an APF of 2000.

***Note: Air purifying and powered-air purifying respirators are not recommended for abrasive blasting operations but may be suitable for auxiliary work such as outside clean-up operations.**

Also, per NIOSH:

a. Silica sand should NOT be used as an abrasive medium.
b. Respirators should not be used as the only means of preventing or minimizing exposures to airborne contaminants. Dust source controls such as containment systems, local exhaust systems, and good work practices should be implemented as the primary means of protecting workers. When dust source controls cannot keep exposures below the recommended exposure limits, controls should be supplemented with the use of respiratory protection.
c. Environmental monitoring by trained personnel should be conducted in all abrasive-blasting applications. This is necessary to select the proper respirator (APF) and ensure that workers are not overexposed (i.e., measured contaminant concentration is less than the exposure limit multiplied by the respirator APF).
d. Anytime environmental conditions, airborne contaminants, or their concentrations are highly variable or poorly defined, high level respiratory protection should be used, even if silica is not the abrasive agent.
e. If silica sand is used, only the highest-level protection respirators (i.e., respirators certified by NIOSH as pressure-demand or positive pressure and with NIOSH recommended APFs of 1000 or 2000) should be used.
f. Respirators will only provide a satisfactory level of protection when they are selected, fitted, used, and maintained according to the manufacturer's written instructions, NIOSH approval limitations and guidelines, and OSHA regulatory requirements.

If a compressor is used for supplying breathable air by way of airline hoses to an abrasive blasting respirator, 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. **By definition, this breathable air must and will be free from harmful quantities of dust, mist, and noxious gases**.

An abrasive-blasting respirator will be used which covers the wearer's head, neck, and shoulders to protect the wearer from rebounding abrasive.

All safety and standby devices, such as alarms that warn of compressor failure or overheating, will be maintained in working order. 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 will be in place. If an oil lubricated system is used, it will have a high temperature and carbon monoxide alarm.

Additionally, we will ensure that compressed air does not have oxygen concentrations that are greater than 23.5%.

Compressors used to supply breathing air to respirators must be constructed and situated so as to:

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 will 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 will 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.

Note: Under no circumstances are employees to use compressed air for cleaning unless the pressure is reduced to less than 30 p.s.i. [10 p.s.i. in California]. Flying debris can injure the employee or a fellow worker.

Symptoms of Silicosis:

Silicosis (especially the acute form) is characterized by shortness of breath, fever, and cyanosis (bluish skin); it may often be misdiagnosed as pulmonary edema (fluid in the lungs), pneumonia, or tuberculosis. Severe mycobacterial or fungal infections often complicate silicosis and may be fatal in many cases.

Three types of Silicosis:

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.

NIOSH Safety Recommendations:

NIOSH recommends the following measures to reduce crystalline silica exposures in the workplace 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 worksite; shower and change into clean clothes before leaving the worksite 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 as well as OSHA.

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

Aerial Ladder means an aerial device consisting of a single- or multiple-section extension ladder.

Articulating Boom means an aerial device with two or more hinged boom sections.

Boom means 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 Platforms mean a device designed to elevate a platform in a substantially vertical axis (vertical tower, scissor lift, mast-climbing work platform).

Extensible Boom Platform means an aerial device (except ladders) with an extensible boom. Telescopic booms with personnel platform attachments will be considered to be extensible boom platforms.

Insulated Aerial Device means an aerial device designed for work on energized lines and apparatus.

Mast-Climbing Work Platform means 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 means the taking over of primary control functions from a secondary location.

Pin-On Platform means 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 means any personnel-carrying device (bucket, basket, cage, stand, tub or equivalent) which is a component of an aerial device.

Rated Workload means the safe design live load carrying capacity of the work platform.

Stability means 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 means any device that has a platform which is vertically, horizontally or rotationally adjustable and supported by a structure.

Equipment Instruction and Marking

Each unit will have a manual containing instructions for maintenance and operations. If a unit can be operated in different configurations then these will be clearly described, including the rated capacity in each configuration. The required manual(s) will 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 will 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 will 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 will be instructed in the proper use of the platform.
b. All aerial devices and elevating work platforms will 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 will 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 will be maintained in safe operating condition.

Work performed when using elevating work platforms or aerial devices in proximity to energized high voltage lines will 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 will 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 will not be less than 8:1 based on ultimate strength.

All critical components of a hydraulic or pneumatic system used in a work platform will 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 will have a bursting safety factor of at least 2:1.

Automatic safety devices or systems will 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 will 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 will 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 will conform to standard specifications of strength, dimensions, and weights, and will be selected to safely support the rated workload.

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

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

Records of inspections and repairs will be maintained for at least 3 years and be made available to the Division upon request. Inspection records will 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 will 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 will be equipped with a guardrail or other structure around its upper periphery that will 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 will be used in accordance with regulations.

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

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 will 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 will be supplied with safe emergency lowering means compatible with the specific elevating assembly used.

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

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

Elevating work platforms will include:

a. Toe boards at sides and ends which will 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 will not be less than 16 inches.

Mast-climbing work platforms will 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 will be limited to no more than that required for a single shift.

Guarding of Moving Parts

All rotating shafts, gearing, and other moving parts will 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 will be used on an inclined surface. Procedures for maintaining stability must be clearly outlined in the special warnings section on placards or labels. The user will not deviate from the manufacturer's instructions.

Operating Instructions - Elevating Work Platforms

No employee will ride, and no tools, materials, or equipment will be allowed on a traveling elevated platform unless the following conditions are met:

a. The travel speed at Maximum Travel Height does not exceed 3 feet per second.
b. Self-propelled units will be equipped with electrical or other interlock means which will prevent driving them with the platform height greater than the Maximum Travel Height or at speeds greater than permitted at Maximum Travel Height.
c. The surface upon which the unit is being operated is level with no hazardous irregularities or accumulation of debris which might cause a moving platform to overturn.

Units will be assembled, used and disassembled in accordance with manufacturer's instructions. They will be inspected for damaged and defective parts before use and they will not be loaded in excess of the design working load. If damaged or weakened in any way, the unit will be taken out of service and it will not be used 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 will be free for climbing or 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 will be marked with warnings such as flags, roped off areas or other effective means of traffic control will be provided.

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

Screens will 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 will extend along the entire opening and will consist of No. 18 gage U.S. Standard Wire ½ inch mesh, or equivalent.

Mast-climbing work platforms will 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 will 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 will 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 will be securely pinned to the boom or boom extension. Employees on the elevated pin-on platform will 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 will not be supported by adjacent structure(s) when workers are on the platform or in the basket while in an elevated position. Lift controls will 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 will 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 will 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 will be positioned on pads or a solid surface. Provided they can be safely installed, wheel chocks will be installed before using an aerial device on an incline.

When an insulated aerial device is required, the aerial device will 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 will be maintained at all times between the basket or platform operator and where applicable, the vehicle operator.
d. The route to be traveled is surveyed immediately prior to the work trip, checking for overhead obstructions, traffic, holes in the pavement, ground or shoulder, ditches, slopes, etc. For areas other than paved, a survey should be made on foot.
e. The speed of the vehicle does not exceed 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 will not be used unless permission has been granted by the persons in the lift.

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

Bees, Insects, and Animal Hazards

One of the least predictable hazards when working outdoors in general, and specifically when working in or around trees, is the threat from local wildlife. If an insect's nest is accidentally disturbed or an animal feels threatened by an approaching person, it is likely to do anything it can to protect itself, often causing injury or even death to an unsuspecting worker.

Precautions must be taken to reduce the probability of a negative interaction with bees, insects, or other animals while working outdoors.

Pre-Work Inspection

Just as tools must be inspected for defects before starting work, the outdoor work area must be inspected as well. This includes trees, shrubs, and even structures must be inspected for evidence of bees and other wildlife habitation that may present hazards.

Signs of wildlife to look for:

a. Nests
    1. Bees, wasps, and yellow jackets make papery nests that may hang in trees or be located on the ground.
    2. Squirrels, crows, ravens, and hawks often make large nests of twigs and leaves in the forks or branches of trees.
    3. Birds may make twiggy nests on the boughs of trees, hanging nests, or nests in the ground.
    4. Racoons, squirrels, some birds, and other animals may make nests in holes in tree trunks.
    5. Many species of spiders, moths, & butterflies make webs or cocoons in trees.
    6. Fire ants build mound-shaped nests.
b. Insects or animals-The presence of several bees, for example, may indicate a nearby nest which you must be careful not to disturb.
c. Tracks or trails-Animal tracks or trails may be seen in the mud, dirt, or grass around a tree.
d. Feeding-Look for leaves that have been chewed, broken pinecones or nuts, and holes in tree trunks or the ground made by animals looking for grubs.
e. Scat or droppings-The shape, size, and material in scat may help identify which animal left it in the area.

If any wildlife is encountered during a pre-work inspection, notify Christopher Millerick or the competent person on site immediately. The hazard must be identified and evaluated. Appropriate personal protective equipment and/or additional training may be required.

General Precautions

The following basic precautions should be taken when working outdoors to prevent an unsafe encounter with biting or stinging insects and wild or stray animals:

a. Wear gloves, long pants, socks, a long-sleeved shirt, and boots that are at least 10 inches high.
b. Watch where you place your hands and feet when removing debris.
c. Avoid perfumed soaps, shampoos, and deodorant. Use insect repellent that contains DEET or Picaridin.
d. Avoid handling or mowing over live or dead animals.

Wildlife Encounters

Despite conducting a thorough pre-work inspection and following the general precautions listed above, you may come across wildlife during your work. The hazards the wildlife presents, and your reaction will vary depending on the animal or insect you encounter.

Bees, Wasps, or Yellow Jackets:

a. Stay calm and still if a stinging insect is flying around you. Do not swat at it.
b. If you accidentally disturb a nest or are stung by several bees, wasps, or yellow jackets, run away as fast as you can. Get indoors as soon as possible.
c. Do not swat at attacking bees.
d. Do not jump into water. Bees will wait above the surface of the water and sting when you come up for air.
e. If bees are attacking someone who cannot run away, cover him or her with anything you have available, such as a jacket or tarp, and run to call for help.
f. Call 911 immediately if a victim exhibits a severe allergic reaction to a sting, such as chest pain, nausea, sweating, loss of breath, serious swelling, or slurred speech. Workers with a history of allergic reaction to stings should carry an EpiPen (epinephrine auto-injector) or wear a medical id bracelet stating their allergy.
g. Treat minor stings by removing the stinger and applying ice packs to reduce pain and swelling for the first 24 hours. After 24 hours, heat should be applied.

Mosquitos:

a. Follow the general precautions listed above.
b. Be extra vigilant at dusk and dawn when mosquitoes are most active.
c. Get rid of sources of standing water (used tires, buckets, etc.) to reduce or eliminate mosquito breeding areas.
d. Contact your doctor if you have symptoms of West Nile virus, which is transmitted by the bite of an infected mosquito. Mild symptoms include fever, headache, and body aches, occasionally with a skin rash on the trunk of the body and swollen lymph glands. Symptoms of severe infection include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis.
e. Contact your doctor if you have symptoms of Zika virus, which is transmitted by the bite of an infected mosquito. Symptoms include fever, rash, joint pain, pink or red eyes, muscle pain, and headache.

Ticks:

a. Follow the general precautions listed above.
b. Wear light-colored clothes so ticks can be seen more easily.
c. Wear a hat.
d. Use tick repellants, but not on your face.
e. Shower after work.

f. Examine your body for ticks, especially the hair, underarms, and groin. Remove any attached ticks promptly and carefully with fine-tipped tweezers by gripping the tick. Do not use petroleum jelly, a hot match, or nail polish to remove the tick.
g. Wash and dry your work clothes at high temperature.
h. Contact your doctor if you have symptoms of Rocky Mountain spotted fever or Lyme disease, which are transmitted by ticks. Both Rocky Mountain spotted fever and Lyme diseases may produce a distinctive rash. Other signs and symptoms may be non-specific and similar to flu-like symptoms such as fever, lymph node swelling, neck stiffness, generalized fatigue, headaches, migrating joint aches, or muscle aches. Tularemia can also be transmitted by ticks (see *Tularemia*, below).

Fire Ants:

a. Follow the general precautions listed above.
b. Be aware of where you're walking - don't stand on ant nests or areas where the ants are foraging.
c. If attacked, leave the area immediately while brushing off ants with the use of a gloved hand or by using a cloth.
d. Seek immediate medical attention if you have nausea, chest pains, feel short of breath, or have swelling.
e. Consult your pharmacist for treatment of minor bites and irritation. The sting of a fire ant develops into a pustule (small, firm blister-like sore) in 24-48 hours. These pustules can become sites of secondary infection.

Black Widow Spiders:

a. Follow the general precautions listed above.
b. Be aware that black widows may live in woodpiles, rubble piles, hollow stumps, rodent burrows, privies, sheds, basements, crawlspaces, garages, and under rocks.
c. If bitten, capture the spider if possible, for identification purposes.
d. Know the symptoms of a black widow bite:
    1. Bites may be painful or go unnoticed. The skin may display one or two bite marks with local swelling.
    2. Pain usually progresses from the bite site and eventually to the abdomen and back. Severe cramping or rigidity may occur in the abdominal muscles.
    3. Severe symptoms may include nausea, profuse perspiration, tremors, labored breathing, restlessness, increased blood pressure, and fever.
    4. The pain from the bite will usually persist for the first 8-12 hours. Symptoms may continue for several days.
e. Seek medical attention immediately if you have severe symptoms of a black widow bite.
f. Clean the bite area with soap and water. Apply ice to the bite area to slow absorption of the venom. Elevate and immobilize the extremity.

Brown Recluse Spiders:

a. Follow the general precautions listed above.
b. Be aware that the brown recluse spider builds small retreat webs behind objects of any type.
c. If bitten, capture the spider if possible, for identification purposes.
d. Know the symptoms of a brown recluse spider bite:
    1. The severity of the bite may vary. Symptoms may vary from none to very severe.
    2. The bite generally becomes reddened within several hours.
    3. There is often a systemic reaction within 24-36 hours characterized by restlessness, fever, chills, nausea, weakness, and joint pain.
    4. Tissue at the site of the bite and the surrounding area dies and eventually sheds.
e. Seek medical attention immediately if you have severe symptoms of a brown recluse bite.
f. Clean the bite area with soap and water. Apply ice to the bite area to slow absorption of the venom. Elevate and immobilize the extremity.

Squirrels, Birds, Bats:

a. Be aware of these animals while working in trees or shrubbery. They may startle you, causing you to fall, trip, or otherwise injure yourself.

Rodents, Racoons, and Wild or Stray Animals:

a. Avoid contact with wild or stray animals. Call Animal Control if you notice an animal that is acting oddly or aggressively.
b. Avoid contact with rats or rat-contaminated buildings. If you can't avoid contact, wear protective gloves and wash your hands regularly.
c. Properly dispose of dead animals as soon as possible. Wear the appropriate PPE and make sure to wash your hands with soap and water.
d. Get medical attention immediately if bitten or scratched. Mammals may carry a number of diseases:
    1. *Streptobacillary Rat-bite Fever* is transmitted by the bite or scratch of an infected rodent. Symptoms generally occur 3-10 days after exposure but may take as long as 3 weeks to appear. Symptoms include fever, vomiting, headache, muscle pain, joint pain, and a rash of flat, reddened areas with small bumps on the hands and feet.
    2. *Rabies* is transmitted through the bite of a rabid animals such as raccoons, skunks, bats, and foxes. Flu-like symptoms, including general weakness or discomfort, fever, or headache, are the first symptoms of rabies. The site of the bite may feel uncomfortable, prickly, or itchy. Symptoms rapidly progress to cerebral dysfunction, anxiety, confusion, and agitation. Next, the patient may experience delirium, abnormal behavior, hallucinations, and insomnia. Once clinical signs of rabies appear, the disease is nearly always fatal.

3. *Tularemia* is a highly infectious disease caused by the bacterium *Francisella tularensis*. It can enter the human body through the skin, eyes, mouth, or lungs, but it cannot be transmitted from person to person. Although tularemia can be life-threatening, most infections can be successfully treated with antibiotics. Symptoms of infection vary depending on the route of entry, but all forms are accompanied by flu-like symptoms, such as fever, chills, headaches, body aches, and weakness, that usually occur three to five days after exposure to the bacteria.
    i. The bites of ticks or deer flies infected with tularemia may cause swollen lymph glands with or without a skin ulcer.
    ii. Handling dead or live animals infected with tularemia may also result in swollen lymph glands and may cause irritation and inflammation of the eyes.
    iii. Breathing dusts or aerosols containing *Francisella tularensis* may cause lung inflammation or infection (pneumonic tularemia). Pneumonic tularemia can also occur when other forms of tularemia are left untreated and the bacteria spread through the bloodstream to the lungs. This is the most serious form of tularemia. Symptoms include cough, chest pain, and difficulty breathing.
    iv. Eating or drinking food or water contaminated with the bacteria may cause patients to have a sore throat, mouth ulcers, tonsillitis, and swelling of lymph glands in the neck.

<u>Snakes</u>:

a. Follow the general precautions listed above.
b. Look for snakes sunning on fallen trees, limbs, or other debris before beginning work.
c. Watch where you place your hands and feet when removing debris. If possible, don't place your fingers under debris you are moving. Remember to wear heavy gloves.
d. Stay clear if you see a snake; step back and allow it to proceed. Keep in mind that a snake's striking distance is about 1/2 the total length of the snake.
e. Take the following steps if bitten:
    1. Note the shape of the snake's head and its color to help with treatment.
    2. Keep bite victims still and calm to slow the spread of venom in case the snake is poisonous.
    3. Do not cut the wound or attempt to suck out the venom.
    4. Apply first aid: lay the person down so that the bite is below the level of the heart, and cover the bite with a clean, dry dressing.
    5. Seek medical attention as soon as possible.

<u>Cougars (a.k.a. Mountain Lions, Pumas, Panthers):</u>

a. Stay in a group. Do not wander off by yourself.
b. Be noisy. Talk, sing, or play music. Avoid surprising a cougar.
c. Leave the area immediately if you find cougar kittens; cougars are protective of their young.

d. Do not run away if you encounter a cougar. Do not turn your back or play dead.
e. Maintain eye contact with the cougar. Yell, wave your arms, make noise, and try to look as big as you can.
f. If attacked, fight back, aiming for the eyes and face. Try to stay on your feet and protect your neck.
g. Carry pepper spray if you a working in areas cougars may inhabit; pepper spray may stop an attack.

Bears:

a. Stay in a group. Do not wander off by yourself.
b. Be noisy. Talk, sing, or play music. Avoid surprising a bear.
c. Leave the area immediately if you find bear cubs; bears are protective of their young.
d. Do not leave food lying around and make sure to clean up garbage.
e. Carry pepper spray in areas bears may inhabit.
f. If you encounter a bear, identify whether it is a black bear or a grizzly bear. Neither size nor color are a foolproof way to distinguish the bears, although black bears tend to be smaller and darker, and grizzlies tend to be larger and lighter. In the eastern part of the U.S., you will only encounter black bears. Both black bears and grizzly bears inhabit the western U.S.
    1. Black bears have a straight face profile, taller ears, and 1½-inch long, dark-colored claws. They do not have a shoulder hump.
    2. Grizzly bears have a dished face profile, short, round ears, and 2- to 4-inch long, light-colored claws. They have a pronounced shoulder hump.
g. If the bear is more than 350 ft. away, but the bear has not noticed you, retreat slowly and quietly.
h. If the bear is more than 350 ft. away and it has noticed you, speak calmly and firmly as you back slowly away while waving your arms. The bear may flee once it has identified you as human. Do not run away from a bear!
i. If a bear shows signs of aggression, do not run away. Retreat slowly and speak calmly and firmly. Do not make eye contact with the bear.
j. If a bear charges, hold your ground. If the bear comes within 25 ft., use the pepper spray, aiming for the eyes and nose.
k. If the bear attacks, your response should depend on the type of bear you're dealing with:
    1. For grizzly bears, curl up in a ball on your side and stay quiet. Do not get up until the bear has left the area.
    2. For black bears, fight back as hard as you can, with anything you can use as a weapon (tools, rocks, sticks, knives, etc.)

Boom-Type Mobile Cranes

This topic covers regulations specific to 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

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 will 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 will 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 Boomstops

Cranes of such design that the boom could fall over backward will be equipped with boomstops whenever the main boom is rope supported and the crane used for hook, clamshell, magnet, grapple, concrete bucket, or service presenting similar risk. The boomstop will provide emergency protection against destructive damage and related hazards by opposing any unexpected upward and rearward boom movement beyond the working range. It will 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 boomstops will satisfy the following standards and we will have substantial assurance of this in the form of crane manufacturers’ warranties, test reports, charts, engineering calculations, etc.

a. Boomstops will 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 will 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 boomstop will 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 boomstop will 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 will 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 boomstop will 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 will 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 will be equipped with a load indicating device or a load moment device, or a device that prevents an overload condition. Only approved devices will be used.

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

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

Mobile cranes will 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 will determine the radius or boom angle by measurement until the indicator is restored to operation. Boom angle or radius indicators will be repaired according to manufacturer's recommendations.

Telescopic boom cranes manufactured after February 28, 1992, will 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, will 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) will be equipped with a two-block damage prevention feature.

Spirit levels, or equivalent, will 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 will 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 will be safety glass, or equivalent, without optical distortion & possess optical qualities meeting standards of the California Department of Motor Vehicles. Wire glass, or equivalent, will only be used for those windows through which the operator is not required to view the operations.

Visibility forward will 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 will be secured to prevent closure.

Exhaust gas discharge will be away from the normal position of the operator. All exhaust pipes will 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 & with rated loads suspended, the boom hoist will be capable of raising the boom, holding it stationary without attention from the operator, & lowering it only when coupled to its prime mover.

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

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

The boom hoist drum will 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 will remain on the drum with boom point lowered to the level of the crane supporting surface.
b. The drum end of the rope will 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 will 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 will be provided to stop drum motion when highest permissible boom angle is reached.

Load Hoist Drums

The load hoist drum assemblies will 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 will be of such size and thermal capacity to control all rated crane loads with minimum recommended reeving.

Load hoist drums will 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 will remain on the drum when the hook is in its extreme low position.
b. The drum end of the rope will be anchored by a clamp securely attached to the drum or a wedge socket arrangement approved by the crane or rope manufacturer.
c. Drums will 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 will 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 will 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 will 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 will not exceed 25% of the nominal breaking strength of the line by which it is suspended, whichever is less.

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

The swing of the boom will 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 will be checked at least twice per shift.

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

No employees will be permitted in any area when balling or clamming is being performed. Only those employees necessary for the performance of the operations will 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 will 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 will be recertified or certified when used for lifting operations not associated with demolition operations. The requirement will 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 will 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 will 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 will be provided to prevent the load from falling in the event of loss of brake actuating power.
d. Foot-operated brake pedals will be maintained so that the operator's foot will not easily slip off.
e. Means will be provided for holding the brakes in the applied position without further action by the operator.
f. When provided, a power-controlled lowering system will 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 will be provided with adjustments where necessary to compensate for wear and to maintain adequate force in springs where used.
h. The swing mechanism will 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 will be provided to prevent movement of the rotating superstructure, when desired under normal operation. The braking means will 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 & operating signal device will be provided on the outside of the crane. The controls for the device will be within easy reach of the operator.

n. Outrigger wheels when used on mobile cranes will be properly guarded to prevent a person being run over by a wheel.
o. Boom-type mobile cranes which operate at night will 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 will test the knowledge and skills identified as necessary for safe crane operations and will, 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 will be valid for a maximum of 5 years. Crane operators will recertify every 5 years and will be required to meet all of 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.

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 & 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 is capable of detecting the presence of any gas or vapor which, when combined with oxygen in free air, presents a potential hazard due to flammability/explosion. The combustible gas indicator will not indicate the combustible gas content in atmospheres containing less than 10% oxygen.

Each instrument has its own set of operating procedures and instructions, however:

a. The instrument should not be used where the oxygen concentration exceeds that of fresh air (oxygen enriched atmosphere) when sampling for gases like acetylene and hydrogen.
b. Certain materials such as silicon, silicates (such as in certain hydraulic fluids) and organic lead (such as in leaded gasoline) will poison the combustible gas sensor thereby giving erroneously low readings.
c. Combustible gas readings, either negative or greater than 100% LEL, may indicate an explosive concentration of gas beyond the accurate response range of the combustible gas sensor.
d. Pressurized or low-pressure samples will give erroneous oxygen percent readings.
e. Acid gases, such as carbon dioxide, will shorten the service life of the oxygen sensor.
f. The instrument will not indicate the presence of combustible airborne mists or dusts such as lubricating oils, coal dust or grain dust.

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

Company Vehicles

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

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

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

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

Employees must report all traffic violations to Christopher Millerick and they are responsible for paying all penalties imposed by law.

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

All company motor vehicles will be maintained in safe operating condition and in accordance with the manufacturer's recommended maintenance schedule. A logbook will be maintained for each vehicle and receipts will be kept for all maintenance and repairs performed.

Before use, a walk around inspection will be performed by the operator checking tires (tread depth and pressure), glass (chips and cracks), horn and lights, and general vehicle condition. **No vehicle will be operated that is not in safe mechanical condition.**

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

a. Seat belts will be worn by all occupants at all times 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 will not be used to blow dirt, chips, or dust from clothing while it is being worn.
b. Compressed air or gases will not be used to empty containers of liquids where the pressure can exceed the safe working pressure of the container.
c. In order 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 will be equipped with an operating valve which must be held open manually. A support will be provided on which the nozzle may be mounted when it is not in use.
e. Compressed gases will 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 will 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.

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 secured at all times in such a way as to avoid them being knocked over or damaged. They by be stored in a vertical position. They must be segregated based on contents. 20 feet should be maintained between oxidizers and flammables or firewalls erected at least 5 feet high with a fire rating of 30 minutes.
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 will 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 will 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 will be prepared by a qualified designer and the erected shoring will be inspected by an engineer qualified in structural design.

b. The single post shores will be vertically aligned.

c. The single post shores will be spliced to prevent misalignment.

d. The single post shores will be an adequately braced in two mutually perpendicular directions at the splice level. Each tier will 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 will 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 is capable of supporting the loads.

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

a. It must be equal to the height of the wall to be constructed plus 4 feet and it must run the entire length of the wall
b. On the side of the wall that will not have scaffolding, the limited access zone must be:
    1. Restricted to entry only by employees actively engaged in constructing the wall
    2. If the wall is 8 feet or less, the limited access zone will be kept in place until the wall is adequately supported to prevent overturning and collapse
    3. If the height of the wall is more than 8 feet and unsupported, the wall must be braced, and the bracing must remain in place until permanent supporting elements of the structure are in place

Concrete and masonry work are performed in such a variety of circumstances and conditions – 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 of 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 will 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 will be equipped with grid guards
   2. Grid guards will 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 will 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 will be securely anchored, guyed, or braced to prevent them from falling.
b. Form panels for concrete structures will be securely anchored, guyed, or braced to prevent them from falling or collapsing.
   1. Panels exceeding 500 lbs. will have lifting attachments with a safety factor of 4.
   2. Nailed lifting attachments will not be used.
   3. Reinforcing steel will 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 will be specifically designed for that purpose. Rods not encased on concrete will be adequately braced.
b. Jacks and vertical supports will 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 will be provided with mechanical dogs or other automatic holing devices to provide protection in case of power failure or lifting mechanism failure.
d. Lifting will proceed steadily and uniformly and will not exceed the predetermined safe rate of lift.
e. During jacking operations:
    1. Lateral and diagonal bracing of the forms will be provided to prevent excessive distortion of the structure.
    2. The form structure will be maintained in line and plumb.
f. All vertical lift forms will 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 will 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 will be no less than 100 lbs. per square foot for the combined live and dead load. The minimum allowance for live load and formwork will be no less than 20 lbs. per square foot in addition to the weight of the concrete.

The above figures will 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 will 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 will be erected on a properly compacted and reasonably level and stable base. Plate, pads and load bearing characteristics of the soil will be adequate to support the imposed loads.

Note: Precautions will 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 will 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 will 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) will 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 will 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 will 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 will extend at least 2 feet beyond the joint.
b. If metal shore clamps are used, they will 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 will be provided.
d. When the formwork and shoring are being erected, the first set of protective guardrails will 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 will inspect and certify building floor form installations that do not meet conditions listed above in c (1) and c (2).

Stripped forms and shoring will 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 will 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) will 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 will 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 will be capable of supporting at least two times the maximum intended load applied or transmitted to them and will be used in accordance with the manufacturer’s recommendations.

Lifting hardware will 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 will be designed by, or under the direction of, and installed in accordance with the direction of the responsible engineer.

Bracing will 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 will be prepared by, or under the direction of, the responsible engineer. All panel erection will be performed in accordance with the plan. Lifting and erection plans and procedures will be available at the job site.

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

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

Tilt-up wall panels will 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 concrete 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. Jackhammering 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 means 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 countertop 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 will be presumed to be concrete or masonry material.

Dust Containment Device means 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 means 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 means 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 will 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 will be installed, operated, and maintained in accordance with manufacturer recommendations where applicable.
c. Local exhaust ventilation will 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 of 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 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 means a flexible delivery hose having a coupling on each end.

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

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

End Hose means a flexible concrete delivery hose which has only one end coupling.

Placing Boom means 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 means 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 will 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 will 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 will be set up and operated according to the manufacturer's operation and safety manuals and the following:
    1. The manufacturer's operations manual will be maintained in legible condition and will be available to the operator during set up and operation of the equipment.
    2. The concrete placing boom will not be used to drag hoses or lift other loads.
    3. Concrete delivery hoses will 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 will have their function clearly marked
    2. If there are several control locations, the same operation will only be possible from one location at a time except for:
        i. Emergency stop controls required by item d below will have priority and will be operable from any installed location.
    3. Controls will be safeguarded against unintentional operation except for:
        i. Equipment manufactured before May 3, 2006.
    4. Each machine will be equipped with an emergency stop system; devices will be located at the control panels and at the remote-control device.
e. Guarding will 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 will 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, will be equipped with connecting ends that will 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 will be in accordance with Article 37 of the High-Voltage Electrical Safety Orders.
h. Concrete placing booms will 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 will 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 will be corrected prior to use.

Hoses, clamps and pipes will be inspected by a qualified attendant or operator 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 will be specified by a qualified person experienced in the field of concrete pumps and placing booms. Inspection, maintenance and repairs will 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 will not extend beyond the wheels on either side of the buggy. Handles will 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 will have devices installed to prevent accidental dumping.
b. Buckets will 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 will 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 will 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 will be blocked, and the brakes set to prevent movement.

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

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

Reshoring will be erected, as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.

Demolition

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

General Requirements

a. Proper Permits will 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 will 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 will also be similarly checked. Written evidence that such a survey has been performed should be available on the job site and will 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 will be shored, braced, or otherwise corrected.
d. All electric, gas, water, steam, sewer, and other service lines will 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, will be notified in advance.
    1. If it is necessary to maintain any power, water or other utilities during demolition, such lines will be temporarily relocated, as necessary, and protected.
    2. It will 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 will 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 will 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 will be removed.
g. Where a hazard exists to employees falling through wall openings, the opening will 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 will 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, will be posted at each level. Removal will 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 will begin at the top of the structure and proceed downward. Each story of exterior wall and floor construction will 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 will 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 will be at least 2 feet wider than the building entrances or openings (1 foot wider on each side thereof) and will be capable of sustaining a load of 150 pounds per square foot.

<u>Stairs, Passageways, Ladders and Elevators</u>

a. Only those stairways, passageways and ladders, designated as means of access to the structure of a building, will be used. Other access ways will be entirely closed at all times.
b. All stairs, passageways, ladders and incidental equipment thereto, which are covered by this section, will be periodically inspected and maintained in a clean, safe condition.
c. In a multi-story building, when a stairwell is being used, it will 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 will be through a properly lighted, protected and separate passageway.
d. Construction passenger elevators for hoisting employees will be provided on demolition projects on multi-story buildings 7 or more floors or 72 feet or more in height.
e. Landings will 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 will be used unless the area is effectively protected by barricades, fences or equivalent means. Signs will 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, will be entirely enclosed except for the openings equipped with closures at or about floor level for the insertion of materials. The openings will not exceed 48 inches in height measured along the wall of the chute. At all stories below the top floor, such openings will be kept closed when not in use.
c. A substantial gate will be installed in each chute at or near the discharge end. A competent employee will 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 will be securely closed off.
e. Any chute opening into which employees dump debris will 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 will 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, will be provided at each chute opening.
g. Chutes will 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 will be rigidly supported at its top and braced midway in its height.
i. All chutes constructed of combustible material will be covered on the exterior with corrugate steel sheeting having a minimum thickness of 24 gauge through the entire height. Alternatively, chutes will be constructed of non-combustible material.
j. All structural supports of material chutes will be of noncombustible material.
k. Enclosed chutes should be designed for free flow of material, but if clogging or stoppages occur, employees will not remove material from the chutes with their hands. Picks or other suitable implements will be used for this purpose.

Removal of Debris through Floor Openings

Any openings cut in a floor for the disposal of materials will 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 will 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, will 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 will 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 will be left in a stable condition at the end of each shift.
c. Employees will 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 will not be cut or removed until all stories above such floor have been demolished and removed. This provision will 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 will be planked solid, except when employees are kept out of the area below.
f. In buildings 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 will 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 will be cleared of all loose material as the masonry demolition progresses downward.
g. Walkways or ladders will 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, will 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, will 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 will extend the full span of the arch between supports.
b. Before demolishing any floor arch, debris and other material will 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, will be provided for, and will be used by employees to stand on while breaking down floor arches between beams. Such planks will be so located as to provide a safe support for employees should the arch between the beams collapse. The open space between planks will 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, will 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 will be installed to support the flooring planks and the ends of such stringers will be supported by floor beams or girders, and not by floor arches alone.
e. Planks spanning the distance between adequate beams will 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 will not be allowed in the area directly underneath, and such an area will be barricaded to prevent access to it. When demolishing floors and roofs, employees will be prohibited from working below this activity. Demolition of floor spaces will 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 will be provided and used where necessary to ensure employee safety.
g. Demolition of floor arches will 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 will 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 will have curbs or stop logs to prevent equipment from running over the edge.
c. No salvage of materials will 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 will be dismantled column length by column length, and tier by tier (columns may be 2-story lengths). Any structural unit being dismantled will not be overstressed.

Storage & Waste Disposal

a. The storage of waste material and debris on any floor will not exceed the allowable floor loads. Unless material displaced by partial demolition will be used for reconstruction, such material will 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 will 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 will be locked off; except for openings necessary for the removal of material. Such openings will be kept closed at all times when material is not being removed.
f. Storage spaces will not interfere with access to any stairway or passageway.
g. All scrap lumber, waste material, and rubbish will be removed from the immediate work area as the work progresses.
h. All solvent waste, oily rags, and flammable liquids will be kept in fire resistant covered containers until removed from the work site.

Inspections

During demolition, continuing inspections will be made as the work progresses to detect hazards resulting from weakened or deteriorated floors or walls, or loosened material. Employees will 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 respirator.

Electrical - High Voltage

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

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

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

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

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

"FOR MINIMUM CLEARANCES OF HIGH-VOLTAGE LINES IN EXCESS OF 50,000 VOLTS, SEE CALIFORNIA CODE OF REGULATIONS, TITLE 8, ARTICLE 37, HIGH-VOLTAGE ELECTRICAL SAFETY ORDERS."

When working with high voltage, the following work procedures and operating procedures will be followed:

a. All work locations will be **safely accessible** whenever work is to be performed.
b. Employees will be instructed to inspect each safety device, tool or piece of equipment, each time it is used and to use only those in good condition. The use of safety devices and safeguards where applicable is required.
c. **Only qualified electrical workers** will work on energized conductors or equipment connected to energized high-voltage systems. Except for replacing fuses, operating switches, or other operations that do not require the employee to contact energized high-voltage conductors or energized parts of equipment, clearing "trouble" or in emergencies involving hazard to life or property, no such employee will be assigned to work alone. Employees in training, who are qualified by experience and training, will be permitted to work on energized conductors or equipment connected to high-voltage systems while under the supervision or instruction of a qualified electrical worker.

d. During the time work is being done on any exposed conductors or exposed parts of equipment connected to high-voltage systems, a qualified electrical worker, or an employee in training, will be in close proximity at each work location to:
    1. **act primarily as an observer** for the purpose of preventing an accident, and
    2. render immediate assistance in the event of an accident. Such observer will not be required in connection with work on overhead trolley distribution circuits not exceeding 1,500 volts D.C. where there is no conductor of opposite polarity less than 4 feet there from, or where such work is performed from suitable tower platforms or other similar structures.
e. Before work begins, the following will be communicated among multiple employers on the site:
    1. The characteristics of the installation that are related to the safety of the work to be performed.
    2. Conditions that are related to the safety of the work to be performed.
    3. Information about the design and operation of the installation in order to conduct the assessments required.
    4. Any other information about the design and operation of the installation that is requested and is related to the protection of employees.
    5. Unique hazardous conditions related to the job.
    6. Any unanticipated hazardous conditions discovered or found while performing work. This information will be shared with other employers on the site within 2 working days after discovery.
    7. How to coordinate work rules and procedures so all employees are protected as required.
    8. Each employer on the site will ensure that their respective employees are instructed as required.
f. Existing characteristics and conditions of electric lines and equipment that are related to the safety of the work to be performed will be determined before work on or near the lines or equipment is started. Such characteristics and conditions include, but are not limited to:
    1. The nominal voltages of lines or equipment,
    2. The maximum switching-transient voltages,
    3. The presence of hazardous induced voltages,
    4. The presence of protective grounds and equipment grounding conductors,
    5. The locations of circuits and equipment, including electric supply lines, communication lines, and fire protective signaling circuits,
    7. The condition of protective grounds and equipment grounding conductors,
    8. The condition of poles, and
    9. Environmental conditions related to safety.

g. Before Each Job:
    1. When assigning an employee or group of employees to perform a job, the employee in charge will be provided with all available information related to the determination of existing characteristics and conditions required by this section.
    2. The employee in charge will conduct a job briefing with all involved employees that meets all requirements of this standard.
    3. The briefing will cover at least the following subjects: hazards associated with the job, work procedures involved, special precautions, energy-source controls, and personal protective equipment requirements.
    4. If the work or operations to be performed during the work day or shift are repetitive and similar, at least one job briefing will be conducted before the start of the first job of each day or shift. Additional job briefings will be held if significant changes affecting the safety of the employees occur during the course of the work.
    5. A brief discussion is acceptable if the work involved is routine and if the employees, by virtue of training or experience, can reasonably be expected to recognize and avoid work hazards. A more extensive discussion will occur if the work is complicated or especially hazardous or employees cannot be expected to recognize and avoid work hazards.
h. Any employee working within reaching distance of exposed energized parts of equipment will remove all exposed conductive materials, such as keychains, watch chains, rings, wrist watches or bands, unless the materials do not increase the hazards associated with contacting the energized parts.
i. Illumination will be provided as needed to perform the work safely.
j. Insulating equipment designed for the voltage levels to be encountered will be provided and employees will be instructed to use the equipment.
k. Insulated gloves, sleeves and blankets must be visually inspected and electrically re-tested periodically at prescribed intervals or when found to be damaged or defected.
l. We are responsible for the periodic visual and electrical re-testing of all insulating gloves, sleeves and blankets. The following maximum re-testing intervals for the items covered by the listed ASTM standards will apply:

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

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

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

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

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

Clearances:

We will use minimum approach distances specified in Table 2940.2-3, Table 2940.2-4, & the last row of Table 2940.2-6 which are found here. We may establish minimum approach distances using other methods found in Section 2940.2 Minimum Approach Distances.

Alternative Minimum Clearance Distances (in Feet) For Voltages of 72.5 kV and Less1		
Nominal Voltage (kV) phase-to-phase	**Distance**	
	Phase-to-ground exposure	Phase-to-phase exposure
0.601 to 0.750[2]	1.09	1.09
0.751 to 5.0	2.07	2.07
5.1 to 15.0	2.14	2.24
15.1 to 36.0	2.53	2.92
36.1 to 46.0	2.76	3.22
46.1 to 72.5	3.29	3.94
Footnote[1]: This table may be used so long as the worksite is at an elevation of 3,000 feet or less. If employees will be working at an elevation greater than 3,000 feet, minimum approach distances will be determined by multiplying distances in this table by the correction factor in Table 2940.2-7 corresponding to the altitude of work.		
Footnote[2]: For single-phase systems, use voltage-to-ground.		

Alternative Minimum Clearance Distances (in Feet) for Voltages of More than 72.5 kV[1, 2, 3]		
Nominal Voltage (kV) phase-to-phase	**Distance**	
	Phase-to-ground exposure	Phase-to-phase exposure
72.6 to 121.0	3.71	4.66
121.1 to 145.0	4.27	5.38
145.1 to 169.0	4.79	6.36
169.1 to 242.0	6.59	10.10
242.1 to 362.0	11.19	18.11
362.1 to 420.0	13.94	22.34
420.1 to 550.0	16.63	27.03
550.1 to 800.0	22.57	37.34
Footnote[1]: This table may be used so long as the worksite is at an elevation of 3,000 feet or less. If employees will be working at an elevation greater than 3,000 feet, minimum approach distances will be determined by multiplying distances in this table by the correction factor in Table 2940.2-7 corresponding to the altitude of work.		
Footnote[2]: This table may be used so long as no insulated tool spans the gap and no large conductive object is in the gap.		
Footnote[3]: The clear live-line tool distance will equal or exceed the values for the indicated voltage ranges.		

DC Live-Line Minimum Approach Distance (in Feet) with Overvoltage Factor[1]					
Maximum Anticipated Transient Overvoltage	Maximum Line-To-Ground Voltage (kV)				
	250 (kV)	400 (kV)	500 (kV)	600 (kV)	750 (kV)
1.5 or less	3.67	5.25	6.76	8.59	11.84
1.6	3.84	5.54	7.35	9.38	13.05
1.7	4.03	6.07	7.94	10.23	14.33
1.8	1.28	6.40	8.59	11.12	15.71

Footnote[1]: The distances in this table are for air and live-line tool conditions. If employees will be working at an elevation greater than 3,000 feet, minimum approach distances will be determined by multiplying distances in this table by the correction factor in Table 2940.2-7 corresponding to the altitude of work.

No employee will be permitted to approach or take any conductive object without an approved insulating handle closer to exposed energized parts than our established minimum approach distances unless:

a. The employee is insulated or guarded from the energized part (gloves or gloves with sleeves rated for the voltage involved will be considered insulation of the employee from the energized part), or
b. The energized part is insulated or guarded from the employee and any other conductive object at a different potential.

When performing work with live line tools, minimum clear distances will be maintained. Conductor support tools, such as link sticks, strain carriers, and insulator cradles, will be permitted to be used provided that the clear insulation is at least as long as the insulator string or the minimum distance specified for the operating voltage.

Clearances or Safeguards:

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

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

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

b. The operation, erection, handling, or transportation of tools, machinery, materials, structures, scaffolds, or the moving of any house or other building, or any other activity where any parts of the above or any part of an employee's body will come closer than the minimum clearances from energized overhead lines as set forth in Table 1 will be prohibited.
c. The erection, operation or dismantling of any boom-type lifting or hoisting equipment, or any part thereof, closer than the minimum clearances from energized overhead high-voltage lines set forth in Table 2 will be prohibited.

The **storage** of tools, machinery, equipment, supplies, materials, or apparatus under, by, or near energized overhead high-voltage lines is hereby expressly prohibited if at any time during such handling or other manipulation it is possible to bring such tools, machinery, equipment, supplies, materials, apparatus or any part thereof, closer than the minimum clearances from such lines as set forth in Table 2.

Operation of boom-type equipment will conform to the minimum clearances set forth in **Table 2**, except in transit where the boom is lowered and there is no load attached, in which case the distances specified in Table 1 will apply.

TABLE 1 - General Clearances Required from Energized Overhead High-Voltage Conductors	
Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600 to 50,000	6
over 50,000 to 345,000	10
over 345,000 to 750,000	16
over 750,000 to 1,000,000	20

The specified clearance will not be reduced by movement due to any strains impressed (by attachments or otherwise) upon the structures supporting the overhead high-voltage line or upon any equipment, fixtures, or attachments thereon.

TABLE 1 - General Clearances Required from Energized Overhead High-Voltage Conductors	
Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600 to 50,000	6
over 50,000 to 345,000	10
over 345,000 to 750,000	16
over 750,000 to 1,000,000	20

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

TABLE 2 - Boom-type lifting or hoisting equipment clearances required from energized overhead high-voltage lines	
Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600 to 50,000	10
over 50,000 to 75,000	11
over to 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

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Energized Equipment or Systems

All electrical equipment and systems will be treated as energized until tested or otherwise proven to be de-energized.

Only qualified persons will work on electrical equipment or systems.

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

a. Responsible supervision has determined that the work is to be performed while the equipment or systems are energized.
b. Involved personnel have received instructions on the work techniques and hazards involved in working on energized equipment.
c. 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 will 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, will 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 will not be used when working on or near exposed energized conductors or parts of equipment.

Conductive fish tapes will 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 will 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 will 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 will be opened and suitably tagged by such persons. Locks or tags will 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 will 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. With the exception of double insulated tools (with UL approval), all electrical tools and equipment will be grounded.
b. Tools will not be hoisted by their flexible electrical cords.
c. Except in an emergency, load rated switches and circuit breakers will be used for the opening and closing of circuits under load conditions as opposed to fuses and splice connections.
d. While working on electrical equipment, unauthorized persons will be kept clear by barriers or other means of guarding.
e. Temporary wiring and extension cords will be kept off of walking working surfaces and vehicle traffic areas or covered to prevent tripping and vehicle damage.
    1. Electrical cords will not be suspended with staples, hung from nails, or suspended by wire.
    2. Worn or frayed electric cords or cables will not be used.
f. Hands will be dry when working on electrical equipment including plugging in extension cords.
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 will 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.

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

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

Note: Notification of Excavation and Location of Hidden Obstructions:

At least 2 working days before starting excavation, notify all Regional Notification Centers and any non- member subsurface installation owners of the excavations. Only qualified persons will 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 will 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 so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Prior to excavating, obstructions that may create a hazard to employees will be removed or supported and utility companies will be contacted, advised of the proposed work, and asked to establish the location of underground installations.

If the utility company cannot respond to this request within 24 hours and/or the exact location of the underground installations cannot be determined, actual work may begin provided that:

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

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

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

a. appropriate access and egress for personnel and/or equipment such as stairs, ramps and ladders so as to require no more than 25 feet of lateral travel for employees in trenches four (4) feet or 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 on site at all times during excavating work to visually and manually test soil conditions as work progresses and to maintain a safe site.

Daily Inspections

Prior to work and as needed throughout the shift, a competent person will conduct daily inspections of excavations, adjacent areas and protective systems to find evidence of a developing cave-in situation; failure of protective systems; hazardous atmosphere; or other hazardous conditions.

After every rainstorm or event which would affect the safety of employees within an excavation, an inspection will be made by a competent person.

Fall Protection

Walkways must be provided where employees or equipment are required or permitted to cross over excavations. If these walkways are 6 feet or more above a lower level, guardrails must be used. Specific criteria for guardrails are 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

29 CFR 1926.405 - Wiring methods, components, and equipment for general use
29 CFR 1926.416 - General requirements

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

a. Inspect the cord for cracks and cuts.
b. Cord must have a three-prong plug for grounding.
c. Use the shortest continuous length of cord possible. Cords may not be spliced together.
d. Make certain the cord does not lay in water.
e. Ensure cord is properly rated for the job.
f. Secure and route cords out of the traffic flow to prevent tripping.
g. Defective cords will be tagged and removed from service.
h. Most importantly, an extension cord used on a job site MUST be used with a ground fault circuit interrupter (GFCI).

Fall Protection on Communication Towers

Section 8606. Poles, Towers and Ladders

Note: All climbers have received training and are certified in Tower Climbing Safety and Rescue.

The preferred method of accessing towers is by the use of fixed ladders with attached climbing devices. Continuous fall protection is assured using this method. However, because this can be physically demanding over time and this can lead to stress and other physical ailments, OSHA has allowed that employees may ride a hoist line to workstations on towers. As a matter of policy, we do not allow riding of the line, free climbing or rappelling practices.

When climbing the tower during construction activities regardless of height, employees must be protected from falls using a fall arrest system meeting the criteria of our fall protection plan or a ladder assist safety device meeting the requirements of 1926.1053(a). Employees must be trained in the recognition of fall hazards and the use of fall protection systems used.

Under current OSHA standards fall protection is **required** at heights of more than 25 feet. **We require** that each employee **six (6) feet** or more above a lower level be protected from falling by a guardrail system, safety net system, ladder safety device, fall arrest system or positioning device system.

In the Job Site Forms Section of this Program are forms for pre-climb meetings and pre-use inspections of fall protection equipment which must be completed before tower access.

Below is Appendix A, CPL 02-001-036, Compliance Guidelines for Fall Protection and Employee Access by Hoist During Communication Tower Construction Activities, which contains the procedures for tower access by hoist.

Note: Reference below, Hoist Operator: "Whenever there is any doubt as to safety, the operator will have the authority to stop and refuse to handle the load until safety has been assured."

At the base of each tower will be a Rescue Bag which contains: 1 ea. rescue hub 300 feet; 3 ea. anchor slings; 3 ea. carabiners; pulley; edge protector; and rope grab.

APPENDIX A:
Compliance Guidelines for Employee Access by Hoist During Communication Tower Construction Activities

Definitions:

Crew Chief means the one who is authorized, designated, deemed competent and qualified by the employer.

Anti-Two Blocking means a positive acting device which prevents contact between the load block or overhaul ball and the top block (two-blocking), or a system which deactivates the hoisting action before damage occurs in the event of a two-block situation.

Maximum Intended Load means the total load of all employees, tools, materials, load lines and other loads reasonably anticipated to be applied to the hoist apparatus when an employee is hoisted.

Competent Person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate problems.

Authorized Person means a person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or locations at the job site.

Qualified Person means one who, by possession of a recognized degree, certificate or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work or the project.

Gin Pole means a device attached to the tower used to raise sections of tower steel or equipment into position.

Specific Requirements. Employees may be hoisted on the hoist line to reach workstations only if all of the following conditions are met. The Agency believes that strict adherence to the guidelines set forth in this Appendix will provide employers with the appropriate safety measures for access during tower erection.

Training. Before an employee is allowed to perform any job related to hoisting employees aloft for tower work, the employee will receive training on safe access pursuant to these guidelines. The operator of the hoist will have a thorough understanding of these guidelines pertaining to hoisting employees on the hoist line.

Equipment. An anti-two block device will be used on all hoists, except where an employer can demonstrate that ambient radiation frequency (RF) precludes that use. In such case, a site-specific safety and health program will be established and maintained on site to ensure that two blocking cannot occur and that effective communication between the hoist operator and personnel being hoisted is maintained. This program could include a cable marking system, an employee situated on the tower in a position to observe the top block, or any other system which will adequately ensure communication.

a. The rigging, hoist line and slings will have a factor of safety of 10 against failure during personnel lift(s). The hoist line used to raise, or lower employees will be equipped with a swivel to prevent any rotation of the employees. The use of spin-resistant wire rope is prohibited when hoisting employees.
b. When hoisting personnel (versus material) the hoist capacity load rating will be derated by a factor of 2 (reduced by half). All employees will be provided with and required to use the proper personal protective equipment (including fall protection equipment) which will be inspected before each lift.
c. Except where the employer can demonstrate that specific circumstances or conditions preclude its use, a guideline (tag line) will be used to prevent the employees or the platform from contacting the tower during hoisting.
d. The gin pole will be thoroughly inspected before use by a competent person to determine that it is free from defects, including but not limited to: damaged and/or missing members; corrosive damage; missing fasteners and broken welds at joints; and general deterioration.
e. The gin pole will be attached to the tower as designed by a registered professional engineer. There will be a minimum of two attachment locations: at the bottom of the gin pole and near the top of the tower being erected.
f. The personnel load capacity and material capacity of the lifting system in use will be posted at the site near the location of the hoist operator. If the system is changed (for example, if the gin pole angle is changed), the posted capacity will be changed accordingly.

Trial Lift and Proof Testing

A trial lift of the maximum intended personnel load will be made from ground level to the location to which personnel are to be hoisted.

a. The trial lift will be made immediately prior to placing personnel on the hoist line.
b. The hoist operator will determine that all systems, controls and safety devices are activated and functioning properly.
c. A single trial lift may be performed for all locations that are to be reached from a single set-up position.
d. The hoist operator will determine that no interference exists and that all configurations necessary to reach those work locations remain under the limit of the hoist's rated capacity as identified in paragraph 2(e), and additionally maintain a 10:1 factor of safety against failure.
e. The trial lift will be repeated prior to hoisting employees whenever the hoist is moved and set up in a new location or returned to a previously used position.
f. After the trial lift, employees will not be lifted unless the following conditions are met:
    1. Hoist wire ropes are determined to be free of damage in accordance with the provisions of 29 CFR 1926.550;
    2. Multiple part lines are not twisted around each other; and,
    3. The proof testing requirements have been satisfied.

a. If the hoist wire rope is slack, the hoisting system will be inspected to ensure that all wire ropes re properly seated on drums and in sheaves.
b. A visual inspection of the hoist, rigging, base support and foundation will be made by a competent person immediately after the trial lift to determine whether testing has exposed any defect or adverse effect upon any component of the structure.
    1. Any defects found during the inspection which may create a safety hazard will be corrected, and another trial lift will be performed before hoisting personnel.
    2. Prior to hoisting employees and after any repair or modification, the personnel rigging will be proof tested to 125% of the greatest anticipated load by holding it in a suspended position for five minutes with the test load evenly distributed (this may be done concurrently with the trial lift).
    3. After proof testing, a competent person will inspect the rigging. Any deficiencies found will be corrected and another proof test will be conducted.

Pre-Lift Meeting

A pre-lift meeting will be held prior to the trial lift at each location. The pre-lift meeting will:

a. Be attended by the hoist operator, employees to be lifted, and the crew chief;
b. Review the procedures to be followed and all appropriate requirements contained in this guideline; and
c. Be repeated for any employee newly assigned to the operation.

Documentation

All trial lifts, inspections & proof tests will be documented, & the documentation will remain on site during the entire length of the project. The pre-lift meeting will be documented, & the documentation will remain on site during the entire length of the project.

Hoisting an Employee to the Workstation

Except where an employer can demonstrate that specific circumstances or conditions preclude its use, a personnel platform must be used to hoist more than one employee to the workstation. That personnel platform must meet the requirements of 29 CFR 1926.550 (g).

a. When a boatswain's seat-type or full body seat harness is used to hoist employees, the following will apply:
    1. No more than two employees may be hoisted at a time;
    2. The employee's harness will be attached to the hook by a lanyard meeting the strength requirements of 29 CFR 1926.502;
    3. Only locking-type snap hooks will be used; and
    4. The harness will be equipped with two side rings and at least one front and one back D ring.
    5. The hoist line hook will be equipped with a safety latch which can be locked in a closed position to prevent loss of contact.

a. When a personnel platform cannot be used, the following provisions must be followed.
    1. The maximum rate of travel will not exceed 200 feet per minute when a guideline is used to control personnel hoists. When a guideline cannot be used, the rate of travel of the employee being hoisted will not exceed 100 feet per minute.
    2. In all personnel hoist situations, the maximum rate will not exceed 50 feet per minute when personnel being lifted approach to within 50 feet of the top block.
    3. The use of free spooling (friction lowering) is prohibited. When the hoist line is being used to raise or lower employee(s), there will be no other load attached to any hoist line, and no other load will be raised or lowered at the same time on the same hoist.
    4. As-built drawings approved by a registered professional engineer will provide the lifting capacity of the gin pole and will be available at the job site.
    5. The gin pole raising line will not be used to raise or lower employees. Employees must maintain 100% tie-off while moving between the hoist line and the tower.

Communication Between the Hoist Operator and Hoisted Employees

Employees being hoisted will remain in continuous sight of and/or in direct communication with the operator or signal person.

a. In those situations where direct visual contact with the operator is not possible and the use of a signal person would create a greater hazard for the person being hoisted, direct communication alone, such as by radio, will be used.

b. When radios are used, they will be non-trucking closed 2-way selective frequency radio systems. When hand signals are used, the employees must use industry standardized hand signals as required by 1926.550(a)(4).

Weather Conditions. Employees will not be hoisted during adverse weather conditions (high winds, electrical storms, snow, ice, sleet), or other impending danger, except in the case of emergency employee rescue. This determination will be made by the competent person.

Energized Power Lines. The hoist system (gin pole and its base hoists) used to raise and lower employees on the hoist line, will not be used unless the following clearance distances as recommended by ANSI are maintained at all times during the lift:

Power Line Voltage Phase to Phase (kV)	Minimum Safe Clearance (feet)
50 or below	10
Above 50 to 200	15
Above 200 to 350	20
Above 350 to 500	25
Above 500 to 750	35
Above 750 to 1,000	45

Hydraulic Hoists (Drum Hoists). The hoist used for personnel lifting will meet the applicable requirements for design, construction, installation, testing, inspection, maintenance, modification, repair and operations as referenced in this Appendix and as prescribed by the manufacturer.

a. Where manufacturers' specifications are not available, the limitations assigned to the equipment will be based on the determinations of a registered professional engineer. The hoist will be positioned so that it is level and the distance between the drum and the foot block at the base of the tower will allow proper spooling of wire rope. The foot block will be anchored to prevent displacement and be supported to maintain proper alignment.
b. The hoist will be designed to lift materials and personnel with the same drum or drums. Any hoist that has been modified or repaired must be proof tested to 125% of its rated capacity.
c. Rated load capacities recommended operating speeds, and special hazard warnings or instructions will be conspicuously posted on all hoists.
d. Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains or other rotating parts, where exposed, will be totally enclosed.
e. Personnel load capacity for the current configuration of the gin pole will be posted within sight of the hoist operator.
    1. The hoist will have an hour meter and a line speed limiter. The hoist will be designed for and must use powered lowering.
    2. The alignment of hoist components will be maintained within manufacturer's specified limits that prevent premature deterioration of gear teeth, bearings, splines, bushings, and any other parts of the hoist mechanism.
f. All exhaust pipes will be guarded where exposed. An accessible fire extinguisher of 5BC rating or higher will be available at the operator's station.

g. The hoist will be serviced and maintained per the manufacturer's recommendations.
    1. The operating manual developed by the manufacturer for the specific make and model hoist being used will be maintained at the site at all times.
    2. A hoist logbook will be used to record all hoist inspections, tests, maintenance & repair. The log will be updated daily as the hoist is being used & will be signed by the operator and/or crew chief. Service mechanics will sign the log after conducting maintenance & repair. The log will be maintained at the site.

Hoist Mounting

The hoist will be installed following the manufacturer's mounting procedures to prevent excessive distortion of the hoist base as it is attached to the mounting surface.

a. Flatness of the mounting surface will be held to tolerances specified by the hoist manufacturer.
b. The hoist will be anchored so as to resist at least two times any reaction induced at the maximum attainable line pull and will be anchored so that the hoist will not twist or turn.
c. If the hoist is mounted to a truck chassis, it will be properly aligned and anchored in at least two corners to prevent movement, and the wheels will be properly chocked.

Drums

The hoist drum will be capable of raising or lowering 125% of the rated load of the hoist.

a. The hoist drum will have a positive means of attaching the wire rope to the drum.
b. There will always be at least three full wraps of wire rope on the hoist drum when personnel are being hoisted.
c. During operation, the flange will be two times the wire rope diameter higher than the top layer of wire rope at all times.

Brakes and Clutches

Brakes and clutches will be capable of arresting any over-speed descent of the load.

a. The hoist will be provided with a primary brake and at least one independent secondary brake, each capable of stopping and holding 125% of the lifting capacity of the hoist.
    1. The primary brake will be directly connected to the drive train of the hoisting machine, and will not be connected through belts, chains, clutches or screw-type devices.
    2. The secondary brake will be an automatic emergency-type brake that, if actuated during each stopping cycle, will not engage before the hoist is stopped by the primary brake. When a secondary brake is actuated, it will stop and hold the load within a vertical distance of 24 inches.
b. Brakes and clutches will be adjusted, where necessary, to compensate for wear and to maintain adequate force on springs where used. Powered lowering must be used.

c. When power brakes having no continuous mechanical linkage between the actuating and braking mechanism are used for controlling loads, an automatic means will be provided to set the brake to prevent the load from falling in the event of loss of brake actuating power.
d. Static brakes will be provided to prevent the drum from rotating in the lowering direction and will be capable of holding the rated load indefinitely without attention from the operator. Brakes will be automatically applied upon return of the control lever to its center (neutral) position.
e. Brakes applied on stopped hoist drums will have sufficient impact capacity to hold 1.5 times the rated torque of the hoist.

Hoist Controls

Power plant controls will be within easy reach of the operator and will include a means to start and stop, control speed of internal combustion engines, stop prime mover under emergency conditions, and shift selective transmissions.

a. All controls used during the normal operation of the hoist will be located within easy reach of the operator at the operator's station.
b. Controls will be clearly marked (or be part of a control arrangement diagram) and easily visible from the operator's station. Foot-operated pedals where provided, will be constructed and maintained so the operator's feet will not readily slip off and the force necessary to move the pedals can be easily applied.
c. The controls will be self-centering controls (i.e., "deadman" type) that will return the machine to neutral and engage the drum brakes if the control lever is released.

Wire Rope and Rigging

All wire rope and rigging will be inspected daily before use.

a. All eyes in wire rope slings will be fabricated with thimbles.
b. All eyes in wire rope slings will:
    1. Be made with swaged-type fittings; and,
    2. Be field fabricated by a qualified person or factory made.

Hoist Operator

The hoist operator will have classroom training, a minimum of 40 hours experience as a hoist operator, not less than 8 hours experience in the operation of the specified hoist or one of the same types and demonstrated the ability to safely operate the hoist.

a. The employer will not allow an employee to operate a hoist when that employee is physically or mentally unfit.
b. The hoist operator will be responsible for those operations under his/her direct control.
c. Whenever there is any doubt as to safety, the operator will have the authority to stop and refuse to handle the load until safety has been assured.
d. The hoist operator will remain at the controls at all times when personnel are on the hoist line.
e. Before starting the hoist, the operator will ensure that:
    1. The daily inspection has been conducted;
    2. All controls are in the "off" position; and,
    3. All personnel are in the clear.

Hoist Inspections

Each day before use all hoists will be visually inspected by a qualified person.

a. All hoists will be inspected thoroughly at three-month intervals by a qualified person, as will any hoists that have been idle for more than one month but less than six months. Such inspection will include a hands-on operation of all moving parts to ensure that they are intact and will properly function before being put into service.
b. All hoists will undergo a tear-down inspection annually unless the following conditions exist that allow for less frequent tear-down inspections:
    1. A hoist that has been idle for a period of over six (6) months will be given an annual inspection which includes the hoist being completely disassembled, cleaned and inspected. Parts such as pins, bearings, shafts, gears, brake plates, etc. found worn, cracked, corroded, distorted or otherwise non-functional must be replaced before the hoist is used.
    2. Hoists with infrequent to moderate usage (hoists that have been used for fifty (50) hours or less per month and normally operate at considerably less than the hoist rated capacity based on the average use over a month) may go up to thirty-six (36) months between tear-down inspections if serviced under a preventive maintenance program (as specified by the manufacturer) that includes annual hydraulic oil sample analysis. An oil sample analysis, meaning a laboratory analysis, is used to evaluate the mechanical integrity of the hoist. Oil in these hoists will be changed at least on an annual basis, just after the oil analysis is performed. Hoists not subjected to recommended oil sample analysis will undergo an annual tear-down inspection.
c. Hoists that experience heavy usage (hoists that are used for more than fifty (50) hours per month) may go up to twenty-four (24) months between tear-down inspections if serviced under a preventive maintenance program as in (2) above.

Any rebuilt hoist assembly must be line pull tested to the rated load. The hoist drum must be rotated several times in both raising and lowering directions under full-rated load, while checking for smooth operation.

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 will 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.

Glass & Glazing

From a safety standpoint, the handling and installation of glass presents potential hazards that are relatively easy to control through proper use of personal protective equipment, the adherence to safe lifting procedures, and the compliance with our ladder, scaffold, aerial and scissor lift safety procedures.

To prevent damage in the first place, glass, particularly on construction sites, should be stored, to the extent possible, in its original packing containers in a clean, dry, secure area away from other activities.

Never allow glass sheets (lites) from sliding against each other or allow tools or equipment to rest on the sheets. Permanent damage may result.

Extreme care must be exercised when moving panes of glass from storage to placement to prevent breakage and injury to others.

Eye protection and gloves designed for glass handling should be used. Additional PPE, such as steel toed work boots and hard hats would be dictated by the job site and the potential hazards present.

Specialized glass installation and carrying tools will be kept in good condition.

Broken glass will be cleaned up immediately.

Ground Fault Circuit Interrupters

§2405.4. Ground-Fault Circuit Protection-Construction Site.

Our company uses ground fault circuit interrupters.

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

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

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

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

Hazardous Job Site Chemical Awareness & Exposure

Employees of Millerick Engineering, Inc. 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
Note: 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 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/m^3), 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/m^3), averaged over an 8-hour workday.

Lead found in paints, coatings, and compounds that are undisturbed, pose no risk of hazard exposure and work around these items do not require respirators, special clothing, or negative pressure enclosures.

Care will be taken by all employees to not abrade, remove, touch, or in any way disturb lead or lead containing compounds within the work area.

Contractors who actually abate lead do so under the provisions of the above lead standard which precludes lead from escaping into the surrounding areas by negative pressure enclosures and other methods.

As a point of interest, persons whom perform lead abatement have to have received special training, be licensed, and be part of a medical surveillance program.

To drive home the point of the importance of leaving lead at the job site undisturbed and avoided, employees must be aware of the health hazards associated with lead exposure.

The below is extracted from **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) in particular is one of the most severe forms of lead poisoning.

The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost.

When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood - forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(3) "Health protection goals of the standard". Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 ug/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 ug/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 ug) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg percent or ug percent. This is a shorthand notation for 100g, 100 ml, or dl. (References to BLL measurements in this standard are expressed in the form of ug/dl.)

BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead - related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead - related health impairment or disease.

Once your blood lead level climbs above 40 ug/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 ug/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 ug/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead - related impairments and diseases -- both short term and long term -- is to maintain your BLL below 40 ug/dl. The provisions of the standard are designed with this end in mind.

Heavy Construction Equipment

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 to 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, will be equipped with operating brake lights, regardless of light conditions.
d. Windshield wipers and defogging equipment as required.
e. Tools and materials will be secured to prevent movement when transported in the same compartment as the employees.
f. Vehicles used to transport employees will 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 will 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 will 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, will be designed to carry at least 2 times the maximum intended vehicular live load and they will 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 CSOs.
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., fork lifts), 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 also 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 located in enclosures with outside vents or in well ventilated rooms. They must be arranged so that fumes, gases, or electrolyte spray doesn't 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.

Heavy Equipment and Electrical Power Lines

Except where electrical distribution and transmissions lines have been de-energized and visibly grounded at the point of work or where insulating barriers (not attached to the vehicle) have been erected to prevent physical contact with the lines, the following clearance – between any part of the equipment, load line, or load and the power line – will be observed:

a. For lines rated 50 kV or below the minimum clearance between the lines and any part of the equipment or load will be at least 10 feet;
b. For lines rated over 50 kV the minimum clearance between the lines and any part of the equipment or load will be at least 10 feet plus 0.4 inch for each 1 kV over 50 kV (or twice the length of the line insulator, but never less than 10 feet).

c. When in transit without a load & equipment lowered, the equipment clearance will be a minimum of 4 feet for voltages less than 50 kV, 10 feet for voltages 50 kV up to & including 345 kV, & 16 feet for voltages up to and including 750 kV.

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.

Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter must be de-energized or tests must be made to determine if electrical charge is induced on the equipment. The following precautions will be taken when necessary to dissipate induced voltages:

a. The equipment must have an electrical ground directly to the upper rotating structure supporting the equipment; and
b. Ground jumper cables have to be attached to materials being handled by the equipment when electrical charge is induced while working near energized transmitters.

   Note: Crews will be provided with non-conductive poles having large alligator clips or other similar protection to attach the ground cable to the load.

c. Combustible and flammable materials need to be removed from the immediate area prior to beginning operations.

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.

Hoists

§1605.14. Hoisting Machines.

A hoist is a useful mechanical device which gives one the ability to lift and move heavy objects -- not people. No person is to ride on a hoist. As with all mechanical devices, improper use may lead to injury. You must know what you are doing, and you must be careful.

Before use, hoists must be inspected for bent or damaged components. Particular attention should be paid to guarding. Fingers and loose clothing could be snagged in exposed mechanisms. Chains, cables, or rope slings must not be kinked, twisted, or frayed.

Loads must be properly rigged with hooks or slings and they must never exceed the hoist's rated capacity.

Ensure that the area around the hoist is free from debris and, most importantly, people. Do not allow yourself or others to be under a hoisted load.

Horizontal Directional Drilling (HDD)

Only employees qualified by training or experience may perform HDD work. Further, HDD equipment may be used only by authorized employees.

Prior to use, all HDD equipment will be inspected in accordance with the Operator's Manual which must be maintained on the job site with the equipment.

PPE

The Association of Equipment Manufacturers (AEM) recommends that all employees wear properly rated electrically insulated footwear at all times.

Other appropriate PPE would include eye protection, hearing protection, highly visible clothing, and insulated rubber gloves depending on the work situation.

Underground Utilities

The greatest hazard in HDD work involves hitting an underground utility.

Call "811" which is a call before you dig information service.

The below universal color indicates what utility is buried below ground:

Red – Electric

Orange – Communications, Telephone/CATV

Blue – Potable Water

Green – Sewer/Drainage

Yellow – Gas/Petroleum Pipeline

Purple – Reclaimed Water

White – Premark site of intended excavation

Caution must be exercised because:

a. Many underground utilities are not recorded.
b. Many that are recorded are not accurate.
c. Many are at different depths below ground than indicated.

Utilities must be physically identified to ensure they are not hit.

Once utilities are found, use signage incorporating the universal color codes.

Note: After we put in an underground item, we must report it so the next contractor does not hit it.

With the horizontal location known and the utilities exposed to determine their depth at regular intervals along the drill path, drilling may start with the drill head tracked by an experienced employee using a tracking device to direct the operator to steer the drill over, under, or around existing utilities.

Check and double check as you work. There may be loops, valves, tees and other items protruding into the drill path. Remember, **many utilities items underground are not reported or improperly reported.**

The drill operator and the tracking equipment operator must be in constant contact either with two-way radios or hand signals.

If the tracker reading is not "normal", stop work and determine the problem. When working near an existing utility, slow down and use extra care.

Hot Tap Operations

Hot tap operations refer to a procedure used in the repair, maintenance and service activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Because, by definition, continuity of service is essential, it is impossible to use standard control of hazardous energy procedures.

Only trained employees working under the supervision of a competent person (by virtue of training or experience) will perform hot tap operations following documented procedures for the specific job.

Coordination with the facility operator will allow an exact determination of the metal involved, its thickness, the pressures, and, of course, the type of fluid/gas within the piece of equipment. While continuity of service is required, it may be possible to reduce pressures/flow during the hot tap operations.

A control zone will be established to keep workers (and others) not involved with the operations at a safe distance. Care will be taken to assure that all necessary permits and an emergency rescue plan, if deemed necessary, are in place. Attention will be given to the specialized tools and PPE requirements for hot tap operations.

Hydro-Blasting

Hydro-blasting uses the action of water under extremely high pressure to clean surfaces. Hydro-blasting is used for tank, vessel, and pipe cleaning as well as surface preparation. Hydro-blasting equipment may be powered by internal combustion engines (diesel) or electricity. The size of the equipment can vary from small portable units to the size of a tractor trailer. The pressures are enormous, up to 40,000 psi (Ultra High Pressure).

While dust is certainly not a problem with hydro-blasting, consideration must be given to the disposal of wastewater if it is contaminated with toxic or hazardous materials.

Static Electricity

Where not effectively grounded and/or bonded by contact or connection, provisions will be made to prevent the accumulation of static electrical charges which may create a source of ignition in the presence of flammable vapors or gases. High pressure water cleaning systems, when used in the cleaning of tanks and vessels containing hazardous concentrations of flammable gases or vapors, will be grounded or bonded to the tank or vessel shell.

Bonding devices will not be attached nor detached in hazard concentrations of flammable gases or vapors. Before starting work, precautions will be taken to prevent ignition of flammable atmospheres in tanks and vessels in accordance with the requirements of Section 5163 and Section 5420 of the General Industry Safety Orders.

Note: High pressure water cleaning system nozzles used to clean tanks or vessels 100 cubic meters or less in size need not be bonded to the tank or vessel shell, provided all conductive components are grounded and it is not possible for steam to enter the tank or vessel.

Conductors used for bonding and grounding will be equivalent in strength to a #8 A.W.G. (American Wire Gauge) copper wire and will be suitably conductive to ensure a circuit resistance of not more than one megaohm.

Flexible conductors will be used for bonds that are to be connected and disconnected frequently. Solid conductors are acceptable for fixed connections.

When attaching bonding and grounding clamps or clips, a secure and positive metal to metal contact will be made. Such attachments will be made before closures are opened and will not be broken until after static generating activities are completed, and/or closures closed.

Static bonding installations will be so designed, constructed, installed and maintained to prevent static charges of different potential from arcing from one conductive object to another.

Training

Prior to performing hydro-blasting work, employees must be trained on the hazards (including penetration of the skin by high pressure water), operating procedures, and maintenance of hydro-blasters.

Training must include a demonstration of the cutting action of the high-pressure water and of its ability to cut and penetrate the skin. This live demonstration will emphasize the potential hazard to the human body by actually cutting through a piece of lumber, concrete block, or rubber boot.

Because of the infinite variable uses for hydro-blasting and the combinations of hydro-blasting equipment and the inherent dangers involved with hydro-blasting operations, all hydro-blasting operators must have received training on each type of equipment used. Only authorized personnel may operate hydro-blasting equipment.

Obviously, if an accident should occur and water penetrates the skin, medical attention must be given immediately.

Information and training also will address the tremendous force of the water, shock and electrical hazards, noise hazards, chemical release hazards, slip hazards, fall hazards, kick-back hazards, and visibility hazards.

At a minimum, a hydro-blasting team will consist of a pump operator and a nozzle operator.

Personal Protective Equipment (PPE)

All employees performing hydro-blasting work should wear, at a minimum, waterproof body protection, eye protection, head protection including full face shield, waterproof foot protection with steel toe caps, appropriate hand protection, and hearing protection. Depending on circumstances, metatarsal protective boots may be required.

Hydro-Blasting Permits

A Pre-Operational, Operation, and Post-Operation Permits will be developed by the site (or the contractor performing the work) that contains, at least, the below information:

a. Job Description and equipment being cleaned.
b. Precautions taken to protect electrical equipment.
c. Maximum operating pressure.
d. A list of qualified personnel.

Establishment of a Control Zone

A control zone will be established to protect personnel when approaching all ends of the equipment being cleaned. The control zone will be identified by barricades and signage.

Equipment and Procedures

The operator will inspect all hydro-blast equipment prior to use for defects, proper fluid levels, filters, and properly sized/rated fittings. This inspection will cover the high-pressure unit, hoses and fittings. **Defective equipment will be tagged out of service and not used.**

All blast cleaning nozzles must be equipped with an operating valve (on the gun or foot pedal) which must be held open manually and **always under control of the operator.**

Objects to be cleaned will never be held manually.

The minimum total length of a hydro-blasting gun (hand-operated control valve, lance and nozzle resembling a gun layout) will be 66 inches from the shoulder pad to the nozzle.

A properly sized anti-reversal device (stinger assembly attached to a nozzle to prevent it from turning around inside a pipe or large tube) will be used throughout the task. The combined length of the hose connection, stinger, and nozzle will be a minimum of 1.5 times the diameter of the pipe being cleaned unless the pipe being cleaned has a “T”, then the combined length will be 3 times the diameter of the largest pipe.

Moiling device or lance will require a minimum of 2 feet end identification when a pipe flange is available. If no flange or other means to secure the anti-reversal device is used, the hose/flange will require a 2 feet end identification marking and a 4 feet end identification marking of a different color or different pattern.

A hydro-blasting system is not to be operated above the lowest working pressure (40% of the burst pressure) of any of its components.

All hydro blasting must be completed from a stable work surface.

When operating hydro-blasting equipment, no ladders, step stools, benches, etc. are to be used. Approved scaffolding or platforms that are job specific may be used.

System Shut Down Events

The system will be shut down and depressurized any time one of the below events occur:

a. The barricade is violated.
b. The equipment malfunctions (special attention should be given to the dump control valve).
c. Repairs need to be made.
d. The system is to be left unattended.

Kettle Operations

Only trained and authorized persons will be involved with kettle operations. All operations will be performed within a control zone that prohibits entrance by unauthorized persons.

During kettle operations, employees will wear appropriate PPE including hand protection: gloves; skin protection: long sleeves and long pants; foot protection: steel toed work boots; eye protection: safety goggles; and head protection: hard hat, as necessary.

While our work generally has material within the kettle at 450° F, at no time will the material within the kettle exceed 500° F.

The kettle lids will not be opened except for loading the kettle with solid roofing material or unless the material in the roofing kettle is less than 150° F.

Ladders

§1629. Stairways and Ladders.
§1675. General. (Ladders)
§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 will 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 will be kept clear.
m. Ladders will not be moved, shifted, or extended while occupied.
n. The top step of a stepladder will 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 will 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.

LP - Gas Storage

§1706. LP-Gas Fired Space Heaters.

Liquefied petroleum gas (LP-Gas) is sometimes used on job sites to provide fuel for temporary heating devices.

LP-Gas systems must have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type. All cylinders must be DOT approved.

Rules for inside storage (under construction standards) are simple -- **it is not allowed!**

Note: Under industry standards, up to 300 pounds of LP-Gas may be stored, with adherence to specific safety procedures, is allowed.

Rules for outside storage requires that containers be in a suitable ventilated enclosure or otherwise protected against tampering. At least one approved portable fire extinguisher having a rating of not less than 20 B:C must be readily available.

The distances from buildings or groups of buildings that containers must be stored are as follows:

Quantity of LP-Gas Stored	Distance in Feet
500 lbs or less	0
501 to 6,000 lbs	10
6,001 to 10,000 lbs	20
over 10,000 lbs	25

Storage must not be near building openings or vehicular traffic.

§1706. LP-Gas Fired Space Heaters

When LP-Gas is used for temporary heating on units that provide over 7,500 BTU per hour or use containers greater than 2.5-pounds maximum water capacity [nominal 1-pound LP-Gas capacity], the following will apply:

a. Container valves, connectors, regulators, manifolds, piping and tubing must not be used as structural supports for the heaters.
b. The LP-Gas containers and all associated equipment including hoses must be located so as to minimize exposure to high temperatures or physical damage.
c. The maximum water capacity of individual containers must be 245 pounds [nominal 100-pound LP-Gas capacity].

Heaters that are not integral heater-container units, which are connected by hose to the LP-Gas, must be at least 6’ from the container. Blower and radiation type heaters must not be directed toward the container or any other unit within 20 feet. Heaters specifically designed for attachment to the container are permitted as long as the heat is not directed to the LP-Gas container.

Machine Guarding

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

CCR, Title 8, §1548. Bins, Bunkers and Hoppers

CCR, Title 8, §1549. Piling Material

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 will 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 will 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, provided that 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 Millerick Engineering, Inc. 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, as long as 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 in order 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 Millerick Engineering, Inc. 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.

NFPA 70E

Standard for Electrical Safety in the Workplace

OSHA has adopted by reference NFPA 70E-2000, *Standard for Electrical Safety Requirements for Employee Workplaces.*

A national consensus standard, such as NFPA 70E-2018, however, can sometimes be relevant to a general duty clause citation in the sense that the consensus standard may be used as evidence of hazard recognition and the availability of feasible means of abatement. The general duty clause, Section 5(a)(1) of the Occupational Safety & Health Act, is violated if an employer has failed to furnish a job site that is free from recognized hazards causing or likely to cause death or serious physical harm. The general duty clause is used where there is no standard that applies to the particular hazards involved.

All electrical work will be done in compliance with the National Electric Code (NEC), OSHA standards, and NFPA 70E. Both OSHA standards and NFPA 70E deal with worker safety, while the NEC deals with the design, installation, and inspection of electrical installations.

A copy of NFPA 70E will be readily available for reference, training, and employee use.

Training:

All employees who face electrical hazards that are not reduced to a safe level by the applicable electrical installation requirements will be trained in safety-related work practices & procedural requirements as necessary to provide protection from the electrical hazards associated with the job assignments. Employees will be trained to identify & understand the relationship between electrical hazards & possible injury.

Training will be in a classroom and/or on-the-job and the degree of training will be determined by the risk to the employee.

Employees will receive training in emergency procedures including methods of release from contact with exposed energized electrical conductors or circuit parts, methods of first aid, and CPR if the duties warrant such training. Christopher Millerick, our Safety Director, will certify that employees have been trained in approved methods of resuscitation annually.

Training for Qualified Persons:

Note: A qualified person has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

a. Qualified persons must be trained and knowledgeable of the construction and operation of equipment or a specific work method and to recognize and avoid the electrical hazards with respect to the equipment or work methods.
    1. Qualified persons will be familiar with the proper use of special precautionary techniques, PPE, including arc-flash, insulating and shielding materials, and insulated tools and test equipment.

        Note: A person can be qualified with respect to certain equipment and methods but still be unqualified for others.

2. Qualified persons will be permitted to work with the Limited Approach Boundary of exposed energized electrical conductors and circuit parts operating at 50 volts or more and will be trained in the following:
    I. The skills and techniques necessary to distinguish exposed energized electrical conductors and circuits parts from other parts of electrical equipment
    II. The skills and techniques necessary to determine the nominal voltage of exposed energized electrical conductors and circuit parts.
    III. The approach distances specified in Table 130.2(c) and the corresponding voltages to which the qualified person will be exposed.
    IV. The decision-making process necessary to determine the degree and extent of the hazard and the PPE and job planning necessary to perform the task safely.

b. If undergoing OJT and, in the course of the OJT has demonstrated an ability to perform duties safely under the direct supervision of a qualified person, this person will be considered qualified for the performance of these duties.
c. Tasks performed less often that once per year will require retraining before performance of the work practices involved.
d. Qualified persons will be trained to select an appropriate voltage detector and demonstrate how to use a device to verify the absence of voltage, including interpreting indications provided by the device. They will be trained to understand all limitations of each specific voltage detector that may be used.

Training for Unqualified Persons:

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

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

Retraining:

Retraining will be given when.

a. Supervisors or annual inspections indicate that the employee is not complying with the safety-related work practices.
b. New technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different than those the employee would normally use.
c. If the employee must employ safety-related work practices that are not normally used during regular job duties.

Training Documentation:

The company will document that each employee has received the training above after the employee demonstrates proficiency in the work practices involved and will be maintained for the duration of the employee's employment. Training documentation will contain the employee's name and dates of training.

Host Employer Responsibilities:

The host employer will inform contract employers of:

a. Known electrical hazards that are related to the contract employer's work that might not be recognized by the contract employer or its employees.
b. Information about the employer's installation that the contract employer needs to make assessments.

The host employer will report observed contract employer related violations (dealing with electrical work) to the contract employer.

Contract Employer Responsibilities:

a. The contract employer will ensure that each of its employees is instructed in the hazards communicated to the contractor employer by the host employer. This instruction is in addition to the basic instruction required by NFPA 70E.
b. The contract employer will ensure that each of its employees follow the work practices required by NFPA 70E and safety-related work rules required by the host employer.
c. The contractor employer will advise the host employer of:
    1. Any unique hazards presented by the contract employer's work.
    2. Any unanticipated hazards found during the contract employer's work that the host employer did not mention.
    3. The measures the contractor took to correct any violations reported by the host employer and prevent such violations from recurring in the future.

Electrical Safety Program:

The employer will implement and document an overall safety program that directs activity appropriate for the voltage, energy level, and circuit conditions.

Safety related work practices are only one component of an overall an electrical safety program.

Electrical Safety Program Procedures:

The program will address safety related work practices for working within the Limited Approach Boundary. Program elements found in Annex E to NFPA 70E would be included such as evaluations, anticipating unexpected events, electrical flash arc hazard analysis, and the fact that all electrical parts are considered live until proven otherwise.

Risk/Hazard Evaluation Procedures:

Risk/hazard evaluation procedures are to be used before work is started within the Limited Approach Boundary of energized electrical conductors and circuit parts operating at 50 volts or more or where an electrical hazard exists. An example of Hazard/Risk Evaluation Procedures as well an example of a Hazard Risk Analysis Evaluation Flow Chart is found in Annex F to NFPA 70E. It would contain event severity, frequency, probability and avoidance to determine the level of safe practices to be employed.

Pre-Job Briefings for Routine Work:

Prior to performing routine work (routine work is not complicated or particularly hazardous and the employee should be able to recognize and avoid hazards presented), a job briefing will be held before each job and include all employees involved. Topics would include hazards associated with the job, work procedures involved, special precautions, energy source controls, and PPE requirements.

Test Instruments and Equipment:

All test instruments, equipment, and their accessories will be rated for the circuits and equipment to which they will be connected. Further they will meet the requirements of ANSI/ISA-66010-1, *Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1*: *General Requirements*, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 volts and below.

Operations Verification:

When test instruments are used for the testing for the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument will be verified before and after an absence of voltage test is performed.

Insulating PPE Maintenance and Use:

Electrical protective equipment will be maintained in a safe, reliable condition. Insulating equipment will be inspected for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves will be given for an air test along with the inspection.

Maximum test intervals for rubber insulating equipment will be in accordance with NFPA 70E Table 130(c)(6)(c). Time frames for testing would include: 1) Blankets-before first issue/every 12 months, thereafter, 2) Gloves-before first issue and every 6 months, and, 3) Sleeves-before first issue and every 12 months. Covers and line hose will be tested if insulating value is suspect.

Energized Electrical Work Permit:

Reference Annex J to NFPA 70E. Energized Electrical Work Permits are not part of NFPA 70E. Within Annex J, however, are both an example of an Energized Electrical Work Permit and a Flow Chart to illustrate items to consider when determining the need for the permit.

In every case, if the voltage level is ≥ 50 volts AND there are exposed live parts, an Energized Electrical Work Permit is required.

In Part I [to be completed by the Requester] of the Energized Electrical Work Permit will include:

a. Job/Work Order Number.
b. Description of the work to be done.
c. Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage.
d. Requester Name, Title, and Date.

In Part II (to be completed by the Electrically Qualified persons ***doing*** the work) of the Energized Electrical Work Permit will include:

a. Detailed job description procedure to be used in performing the above detailed work.
b. Description of the Safe Work Practices to be employed.
c. Results of the Shock Hazard Analysis.
d. Determination of the Shock Protection Boundaries.
e. Results of the Arc Flash Hazard Analysis.
f. Determination of the Arc Flash Protection Boundary.
g. Necessary personal protective equipment to safely perform the assigned task.
h. Means employed to restrict the access of unqualified persons from the work area.
i. Evidence of completion of a Job Briefing including discussion of any job-related hazards.
j. A signed and dated agreement by each Electrical Qualified Person that the above work can be done safely.

In Part III of the Energized Electrical Work Permit will include:

Signed and dated approval(s) by persons such as:

a. Manufacturer Manager
b. Safety Manager
c. General Manager
d. Maintenance/Engineering Manager
e. Electrically Knowledgeable Person

Illumination of Work Areas:

Employees will not enter spaces containing electrical hazards unless illumination is provided that enables the employees to perform the work safely. Where lack of illumination or an obstruction precludes observation of the work to be performed, employees will not perform any task with the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.

Non-Ionizing Radiation Hazards

Non-ionizing radiation is electromagnetic radiation that does not have enough energy to completely remove an electron from an atom when passing through matter.

Ionizing radiation is high-energy radiation capable of producing ionization in substances through which it passes, i.e., electromagnetic waves that are energetic enough to detach electrons from atoms or molecules.

Radiofrequency (RF) and microwave (MW) radiation are non-ionizing electromagnetic radiation.

Electromagnetic radiation is restricted to that portion of the spectrum commonly defined as the radio frequency region, which for our purposes also includes the microwave frequency region.

RF is in the frequency ranges 3 kilohertz (kHz) - 300 Megahertz (MHz) and MW is in the frequency ranges 300 MHz - 300 gigahertz (GHz).

The hazards associated with RF and MW are limited to heating of tissue and/or cells in the body, damage to the eyes (cataracts), reduced sperm count, and shocks or burns. The preceding hazards will only be possible at ten times the exposure limit.

Per §5085, *Radiofrequency and Microwave Radiation*, employees will not be exposed to microwave power densities in excess of 10 milliwatts per square centimeter.

To prevent unnecessary RF and MW exposures at any level, access to the work site will be controlled by signage and fences, and access will be allowed only to persons trained in RF and MW safety procedures.

Information and Warning Signs

In areas where employee exposure may exceed the specified limits, we will provide warning signs containing the following information in the following manner:

a. Warning signs of RF radiation hazards, as described in ANSI C95.2-1966 “Radiofrequency Radiation Hazard Warning Symbol,” containing the necessary information and description of required protective actions. Refer to §5085, Radiofrequency and Microwave Radiation for Figure RF-1.
b. Signs will be posted at all entrances to accessible areas containing RF radiation levels in excess of the exposure limits.
c. Warning signs must be legible at a distance of 10 meters.

Following is a link to Federal Communications Commission, Office of Engineering & Technology, OET Bulletin 56, August 1999, Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields: **Click Here**

Pile Driving

General Requirements

Boilers and piping systems which are a part of, or used with, pile driving equipment will meet the applicable requirements of the American Society of Mechanical Engineers, Power Boilers (section I). Additionally, all pressure vessels which are a part of, or used with, pile driving equipment will meet the applicable requirements of the American Society of Mechanical Engineers, Pressure Vessels (section VIII).

We will establish a danger zone that will be clearly delineated around the operating hammer where employees involved in cutting, chipping or welding operations will be prohibited to protect them from falling object hazards. This danger zone will be maintained under the supervision of a competent person.

A blocking device or other effective means capable of safely supporting the weight of the hammer will be provided to secure the hammer in the leads and will be used at all times when an employee is working under the hammer.

Overhead protection, which will not obscure the vision of the operator, will be provided. This overhead protection will be the equivalent of 2-inch planking or other solid material of equivalent strength.

Stop blocks will be provided for the leads to prevent the hammer from being raised against the head block. Also, a blocking device, capable of safely supporting the weight of the hammer, will be provided for placement in the leads under the hammer at all times while employees are working under the hammer. Guards will also be provided across the top of the head block to prevent the cable from jumping out of the sheaves.

When the leads must be inclined in the driving of batter piles, provisions will be made to stabilize the leads.

Pile gates, when used, will be of sufficient size to secure piling at the bottom of the leads during driving operations.

Fixed leads will be provided with a ladder or horizontal bracing that is uniformly spaced at intervals no greater than 18 inches, and adequate attachment points, so that the loft worker may engage a personal fall arrest system to the leads. The personal fall protection system will comply with the requirements of Article 24. If the leads are provided with loft platforms, such platform will be protected by standard guardrails. The operator of the equipment will apply all brakes and necessary safety switches to prevent uncontrolled motion of the equipment before an employee may access the leads.

Regarding sheet pile access:

a. If an employee is required to go aloft on sheet piling, the employee will use an aerial device or ladder. Employees will not ride the hammer, crane load block or overhaul ball.
b. A crane suspended personnel platform may be used for access if used in accordance with Section 1616.6(p).
c. Sheet piling will be firmly stabilized before employees are permitted to work on them.
d. Stirrups will be provided for use by employees who must take a position on sheet piles.

Where work is to be performed, walkways at least 20 inches in width will be provided across piles or other open work surfaces except for those piles on which the pile driver is standing.

Before any type of pile is placed in position for driving, the pile head must be cut square to the driving head and free of concrete spall, steel fragments, or other debris.

Where a drop hammer is used for driving piling other than sheet piling, a driving head or bonnet will be provided to bell the head of the pile and hold it true in the leads.

Steam hose leading to a steam hammer or jet pipe will be securely attached to the hammer with an adequate length of chain or cable to prevent whipping in the event the joint at the hammer is broken. Air hammer hoses will also be provided with the same protection as required for steam lines. This safety chain or cable must be at least 1/4-inch in diameter and will also be provided for each hose connection to prevent the line from thrashing around in case the coupling becomes disconnected.

Note: Chains or wire rope will not be shortened with knots, bolts or other makeshift devices.

Steam line controls will have two shutoff valves. One must be a quick-acting lever type within easy reach of the hammer operator.

When used, platforms will be of sufficient size so that the employee can easily avoid contact with the hammer. It will be surrounded on all sides, except between the hammer leads, with a railing or guard line 42-45 inches in height. Guard lines will be taut and at least 3/8 inch wire rope or equivalent. If railings are used, they will be constructed in accordance with Section 1620.

Note: Pipe or structural steel railings of equivalent strength may be used.

Precautions will be taken to ensure that objects are secured against wind and accidental displacement, to prevent tools, material, and equipment from falling off elevated platforms. Toeboards will be installed on all sides of the platform in accordance with Section 1621(b).

Guys, outriggers, thrust outs, or counterbalances must be provided as needed to maintain stability of pile driver rigs.

Hammers will be lowered to the bottom of the leads while the pile driver is being moved.

Ring buoys will be provided in accordance with Article 13 Work Over or Near Water and located where readily available at intervals not exceeding 200 feet on all structures over water under the course of construction. Where employees are concentrated in groups, there will be additional ring buoys consisting of not less than 1 additional buoy for every 25 employees in that area. Portable standards or equivalent means to hold the ring buoys in plain view will be provided. Lifesaving boats will be provided in accordance with Article 13 Work Over or Near Water.

Pile Driving from Barges and Floats

Barges or floats supporting pile driving operations will meet the applicable requirements of Article 13 Work Over or Near Water. All floating rigs, except for small work rafts or pontoons, will be equipped with at least 2 ring buoys.

Pile Hammer Requirements

The pile hammer, clamp, power unit and supply hoses will be inspected in accordance with their manufacturer's recommendations. Associated equipment such as the couplings, support and lifting equipment, rigging and retaining bolts will be inspected before each shift and periodically during use.

Driving heads will be kept aligned with the pile and pile hammer as a pile is driven.

When driving with a crane-suspended vibratory pile hammer, the person operating the remote on/off clamp switch will be in direct visual contact with the signal person.

The exciter (vibratory pile hammer) will not be unclamped from the pile when there is any line pull on the suspension or when the pile hammer is still vibrating.

Pile Driving Equipment

Engineers and winch operators will accept signals only from the designated signalmen.

All deck engines, not operated by an operator on the throttle sides, will be equipped with a cross extension of the throttle that is within reach of the spool tender.

Every hoisting drum on a pile driver that uses a pawl and ratchet arrangement to hold it in position will be equipped with an effective pawl and ratchet capable of holding the rated load capacity when it is suspended. This pawl will be readily visible from the engine operator's station or will be provided with a directly connected and positive telltale device that will be visible.

Pawls which automatically disengage either by relieving the load or rotating the drum are prohibited.

All employees must be clear when piling is being hoisted into the leads.

Hoisting of piling will be done by hooks provided with a means to prevent accidental disengagement or a shackle will be used in place of a hook.

Taglines will be used for controlling unguided piles and free hanging (flying) hammers.

When piles are being driven in an excavated pit, the walls of the pit must be sloped to the angle of repose, or sheet-piled and braced.

When steel tube piles are being "blown out", employees will be kept well beyond the range of falling materials.

When it is necessary to cut off the tops of driven piles, pile driving operations need to be suspended. The exception is when the cutting operations are located at least twice the length of the longest pile from the driver.

When driving jacked piles, all access pits will be provided ladders and bulkheaded curbs to prevent material from falling into the pit.

Pipe Tie-Ins

Prior to a pipe tie-in, the flow of gas, steam, vapor, and liquid must be halted. It is absolutely vital to know the ramifications of halting the flow within the pipe, particularly in hazardous facilities such as chemical plants, refineries, and other facilities which have a higher degree of hazard than normal work sites. In these types of facilities, **prior** to any blocking of flow through pipes, permission will be obtained from the facility operator. Failure to follow this specific rule could result in a major catastrophe.

Before actual tie-in is attempted, the original pipe that has been taken out of service (by positive means such as valve, block, or tag) will be purged of contaminants, and gas tested, if appropriate.

At the completion of the tie-in, the facility operator will be notified **before** flow is restored to the pipe.

It is vital to know the chemical and physical properties of the material within the pipe so an appropriate fire extinguisher can be selected and available. This information will also allow for hazard assessment and PPE selection.

Post-Tensioning Operations

§1721 - Post-Tensioning Operations

CalOSHA has little to say about post-tensioning operations other than that which is found in §1721, which states that:

a. No employees, except those essential to the post-tensioning operations, are permitted to be behind the jack during tensioning operations.
b. Signs and barriers must be erected to limit employee access to the post-tensioning area during tensioning operations.

However, by following the below guidelines and procedures, the hazards of post-tensioning operations can be controlled.

a. Concrete pre-stressing and post-tensioning operations should be done according to the specifications and instructions of a professional engineer, and a copy of these plans and instructions will be available on site while the work is being done if required by the Safety Manager or General Contractor.
b. Stressing operations must be carried out under the direction of a competent person.
c. Employees involved in pre-stressing or post-tensioning must be instructed in and follow safe work procedures.
d. Appropriate eye protection must be worn by all employees involved in grouting, stressing and cable trimming operations.
e. Tendons, including bars, strands and wires, used for tensioning purposes must be protected against physical damage and corrosion during handling, transportation and storage.
f. Strand couplers must not be reused until they have been inspected by a qualified person and determined to be safe for reuse.
g. Welding, burning, or other work is not permitted on any surface where strands have been strung or tensioned unless proper care is taken to protect the strands from sparks or other heat sources and from stray electric currents.
h. Visual or audible signaling devices must be provided and used in the area of tensioning operations to warn approaching employees.
i. Employees not directly involved in tensioning or de-tensioning operations must be kept clear of the danger area and must remain clear until operations are completed, and the visual and/or audible warning signals are turned off or removed.
j. Strand elongation and strand deflection must be measured in a way that does not expose the employee to a risk of injury.
k. During pre-stressing operations employees must be protected by guards or other suitable devices at the tensioning ends and anchoring points to contain the flying strands and the strand vises in the event of strand failure.
l. Guards must be fabricated from mild steel plate, not less than ¼” thick, or ¾” thick or better plywood that provides at least equivalent strength.
m. Deflecting devices must be designed to prevent slip-out and to allow backing off of strands from the deflected position.

n. Written de-tensioning procedures should be prepared by a professional engineer and followed so that employees are not exposed to danger from equipment or strand failure or structural failure. These procedures would include methods to safeguard the operator and other employees from hazards while cutting strands.
o. Strand vises and hydraulic equipment and components must be used and maintained in accordance with the manufacturer's instructions.
p. Strand vises must not be reused until they have been inspected by a competent person and determined to be safe for reuse.
q. Damaged or worn vises and hydraulic equipment will be removed from service.
r. The supervisor or competent person must ensure that operators are given the maximum allowable values for both stretch of the tendon and hydraulic pressure at the pump.
s. 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.
t. 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.
u. 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.
v. 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.
w. Hydraulic hoses must be inspected for leaks or bubbles after each stressing operation and any damaged hoses should be immediately removed from service.
x. The hydraulic system must be regularly inspected for oil leaks and other damage and necessary corrective action taken.
y. Where adequate clearance exists, the platform width at jacking locations must be at least 32”.
z. Each blowout must be reported to the structural design engineer, investigated and logged.
aa. A copy of the logged entry must be available on site for reference purposes.
ab. If there is risk of injury from handling coiled post-tensioning tendons, a suitable coil handling device must be used.
ac. 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.

Rigging for Material Handling

§5042. Safe Operating Practices
§5043. Inspections
§5044. Alloy Steel Chain Slings
§5048. Synthetic Web Slings

All the applicable provisions of Cranes and Derricks in Construction, above, apply to *Rigger Training, Qualification and Certification*.

Rigger training should incorporate familiarization with rigging, hardware, slings and safety issues associated with rigging, lifting loads and lift planning. Training should include classroom, hands-on training, and exams. Hands-on trainings should include proper inspection, use, selection and maintenance of loose gears (slings, shackles, hooks, etc.).

Additionally, when working within the petrochemical industry, the provisions of API2D 2-3 and API2D 3.14 apply. Specifically, only personnel with training and experience who have completed a rigger training program (including crane operators and inspectors) may attach or detach lifting equipment to loads or lifting loads.

Prior to use on each shift, rigging equipment, including slings and all fastenings and attachments, will be inspected for damage or defects by a qualified person. Additional inspections will be performed during sling use and where service conditions warrant, to ensure that it is safe.

Defective/damaged equipment including slings and rigging will not be used and will be immediately removed from service.

Rigging equipment, when not in use, will be removed from the immediate work area and stored properly so as not to present a hazard to employees.

Under no circumstances may any employee be under a suspended load.

Cal/OSHA Table S-1 contains indicates rated capacities for various types of slings and grommets, safe working loads for shackles, number and spacing of U-Bolt Wire Rope Clips, and maximum allowable wear at any point of link.

Only alloy steel chain slings may be used for hoisting. Welded alloy steel chain slings must have permanently affixed durable identification stating size, grade, rated capacity, and sling manufacturer. Of course, hooks, rings, oblong links, pear-shaped links, welded or mechanical coupling links, or other attachments, when used with alloy steel chains, will have a rated capacity at least equal to that of the chain.

Rigging equipment will **not be loaded in excess** of its recommended safe working load and load identification will be attached to the rigging.

Specific requirements for use and inspection of alloy steel chains, wire rope, natural rope and synthetic fiber, synthetic webbing, and shackles are found in the above standards.

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

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 is capable of identifying 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 of the particular 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 & 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.	APF 10	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 & 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	None
	− 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 the course of 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 fully and properly implement the engineering controls, work practices, and respiratory protection described 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 in excess of 50 µg/m3, calculated as an 8-hour TWA.

Exposure Assessment

We have to 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 on the basis of 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.

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 are able to 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 will 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 of 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 actually 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 in excess of 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.

§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 will be at least 24 in. in width and will be equipped with stair rails, handrails, treads, and landings.
g. All guardrails railings, including their connections and anchorage, will be capable of withstanding a load as specified in 1620(c).
h. Handrails must be 34 in. to 38 in. above the tread nosing.
i. Wooden posts will be not less than 2 in. by 4 in. in cross section, spaced at 8-foot or closer intervals. Wooden top railings will be smooth and of 2-in. by 4-in. or larger material. Double, 1-in. by 4-in. members may be used as top railings when certain conditions are met.
j. Railings and toeboards must be installed around stairwells.
k. The stairway will have landings at each floor, or level, of not less than 30 in. in the direction of travel and extend at least 24 in. in width at every 12 feet or less of vertical rise.
l. Stair steps must be illuminated with at least 5-ft. candles of light and all lamps must be guarded.

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 means the steel joist bridging is connected to a bridging terminus point.

Bolted Diagonal Bridging means diagonal bridging that is bolted to a steel joist or joists.

Bridging Clip means a device that is attached to a steel joist to allow the bolting of the bridging to the steel joist.

Bridging Terminus Point means 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 means the process of using press brakes, rolls, or other methods to shape steel into desired cross sections at room temperature.

Column means a load-carrying vertical member that is part of the primary skeletal framing system. Columns do not include posts.

Connector means an employee who, working with hoisting equipment, is placing and connecting beams or other structural members.

Constructability means 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) means any load other than the weight of the employee(s), the joists and the bridging bundle.

Controlled Decking Zone (CDZ) means 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 means 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 means 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 means 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) means an elevated floor of a building or structure that has been designated to receive hoisted pieces of steel prior to final placement.

Double Connection means 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 means a structural attachment that, during the installation of a double connection, supports the first member while the second member is connected.

Erection Bridging means 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) means a “Z” or “C” shaped member formed from sheet steel spanning between primary framing and supporting wall material.

Metal Decking means 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 means rigging manufactured by rigging suppliers that facilitates the attachment of up to five independent loads to the hoist rigging of a crane.

Permanent Floor means a structurally completed floor at any level or elevation (including slab on grade).

Post means 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 or Record means 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) means a “Z” or “C” shaped member formed from sheet steel spanning between primary framing and supporting roof material.

Safety Deck Attachment means 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 means 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 means 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 means 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 means 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 means 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 means 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 means 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 means 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 will 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, on the basis of 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 will 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, on the basis of 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 will 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 will 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, eyehooks 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 a distance of 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 will apply:

   1. The CDZ will be limited to that area where metal decking is initially being installed and forms the leading-edge work.
   2. The implementation of a CDZ will be under the supervision of a competent person.
   3. The employer will 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 will be in writing and will 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 will:
    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 will 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 will be limited to only those employees engaged in leading edge work.
7. The boundaries of a CDZ will be designated and clearly marked. The CDZ will be defined by a control line or by any equivalent means that restrict access.
    i. Control lines will meet the requirements of CCR, Title 8, §1671.2(a)(4) through (a)(6).
    ii. When control lines or equivalent means are used, they will be erected not less than 6 feet from the unprotected leading edge.
    iii. The CDZ will 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 will be posted to warn unauthorized persons to stay out of CDZ.
8. Safety deck attachments will be performed in the CDZ from the leading edge back to the control line and will have at least two attachments for each metal decking panel. Unsecured decking in a CDZ will not exceed 3,000 square feet.
9. Final deck attachments, installation of shear connectors, and flashing will not be performed in the CDZ.

Working Under Loads

All loads will 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 will 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 will 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 will 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 will 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, will be based on the manufacturer's specifications with a 5 to 1 safety factor for all components.

The total load will 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 will 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 will be set from the bottom up.

Controlled load lowering will 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 will include observation for deficiencies during operation. At a minimum this inspection will 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 will 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 will be distributed over the underlying support members so as to prevent local overloading of the deck material.
g. Bundle packaging and strapping will 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 will 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 will 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 will 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 will 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 will 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, will 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 will 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 will be evaluated by a competent person to determine whether guying or bracing is needed; if guying or bracing is needed, it will 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 will 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 will determine if more than two bolts are necessary to ensure the stability of cantilevered members; if additional bolts are needed, they will be installed.

b. Diagonal bracing. Solid web structural members used as diagonal bracing will 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 will 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) will be designed to support the load during the double connection process. It will be adequately bolted or welded to both a supporting member & the first member before the nuts on the shared bolts are removed to make the double connection.

d. Column splices. Each column splice will 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 will 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 will 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 will be provided on each column for steel joists. The plate will be a minimum of 6 inches by 6 inches and will 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 will be stabilized to prevent rotation during erection.
c. Hoisting cables will 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 will be installed on both sides near the column and will:
    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 will 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 will 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 will not be placed on any support structure unless such structure is stabilized. When steel joist(s) are landed on a structure, they will be secured to prevent unintentional displacement prior to installation.

c. No modification that affects the strength of a steel joist or steel joist girder will 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 will be fabricated to allow for field bolting during erection. These connections will be field bolted unless constructability does not allow.
e. Steel joists and steel joist girders will 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 will 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 will 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 will 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 D below, each steel joist will 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 will 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 will be attached to the support structure before hoisting cables are released.
b. For joists over 60 feet, both ends of the joist will 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 will be provided near the support(s). This bridging will 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 will be allowed on the joist until all bridging is installed and anchored.
d. Employees will 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 will apply:

a. A row of bolted diagonal erection bridging will be installed near the midspan of the steel joist;
b. Hoisting cables will not be released until this bolted diagonal erection bridging is installed and anchored;
c. No more than one employee will 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 will apply:

a. All rows of bridging will be bolted diagonal bridging;
b. Two rows of bolted diagonal erection bridging will be installed near the third points of the steel joist;
c. Hoisting cables will not be released until this bolted diagonal erection bridging is installed and anchored; and
d. No more than two employees will 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 will apply:

a. All rows of bridging will be bolted diagonal bridging;
b. Hoisting cables will not be released until all bridging is installed and anchored;
c. No more than two employees will 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 will be provided near the support(s). This bridging will be installed an anchored before the hoisting cable(s) is release.

For steel members spanning over 144 feet, the erection methods used will be in accordance with those outlined under Beams and Columns.

When bolted diagonal erection bridging is required, the following will apply:

a. The bridging will be indicated on the erection drawing;
b. The erection drawing will be the exclusive indicator of the proper placement of this bridging;
c. Shop-installed bridging clips, or functional equivalents, will 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 will not be removed from the bolt for the attachments of the second; and
e. Bridging attachments will 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 will not exceed a total of 1,000 lbs. A bundle of joist bridging will be placed on a minimum of three steel joists that are secured at one end. The edge of the bridging bundle will 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 will be placed within 1 foot of the bearing surface of the joist end.

Systems-Engineered Metal Buildings

All of 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 will be anchored by a minimum of four anchor rods (anchor bolts).

b. Rigid frames will 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 will 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 will 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 will 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, will be secured against accidental displacement. Also, the controlling contractor will 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 will be installed as the erection of structural members progresses, and there will be not more than 8 stories between the erection floor and the uppermost permanent floor, except where the structural integrity is maintained as a result of the design.

At no time will 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 as a result of the design.

Temporary Flooring

The derrick or erection floor will be solidly planked or decked except for access openings. Planking or decking of equivalent strength, will be of proper thickness to carry the working load. Planking will be no less than 2 inches thick full size undressed and will be laid tight. Both planking and decking will be secured.

A tightly planked and substantial floor will 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 will 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 will 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 will 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 will 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. Other guardrail protection may be used if equal fall protection is provided.

Note: Pendant lines, catenary lines and other lines used to secure workers will be used in accordance with CCR, Title 8, §1670.

Note: Wire rope or other guardrail protection provided by the steel erector will 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 will 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 will be laid tightly and immediately secured upon placement to prevent accidental movement or displacement. During initial placement, metal decking panels will be placed to ensure full support by structural members.

Metal decking at roof and floor holes and openings will be installed as follows:

a. Framed metal deck openings will 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 will 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 will be immediately covered.

Fall Protection

At heights over 15 and up to 30 feet above a lower level, connectors will 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 will be permitted where the fall distance does not exceed 2 stories or 30 feet, whichever is less.

Iron workers will 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. Will 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 a-c 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 will be installed at a distance of 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 will meet the requirements set forth in accordance with CCR, Title 8, §1671.

Tools - Hand

§1699. Hand Tools.

§2395.45. Equipment Connected by Cord and Plug.

§3382. Eye and Face Protection.

§3557. Switches and Controls for Portable Tools.

When using hand and power tools, appropriate PPE will be used to provide protection for the eyes, skin, ears, hands, feet, and respiratory system in accordance with our PPE Program.

Any tool not in compliance with Cal/OSHA or ANSI standards will not be used. Such tools, as well as any tools found to be defective in any manner, will be identified as unsafe by tagging and removed from the job site.

All hand and power tools and similar equipment, whether furnished by the employer or the employee, will be maintained in a safe condition.

Here are basic procedures for the use of hand tools:

a. Hand tools will 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

CCR Title 8, § 1707 - Power-Operated Hand Tools

CCR Title 8, § 1704 - Pneumatically Driven Nailers and Staplers

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 will 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 will not be exceeded.

The use of hoses for hoisting or lowering tools will not be permitted.

All hoses exceeding 1/2-inch inside diameter will 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, with the exception of light-duty nailers and staplers, will 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 Controls will not be removed, tampered with, altered, or otherwise disabled.

Pneumatically driven nailers and staplers will 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 will 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 will 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 similar to a pistol or rifle.

The speed of the projectile may range from 300 ft./second to 1290 ft./second.

Only powder-actuated tools will 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 will 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 will 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 will 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 will be provided and kept with each tool. The words "**POWDER-ACTUATED TOOL**" will appear in plain sight on the outside of the container. The following notice will 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 will 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 will 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 not's 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 will 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 will not be used in an explosive or flammable atmosphere.
d. A loaded tool will never be left unattended.
e. Fasteners will 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 will 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 will not be driven closer than ½ inch from the edge of steel except for specific applications recommended by the tool manufacturer.

h. Fasteners will not be driven into concrete unless material thickness is at least three times the fastener shank penetration.
i. Fasteners will not be driven into any spalled area.
j. Fasteners will 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 identify clearly the wearer as a person and be visible through the full range of body motions.

Uniformed law enforcement officers may be used as flaggers in some locations, such as an urban intersection, where enforcement of traffic movements is important. Uniformed law enforcement officers may also be used on freeways where traffic is channeled around work sites and it is necessary to assure that advisory and regulatory speeds are being enforced. For nighttime work and in low-visibility situations, a retroreflective garment as described above should be worn.

Hand-signaling devices, such as STOP/SLOW paddles, lights, and red flags are to be used to control traffic through temporary traffic control zones. The STOP/SLOW paddle, which gives drivers more positive guidance than red flags, should be the primary hand-signaling device. The standard STOP/ SLOW sign paddle will be 18 inches square with letters at least 6 inches high. A rigid handle should be provided. This combination sign should be fabricated from light semi-rigid material and will have an octagonal shape. The background of the STOP face will be red with white letters and border. To be better seen, the STOP/SLOW paddles may be supplemented by one or two symmetrically positioned alternately flashing white high-intensity lamps on each side. The background of the SLOW face will be orange with black letters and border. When used at night, the STOP/ SLOW paddle will be 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.

Valley Fever

Valley fever, also called Coccidioidomycosis or “cocci”, is an illness caused by a fungus found in soil in parts of California. Areas around the Central Valley and Central Coast may be at higher risk of exposure.

California law AB 203 requires that employees working outdoors in high Valley Fever counties receive training about the risk of exposure and how to prevent it. Employees will receive initial training and then retraining annually thereafter.

Prevention

Prior to commencing work, the following should be done to help prevent employees from contracting Valley Fever:

a. Determine if the job site is in an area where Valley Fever has been found. The following counties have been known to have the highest rates of Valley Fever among residents: Fresno, Kern, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Santa Barbara, Tulare, and Ventura. Check with the local health department to determine if cases are known to occur near the work area.

b. Ensure all employees have been provided with Valley Fever training. Employees must receive initial training on Valley Fever and then annually thereafter. This applies to all employees working in the field.

c. Limit exposure to dust in areas where Valley Fever is common. Efforts will be made to minimize the amount of dust on the job site. Work may be limited or suspended during heavy winds or dust storms.

d. Always keep soil wet. To reduce dust from disturbed soil, keep the soil wet before, during and after any earth moving work.

e. Select the proper heavy equipment. If possible, vehicles used will be enclosed and equipped with air-conditioned cabs that use a high-efficiency particulate air (HEPA) filter.

f. Work upwind. If possible, digging or conducting other soil disturbing work will be done upwind to reduce dust exposure.

g. Use respiratory protection. When exposure to dust is unavoidable, employees will be provided with particulate filters rated N95, N99, N100, P100, or HEPA.

    1. When respirators are required, we will implement our Respiratory Protection Program.

Reducing the Spread of Spores

a. Wash off dirt prior to leaving the job site. Equipment, tools, and vehicles will be cleaned with water to remove soil prior to leaving the job site.

b. Separate “on-the-job” and “off-the-job” clothes and shoes. Employees will be encouraged to use separate clothes and shoes for on-the-job and off-the-job.

c. Shower after shift. Employees are encouraged to shower and rinse off dirt as soon as possible after completing their shift.

If an employee shows symptoms of Valley Fever

Early detection and medical attention are important when it comes to Valley Fever. It can prevent employees from missing work or developing long-term disabilities.

If an employee reports having symptoms, we will:

a. Send the employee to a health care provider who is knowledgeable about Valley Fever.
b. Provide the health care provider with details about the location of the worksite and dust or soil exposure.
c. Report any cases to Cal-OSHA within 24 hours that result in an employee hospitalization.

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 Cristobalite. Amorphous, including natural diatomaceous earth	 (b)$(250) \div (\%SiO_2+5)$ 20
SILICATES (Less than 1% crystalline silica) Mica Portland Cement Soapstone Talc (non-abestiform) Talc (fibrous), use asbestos limit	 20 20 20 20
GRAPHITE (Natural)	15
INERT OR NUISANCE PARTICULATES **Note a. Covers all organic and inorganic particulates not otherwise regulated. Same as Particulates Not Otherwise Regulated.** **Note b. Inert or Nuisance Dusts includes all mineral, inorganic, and organic dusts as indicated by examples in TLV's Appendix D.** **1. Millions of particles per cubic foot or air, based on impinger samples counted by light field techniques.** **2. 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.**	50 (or 15 mg/m³ which-ever is the smaller) of total dust <1% SiO **Note a. See Table above**

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 & 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.

§1520. Hand Protection.
§1522. Body Protection.
§1536. Ventilation Requirements for Welding, Brazing, and Cutting.
§1537. Welding, Cutting, and Heating of Coated Metals.
§1740. Storage and Use of Cylinders.
§1742. Hose and Connections.
§1743. General Precautions.
§3381. Head Protection.
§3382. Eye and Face Protection.
§3385. Foot Protection.
§4845. General Precautions.
§4848. Fire Prevention and Suppression Procedure.
§4851. Arc Welding and Cutting.
§5155. Airborne Contaminants.
§5206. Chromium (VI).

Employees assigned to operate arc welding, cutting, and oxygen-fuel welding and/or brazing equipment, **and their supervisors**, must be properly trained and instructed in the operation of such equipment. Proper PPE will be worn by all welders.

Before welding or cutting, the supervisor or competent person will inspect the area with emphasis on fire prevention and authorize welding or cutting using our Hot Work Permit noting special precautions that must be taken.

An appropriate fire extinguisher and first aid equipment will be readily available for immediate use.

Compressed Gas Cylinders Use:

Compressed gas cylinders are used at many facilities – the most common being oxygen and acetylene for welding.

Failure to follow basic safety procedures could result in serious injuries such as:

a. Flash burn – due to explosion.
b. Fragment impalement – due to explosion.
c. Compression of the foot – due to mishandling of tanks.
d. Inhalation of hazardous gases – due to leakage.

Basic safety procedures for gas cylinder use:

a. Cylinders must remain upright and chained to a substantial support or cart when in use.
b. Wear appropriate personal protective equipment for the job – such as steel toed shoes, apron, goggles, gloves, helmet, etc.
c. Read and understand the SDS for the gas being used and know the location of the SDS in case of an emergency.
d. Have appropriate fire extinguisher readily available.
e. To release the gas, open the cylinder valve slowly – standing away from the face and back of the gauge – and leave the opening tools in place (on the valve stem) for quick shut-off in the event of an emergency.
f. Ensure cylinder valves, regulators, couplings, and hoses are free of oil and grease and ensure all connections are tight.

g. When using oxygen-fuel systems, use flashback arrestors and reverse-flow check valves to prevent flashback.
h. Keep cylinders away from open flames and sources of heat.
i. Cylinders are never allowed in confined spaces.
    1. When welding or cutting in a confined space, the tanks must remain outside the confined space.
    2. Appropriate ventilation must be assured, portable equipment must be secured to prevent movement, if appropriate, and a rescue plan should be prepared.
    3. If the rescue plan involves pulling the person out, attachment of the lifelines should be so the person's body does not jam in the exit and prevent his extraction.
    4. If arc welding is suspended for a substantial period of time, the electrodes must be removed to prevent accidental contact and the machine must be disconnected from the power source.
    5. If gas cylinder work is suspended, the torch valves must be closed and the fuel-gas and oxygen supply must be positively shut off or disconnected outside the confined space.
    6. After welding operations are completed, the welder must mark the hot metal or provide some other means of warning other workers.
j. Do not alter or attempt to repair safety devices or valves.
k. Remove the regulators when: a) moving cylinders; b) work is completed, and/or c) cylinders are empty.

Compressed gas cylinders will:

a. Have valve protectors in place when not in use or connected for use.
b. be legibly marked to identify the gas contained therein.
c. Have the valves closed before the cylinder is moved, when the cylinder is empty, and at the completion of each job.
d. Be stored in areas away from intense heat, electric arcs, and high temperature lines.
e. Be secured upright (chained in portable dolly), in storage or transportation, to prevent tipping, falling, rolling, and damage from passing or falling objects. Oxygen cylinders must be kept 20 feet from any flammable gases or petroleum products.
f. Be marked "EMPTY" when appropriate.
g. Be removed from service if the regulators or gauges are defective.
h. Be used only for the purpose for which they are designed -- for example, cylinders will not be used as rollers or supports.
i. Be kept away from stairs.
j. Workers in charge of oxygen or fuel-gas supply equipment (including distribution piping systems and generators) must be instructed and judged competent for such work.

Regulators and gauges will be inspected daily.

All cylinders, cylinder valves, couplings, regulators, hoses and apparatus will be kept free of oily or greasy substances.

Operators of welding equipment will report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs will be made only by qualified personnel.

Persons performing arc welding and cutting must be properly instructed and qualified to 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.

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 will 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:

a. Mixtures of fuel gases and air or oxygen may be explosive and will 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, will be allowed unless approved for the purpose.

b. Backflow protection will 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 will 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).

c. Acetylene will not be generated, piped (except in approved cylinder manifolds) or utilized at a pressure in excess of 15 pounds per square inch gauge pressure.

d. The use of liquid acetylene will be prohibited.

e. Oil or grease will not be permitted to come in contact with oxygen cylinders, valves, regulators or other fittings. Oxygen cylinders and apparatus will not be handled with oily hands or gloves, or greasy materials. A jet of oxygen will not be permitted to strike an oily surface, greasy clothes or enter a fuel oil or other storage tank.

f. Oxygen will not be used from a cylinder or cylinder manifold unless a pressure-reducing device intended for use with oxygen, and so marked, is provided.

g. Fuel-gas will 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.

h. Welding fuel-gas cylinders will be placed with valve end up whenever they are in use. Liquefied gases will be stored and shipped with the valve end up. Nothing will 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.

i. Cylinders will be handled carefully.

   Note: Rough handling, knocks, and falls are liable to damage the cylinder, valve or safety devices and result in leakage.

j. Before connecting a regulator to a cylinder valve, the valve will be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.) The valve will be opened while standing to one side of the outlet; never in front of it. A fuel-gas cylinder valve will never be opened up, cracked near other welding work or near sparks, flame, or other possible sources of ignition.

Exception: Hydrogen cylinders. See suppliers' instructions before connecting the regulator.

k. Before a regulator is removed from a cylinder valve, the cylinder valve will be closed, and the gas released from the regulator.

l. If cylinders are found to have leaky valves or fittings which cannot be stopped by closing of the valve, the cylinders will be taken outdoors away from sources of ignition and slowly emptied.

m. Cylinders having leaking fuse plugs or other leaking safety devices will be plainly tagged, and the supplier will be promptly notified of the condition and his instructions followed. A warning will be placed near the cylinders prohibiting any approach to them with a lighted cigarette or other source of ignition.

n. Safety devices will not be tampered with.

o. The cylinder valve will always be opened slowly.

p. An acetylene cylinder valve will not be opened more than one and one-half turns of the spindle, and preferably no more than three- fourths of a turn.

q. Torches in use will be inspected at the beginning of each working shift for leaking shutoff valves, hose couplings, and tip connections. Defective torches will not be used. Clogged torch tip openings will be cleaned with suitable cleaning wires, drills, or other devices designed for such purpose.

r. Torches will be lighted by friction lighters or other approved devices, and not by matches or from hot work.

s. Unalloyed copper will not be used for acetylene or acetylenic compounds except in listed equipment.

t. When flammable gas lines or other parts of equipment are being purged of air or gas, open lights or other sources of ignition will not be permitted near uncapped openings.

u. No welding or cutting will 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 will be used to purge oxygen lines.

v. If pipeline protective equipment incorporates a liquid, the liquid level will be maintained, and a suitable antifreeze may be used to prevent freezing.

w. Cylinders will be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them, or fire-resistant shields will be provided.

x. No person, other than the gas supplier, will attempt to mix gases in a cylinder. No one, except the owner of the cylinder or person authorized by him, will refill a cylinder.

y. Cylinders containing oxygen or acetylene, or other fuel or gas will 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 will 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 will 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 will be used except as otherwise specified by this section.

a. 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
b. Respiratory protective equipment will be used when the ventilation requirements are not feasible.

Toxic Substances Used in Any Enclosed Space:

Local exhaust ventilation will be used when potentially hazardous materials are employed as base metals, fluxes, coatings, plating's 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 will be worn.

Toxic Substances Used in the Open Air:

Where toxic substances, such as those listed above are used, **respiratory protective equipment** will be provided and used in accordance with our Respiratory Protection Program except as otherwise specified by this section.

a. In operations involving beryllium-containing base or filler metals, only supplied-air respirators will be used.
b. 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 will 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 will 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 will 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:

a. 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 will be enclosed with noncombustible screens having a similar low reflectivity finish. Booths and screens will permit circulation of air at floor level. Workers or other persons adjacent to the welding areas will be protected from the rays by noncombustible or flameproof screens or shields or will be required to wear appropriate goggles.

b. Welding machines will be left on the outside of a confined space and heavy portable equipment will be blocked to prevent accidental movement.

c. When operations are suspended for any substantial period of time, such as during lunch or overnight, welding machines will be shut off at some point outside the confined space. Where practicable, the electrodes and electrode holders will be removed from the confined space. All electrodes will be removed from the holders and the holders carefully located to prevent accidental contact. Upon completion or discontinuance of welding operations, the welder will provide some means of warning other workers of the location of hot metal.

d. Manual Electrode Holders
    1. The employer will 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 will be used.
    2. 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 will be insulated against the maximum voltage to ground.

e. Welding Cables and Connectors:
    1. Arc welding and cutting cables will be insulated, flexible and capable of handling the maximum current required by the operations, taking into account the duty cycles.
    2. Only cable free from repair or splice for 10 feet (3 m) from the electrode holder will be used unless insulated connectors or splices with insulating quality equal to that of the cable are provided.

3. When a cable other than the lead, mentioned above, wears and exposes bare conductors, the portion exposed will not be used until it is protected by insulation equivalent in performance capacity to the original.
4. Insulated connectors of equivalent capacity will be used for connecting or splicing cable. Cable lugs, where used as connectors, will provide electrical contact. Exposed metal parts will be insulated.

f. Ground Returns and Machine Grounding:
   1. Ground return cables will have current-carrying capacity equal to or exceeding the total maximum output capacities of the welding or cutting units served.
   2. 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.
   3. Structures or pipelines forming a temporary ground return circuit will have electrical contact at all joints. Arcs, sparks or heat at any point in the circuit will cause rejection as a ground circuit.
   4. Structures or pipelines acting continuously as ground return circuits will have joints bonded and maintained to ensure that no electrolysis or fire hazard exists.
   5. Arc welding and cutting machine frames will 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 will have resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.
   6. Ground connections will be mechanically and electrically adequate to carry the current.
g. When electrode holders are left unattended, electrodes will be removed, and holders placed to prevent employee injury.
h. Hot electrode holders will not be dipped in water.
i. 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 will be kept in the off position.
j. Arc welding or cutting equipment having a functional defect will not be used.
k. The control apparatus of arc welding machines will be enclosed except for operating wheels, levers, and handles.
l. Input power terminals, top change devices and live metal parts connected to input circuits will be enclosed and accessible only by means of insulated tools.
m. When arc welding is performed in wet or high humidity conditions, employees will use additional protection, such as rubber pads or boots, against electric shock.

Wildfire Smoke Exposure

Overview

With wildfires becoming a more regular occurrence, the hazard to employees from smoke inhalation has increased. It is the responsibility of Millerick Engineering, Inc. to ensure that our employees are protected from that hazard. CalOSHA Title 8, Section 5141.1 - Protection from Wildfire Smoke states that we must take precautions to prevent employee exposure when the current Air Quality Index (current AQI) for PM2.5 is 151 or greater (regardless of the AQI for other pollutants) and it's reasonably anticipated that employees may be exposed to wildfire smoke.

Note: The following workplaces and operations are exempt:

a. **Enclosed buildings or structures in which the air is filtered by a mechanical ventilation system and the employer ensures that windows, doors, bays, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.**

b. **Enclosed vehicles in which the air is filtered by a cabin air filter and the employer ensures that windows, doors, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.**

c. **The employer demonstrates that the concentration of PM2.5 in the air does not exceed a concentration that corresponds to a current AQI of 151 or greater by measuring PM2.5 levels at the worksite in accordance with Appendix A.**

d. **Employees exposed to a current AQI for PM2.5 of 151 or greater for a total of one hour or less during a shift.**

e. **Firefighters engaged in wildland firefighting.**

Note: For workplaces covered by section 5141.1 - Protection from Wildfire Smoke, an employer that complies with section 5141.1 will be considered compliant with sections 5141 and 5155 for the limited purpose of exposures to a current AQI for PM2.5 of 151 or greater from wildfire smoke.

Definitions

Current Air Quality Index (Current AQI) means the method used by the U.S. Environmental Protection Agency (U.S. EPA) to report air quality on a real-time basis. Current AQI is also referred to as the “NowCast,” and represents data collected over time periods of varying length in order to reflect present conditions as accurately as possible.

Air Quality Index (AQI) Categories for PM2.5	Levels of Health Concern
0 to 50	Good
51 to 100	Moderate
101 to 150	Unhealthy for Sensitive Groups
151 to 200	Unhealthy
201 to 300	Very Unhealthy
301 to 500	Hazardous

The current AQI is divided into six categories as shown in the table below, adapted from Table 2 of Title 40 Code of Federal Regulations, Part 58, Appendix G.

NIOSH means the National Institute for Occupational Safety and Health of the U.S. Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

PM2.5 means solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller.

Wildfire Smoke means emissions from fires in “wildlands” or sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof, or in adjacent developed areas.

Communication

Millerick Engineering, Inc. will establish and implement a system for communicating wildfire smoke hazards in a form readily understandable by all affected employees, including provisions designed to encourage employees to inform the employer of wildfire smoke hazards at the worksite without fear of reprisal. Our system will include effective procedures for:

a. Informing employees of the current AQI for PM2.5 and of protective measures available to reduce their wildfire smoke exposures.
b. Encouraging employees to inform the employer of worsening air quality and any adverse symptoms that may be the result of wildfire smoke exposure such as asthma attacks, difficulty breathing, and chest pain.

Identification of Harmful Exposures

Millerick Engineering, Inc. must determine employee exposure to PM2.5 for worksites covered by Section 5141.1 before each shift and periodically thereafter, as needed, by any of the following methods:

a. Check AQI forecasts and the current AQI for PM2.5 from any of the following: U.S. EPA AirNow website, U.S. Forest Service Wildland Air Quality Response Program website, California Air Resources Board website, local air pollution control district website, or local air quality management district website; or
b. Obtain AQI forecasts and the current AQI for PM2.5 directly from the EPA, California Air Resources Board, local air pollution control district, or local air quality management district by telephone, email, text, or other effective method; or
c. Measure PM2.5 levels at the worksite and convert the PM2.5 levels to the corresponding AQI in accordance with Appendix A of Section 5141.1 - Protection from Wildfire Smoke.

Exception: These do not apply when an employer assumes the current AQI for PM2.5 is greater than 500 and uses that assumption to provide mandatory respiratory protection.

Measuring PM2.5 Levels at the Worksite

Millerick Engineering, Inc. may use a direct-reading particulate monitor to determine PM2.5 levels for determining if harmful exposure exists. If this is necessary, we will select a monitor that:

a. Does not underestimate employee exposures to wildfire smoke; or
b. If it does underestimate wildfire smoke exposures, Millerick Engineering, Inc. will obtain information on the possible error of the monitor from the manufacturer or other published literature. We will account for the error of the monitor when determining exposures to PM2.5 to ensure that employee exposure levels are not underestimated.

The monitor also must be designed and manufactured to measure the concentration of airborne particle sizes ranging from at least an aerodynamic diameter of 0.1 micrometers up to and including 2.5 micrometers.

The monitor we use must be calibrated, maintained, and used, including the use of necessary accessories, in accordance with the manufacturer’s instructions for accurately measuring PM2.5 concentrations.

The following table will be used to convert the PM2.5 concentration to the AQI for PM2.5.

PM2.5 in Micrograms per Cubic Meter (µg/m3)	Air Quality Index (AQI) Categories for PM2.5
0 to 12.0	0 to 50
12.1 to 35.4	51 to 100
35.5 to 55.4	101 to 150
55.5 to 150.4	151 to 200
150.5 to 250.4	201 to 300
250.5 to 500.4	301 to 500

Control of Harmful Exposures to Employees

As with all hazards, there are 3 methods to control employee's exposures: engineering controls, administrative controls, and personal protective equipment. The following will describe the order of importance and examples for each.

Engineering Controls

First, Millerick Engineering, Inc. will reduce employee exposure to PM2.5 to less than a current AQI of 151 by using engineering controls whenever feasible. For example, by providing enclosed buildings, structures, or vehicles where the air is filtered. If engineering controls are not sufficient to reduce exposure to PM2.5 to less than a current AQI of 151, then exposures will be reduced as much as feasible.

Administrative Controls

Whenever engineering controls are not feasible or do not reduce employee exposures to PM2.5 to less than a current AQI of 151, Millerick Engineering, Inc. will also implement administrative controls, if practicable. These might include relocating work to a location where the current AQI for PM2.5 is lower, changing work schedules, reducing work intensity, or providing additional rest periods.

Control by Respiratory Protective Equipment

Millerick Engineering, Inc. will provide respirators to all employees for voluntary use in accordance with our respiratory protection program and will encourage them to use them when exposures to current AQI for PM2.5 levels are equal to or greater than 151, but do not exceed 500.

Respirators will be NIOSH-approved devices that effectively protect the employees from inhalation of PM2.5, such as N95 filtering facepiece respirators. Respirators must be cleaned, stored, maintained, and replaced so that they do not present a health hazard to the users.

Note: Appendix B of section 5141.1 will be used in lieu of Appendix D to Section 5144 - Respiratory Protection for training regarding voluntary use of respirators.

Note: For voluntary use of filtering facepieces, such as N95 respirators, some of the requirements of section 5144 do not apply, such as fit testing and medical evaluations.

When the current AQI for PM2.5 exceeds 500, respirators will be required to be used in accordance with our Respiratory Protection Program. The employees will be provided respirators with an assigned protection factor so that the PM2.5 levels inside the respirator correspond to an AQI less than 151.

Emergencies

In emergencies, including rescue and evacuation, requirements regarding engineering and administrative controls, do not apply. In these scenarios, Millerick Engineering, Inc. will use respiratory protective equipment. Emergencies include utilities, communications, and medical operations, when such operations are directly aiding firefighting or emergency response.

Training and Instruction

Millerick Engineering, Inc. must also provide employees with effective training on wildfire smoke hazards. At a minimum, this will contain the following information from Appendix B of Section 5141.1 - Protection from Wildfire Smoke.

Health Effects of Wildfire Smoke

Although there are many hazardous chemicals in wildfire smoke, the main harmful pollutant for people who are not very close to the fire is “particulate matter,” the tiny particles suspended in the air.

Particulate matter can irritate the lungs and cause persistent coughing, phlegm, wheezing, or difficulty breathing. Particulate matter can also cause more serious problems, such as reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.

People over 65 and people who already have heart and lung problems are the most likely to suffer from serious health effects.

The smallest—and usually the most harmful—particulate matter is called PM2.5 because it has a diameter of 2.5 micrometers or smaller.

Right to Obtain Medical Treatment Without Fear of Reprisal

Millerick Engineering, Inc. allows employees who show signs of injury or illness due to wildfire smoke exposure to seek medical treatment and will not punish affected employees for seeking such treatment. When necessary, Millerick Engineering, Inc. will also provide for prompt medical treatment of employees in the event of serious injury or illness caused by wildfire smoke exposure.

How Employees can Obtain the Current AQI for PM2.5.

The AQI is a measurement of how polluted the air is and various government agencies monitor the air at locations throughout California to report the current AQI for those places. An AQI over 100 is unhealthy for sensitive people and an AQI over 150 is unhealthy for everyone.

Although there are AQIs for several pollutants, Title 8, section 5141.1 about wildfire smoke only uses the AQI for PM2.5. The easiest way to find the current and forecasted AQI for PM2.5 is to go to www.AirNow.gov and enter the zip code of the location where you will be working. The current AQI is also available from the U.S. Forest Service at https://tools.airfire.org/. The EPA website www.enviroflash.info can transmit daily and forecasted AQIs by text or email for particular cities or zip codes.

Requirements in Title 8, Section 5141.1 About Wildfire Smoke

If employees may be exposed to wildfire smoke, then Millerick Engineering, Inc. is required to find out the current AQI applicable to the worksite. If the current AQI for PM2.5 is 151 or more, we are required to:

a. Check the current AQI before and periodically during each shift.
b. Provide training to employees.
c. Lower employee exposures.
d. Provide respirators and encourage their use.

Two-Way Communication System

Millerick Engineering, Inc. will alert employees when the air quality is harmful and what protective measures are available to employees. We will encourage employees to inform their supervisors if they notice the air quality is getting worse, or if they are suffering from any symptoms due to the air quality, without fear of reprisal. The method used for communication will be conspicuously posted at the worksite.

Methods to Protect Employees from Wildfire Smoke

Millerick Engineering, Inc. must take action to protect employees from PM2.5 when the current AQI for PM2.5 is 151 or greater. Examples of protective methods include:

a. Locating work in enclosed structures or vehicles where the air is filtered.
b. Changing procedures such as moving workers to a place with a lower current AQI for PM2.5.
c. Reducing work time in areas with unfiltered air.
d. Increasing rest time and frequency and providing a rest area with filtered air.
e. Reducing the physical intensity of the work to help lower the breathing and heart rates.

The control methods will be posted conspicuously at worksites.

Importance, Limitations, and Benefits of Using a Respirator When Exposed to Wildfire Smoke

Respirators can be an effective way to protect employee health by reducing exposure to wildfire smoke, when they are properly selected & worn. Respirator use can be beneficial even when the AQI for PM2.5 is less than 151, to provide additional protection.

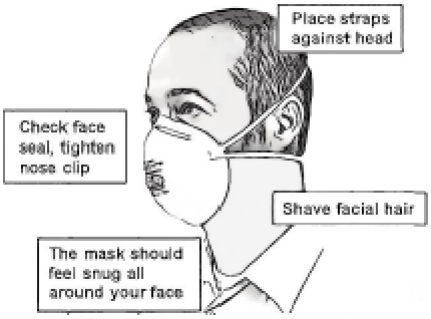
When the current AQI for PM2.5 is 151 or greater, Millerick Engineering, Inc. will provide our employees with proper respirators for voluntary use. If the current AQI is greater than 500, respirator use is required.

A respirator must be used properly and kept clean.

The following precautions will be taken:

a. Select respirators that are certified for protection against the specific air contaminants at the workplace. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Center for Disease Control and Prevention certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will list what the respirator is designed for (particulates, for example).

Surgical masks or items worn over the nose and mouth such as scarves, T-shirts, and bandannas will not provide protection against wildfire smoke. An N95 filtering facepiece respirator, shown in the image below, is the minimum level of protection for wildfire smoke.



b. Read and follow the manufacturer's instructions on the respirator's use, maintenance, cleaning and care, along with any warnings regarding the respirator's limitations. The manufacturer's instructions for medical evaluations, fit testing, and shaving should also be followed, although doing so is not required by Title 8, section 5141.1 for voluntary use of filtering facepiece respirators.
c. Do not wear respirators in areas where the air contains contaminants for which the respirator is not designed. A respirator designed to filter particles will not protect employees against gases or vapors, and it will not supply oxygen.
d. Employees should keep track of their respirator so that they do not mistakenly use someone else's respirator.
e. Employees who have a heart or lung problem should ask their doctor before using a respirator.

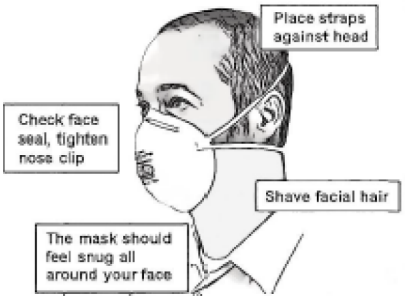
<u>How to Properly Put On, Use, & Maintain the Respirators Provided by the Employer</u>

To get the most protection from a respirator, there must be a tight seal around the face. A respirator will provide much less protection if facial hair interferes with the seal. Loose-fitting powered air purifying respirators may be worn by people with facial hair since they do not have seals that are affected by facial hair.

The proper way to put on a respirator depends on the type and model of the respirator.

For those who use an N95 or other filtering facepiece respirator mask that is made of filter material:

a. Place the mask over the nose and under the chin, with one strap placed below the ears and one strap above.
b. Pinch the metal part (if there is one) of the respirator over the top of the nose so it fits securely.



For a respirator that relies on a tight seal to the face, check how well it seals to the face by following the manufacturer's instructions for user seal checks. Adjust the respirator if air leaks between the seal and the face. The more air leaks under the seal, the less protection the user receives.

Respirator filters should be replaced if they get damaged, deformed, dirty, or difficult to breathe through. Filtering facepiece respirators are disposable respirators that cannot be cleaned or disinfected. A best practice is to replace filtering facepiece respirators at the beginning of each shift.

If you have symptoms such as difficulty breathing, dizziness, or nausea, go to an area with cleaner air, take off the respirator, and get medical help.

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 will 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 will 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 will be provided with a flat surface walkway at least 12” wide, anchored to the pipeline to prevent displacement. A railing providing at least a single rail or taut rope 42-45” high will be provided along one side. When rope is used, it will be at least as strong as ¾” diameter Manila or at least 3/8” diameter wire rope, or equivalent.

Catwalks or platforms will be at least 20” wide with railings provided at all locations over bodies of water more than 4 feet deep. Planks for such use at those locations subject to immersion will 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 hand rail not less than 34” or more than 38” above the tread nosing will 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 will be of the double rung or flat tread type. They will 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, have to 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.

Millerick Engineering, Inc.
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 will furnish to each of his employees employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

Providing first aid or other medical assistance is not the primary job assignment of our designated first aid providers. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the job site where the incident occurred.

Recordkeeping: all work-related injuries from needle-sticks and cuts, lacerations, punctures and scratches from sharp objects contaminated with another person's blood or other potentially infectious materials (OPIM) are to be recorded on the OSHA 300 as an injury.

a. To protect the employee's privacy, the employees name may not be entered on the OSHA 300.
b. If the employee develops a bloodborne disease, the entry must be updated and recorded as an illness.

Note: Our first aid kits do not contain sharps or needles. However, a contaminated sharp, such as a broken pair of glasses, may trigger the above.

Policy Statement

This Exposure Control Plan has been developed to eliminate or minimize the risk of exposure to bloodborne pathogens and other potentially infectious materials. This Plan presents methods and procedures to eliminate and/or minimize the hazards associated with occupational exposure to bloodborne pathogens or other infectious materials.

As a matter of policy, universal precautions will be used.

Additional components of this Plan include exposure determinations by job classification, standard operating procedures to eliminate or reduce the likelihood of disease transmission, the methods of disease transmission, definitions of terms, post exposure procedures and follow-up, training documentation, and recordkeeping.

Compliance with this Plan not only fulfills the requirements of the Occupational Safety and Health Administration, more importantly, it fulfills our desire to maintain a safe working environment and safeguard the health of our employees.

All affected employees should feel free to review this Plan at any time and are encouraged to consult with our Exposure Control Plan Administrator to resolve any issues affecting its implementation. Our Plan is to be made available to the Assistant Secretary of Labor for Occupational Safety and Health or designated representative.

Definitions

All employees should know the "language" of this plan. Because some of the words and/or terms are not used in everyday life, each person must be aware of the definitions so that we are all "reading off the same page."

Below are OSHA definitions:

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.

Blood means human blood, human blood components, and products made from human blood.

Bloodborne Pathogens means 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 means a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

Contaminated means the presence, or the reasonably anticipated presence, of blood or other potentially infectious materials on an item or surface.

Contaminated Laundry means laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.

Contaminated Sharps means 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 means 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 means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

Engineering Controls means 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 means 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 means a facility providing an adequate supply of running potable water, soap, and single use towels or hot air-drying machines.

Licensed Healthcare Professional means 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 means hepatitis B virus.

HIV means human immunodeficiency virus.

Needleless Systems means 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 means 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, anybody 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.

Parental means 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 means a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.

Regulation Waste means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Research Laboratory means 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 means 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 means 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 means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

Universal Precautions means 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 means controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

Exposure Control Plan

This Exposure Control Plan is provided for all personnel who, as a result of the performance of their duties, would have reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials.

This Plan will be reviewed and updated annually and whenever necessary as new or modified tasks and procedures are introduced which affect occupational exposure to bloodborne pathogens or other potentially infectious materials. The review and update of this plan will:

a. Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens.

b. Annually document consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.

First aid providers are employees responsible for direct trauma victim care, who are potentially exposed to injuries for contaminated sharps, will be asked for input on the identification, evaluation, and selection of effective engineering and work practice controls.

This Exposure Control Plan, with a copy of §5193, *Bloodborne Pathogens*, will be made accessible to all employees as well as the Assistant Secretary and the Director (see definitions) who may examine and copy this plan.

Exposure Determination

Three (3) lists will be prepared and they will be maintained at the end of this exposure control plan for bloodborne pathogens & other infectious material, located **here.**

List I: A list of all job classifications in which all employees have occupational exposure.

List II: A list of job classifications in which some employees have occupational exposure.

List III: A list of all tasks and procedures, or groups of closely related tasks and procedures, in which occupation exposure occurs and are performed by employees in job classifications noted in List II.

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Methods of Compliance

Universal precautions will be used. We will treat all trauma victims' blood, bodily fluids, and other potentially infectious materials as if they are known to be infectious. Unfortunately, there is no immediate, practical way to determine if HIV, HBV, and other bloodborne pathogens are present so, to be safe, we will assume they are. Traditionally, isolation of infectious materials has been diagnosis driven. This meant that if a person were diagnosed to have HIV or HBV infection, for example, then isolation precautions would be taken. Because the infection status of each trauma victim cannot be immediately known, it makes sense to treat all trauma victims and their body fluids as if they were infected. The precautions to take depend on the procedures being performed. For example, if one's hands will be in contact with body substances, disposable gloves will be worn. If there is risk of one's eyes being splashed with body fluids, eye protection will be worn. An impermeable barrier must be placed between yourself and the potentially infectious bodily fluids. Overkill is not necessary. Cleaning up a minor spill on a 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.

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 handwashing 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 will 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 will not be kept in refrigerators, freezers, shelves, cabinets, on countertops, or benches where blood or other potentially infectious materials are present.

Contaminated Needles & other Contaminated Sharps:

Contaminated needles will not be sheared or broken.

Furthermore, all contaminated needles and other contaminated sharps will not be bent, recapped, or removed unless:

a. It can be demonstrated that no alternative is feasible or that it is required by a specific medical procedure.
b. Recapping or needle removal may be accomplished through the use of a mechanical device or a one-handed method.

Contaminated **reusable** sharps will be placed in appropriate containers immediately or as soon as possible after use until properly reprocessed. These containers will:

a. Be puncture resistant.
b. Have warning labels affixed to containers potentially infectious material and contain the following legend:

Note: The above label will be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.

Labels will be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

Red bags or red containers may be substituted for labels.

c. Be leak proof on the sides and bottom.

Reusable sharps that are contaminated with blood or other potentially infectious materials will not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed.

Contaminated **non-reusable** sharps will be discarded immediately or as soon as feasible and placed in containers that:

a. Are closable
b. Are puncture resistant
c. Are leak proof on sides and bottom
b. Have warning labels affixed that contain the following legend:

Note: The above label will be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.

Labels will be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

Red bags or red containers may be substituted for labels.

Contaminated **non-reusable** sharps will not be stored or processed in such a manner that requires employees to reach by hand into the containers where these sharps have been placed.

During use, containers for contaminated sharps must be:

a. Easily accessible to our employees.
b. Located as close as feasible to the immediate area where sharps are used or can be reasonably anticipated to be found.
c. Maintained upright throughout use.
d. Replaced routinely and not be allowed to overfill.

If leakage is possible when removing a container of contaminated sharps, it will be placed in a second container with the following container requirements:

a. It will be disposable,
b. It will be constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping, and
c. Colored coded red or labeled as noted above.

Reusable containers will not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous (introduced through the skin such as a cut) injury.

Other Regulated Waste - Containment:

The provisions that apply to contaminated sharps, above, apply to other regulated waste.

Disposal of Contaminated Sharps & other Regulated Waste:

The actual disposal of all regulated waste will be in compliance with applicable state laws.

Specimens of Potentially Infectious Materials:

Specimens of blood and potentially infectious materials will 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 will 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 will never be washed, decontaminated, or reused.

Disposable gloves will be replaced as soon as practical when contaminated or as soon as feasible if they are torn, punctured, or their ability to function as a barrier is compromised.

Should any employee be allergic to the normal gloves provided, an appropriate alternative (such as hypoallergenic and/or powderless gloves) will be provided in the proper size at no cost to the employee.

Utility Gloves:

Utility gloves may be used for general cleanup (not for any trauma victim procedure) when there is anticipated exposure to bloodborne pathogens or other potentially infectious materials. Utility gloves may be decontaminated for re-use if the integrity of the gloves is not compromised. They will be discarded if they are cracked, peeling, torn, punctured, or exhibit signs of deterioration or when their ability to function as a barrier is compromised.

Eye and Respiratory Protection:

Eye (goggles, glasses, face shield, etc.) and respiratory (mask, etc.) protection will be used when it can reasonably be expected that bloodborne pathogens or other potentially infectious materials may splash or spray in or around the eyes, nose, mouth, and general head area of the employee.

Protective Body Clothing:

Protective body clothing such as gowns, aprons, lab coats, etc. will be worn as determined by the professional judgment of the employee in relation to task. The protective body clothing will certainly be worn where there can reasonably be expected exposure to bloodborne pathogens or other potentially infectious materials to the body area.

Laundry:

Personal protective equipment will be cleaned, laundered, and disposed of at no cost to the employee.

Note: In rare and extraordinary circumstances, an employee, in her/his professional judgment, may decline to temporarily and briefly wear personal protective equipment if he/she deems that the equipment would prevent the delivery of health care or would have increased the hazard of occupational exposure to the employee or his/her co-workers. Should this event occur, it will be documented, investigated, and procedures will be developed to prevent a reoccurrence.

Housekeeping

Housekeeping is an ongoing, never ending procedure which not only enhances our work environment but also eliminates health risk to our personnel. In the area of bloodborne pathogens and other hazardous materials, to ensure proper cleaning, decontamination, sterilization, and disinfecting of surfaces within our work area, cleaning will be accomplished only by employees who have received training in universal precautions and the provisions of this plan. The documented Housekeeping Schedule & Checklist is found at the end of this exposure control plan for bloodborne pathogens & other infectious material. This Schedule will be adhered to following an incident that results in the potential exposure to bloodborne pathogens or other potentially infectious materials.

Broken, potentially infected glassware should be picked up and disposed of using mechanical means such as a brush and dust pan or forceps.

All sharps will be stored in a manner that allows easy access and safe handling.

Infectious waste will be placed in containers that are color coded red. These containers will be decontaminated as soon as practical.

Subsequent to rendering any procedures, employees will ensure that all surfaces on which blood, body fluids, bloodborne pathogens, or other infectious materials may be present are cleaned with an appropriate disinfectant.

Hepatitis B Epidemiology

Hepatitis B (serum hepatitis) routes of infection include parenteral, oral, or direct contact. The virus can also spread by contact with the respiratory tract. Its sources include contaminated needles and surgical instruments as well as contaminated blood products. Hepatitis B virus has also been found in urine. Further, the hepatitis B virus can live for up to seven (7) days on a dry surface and can be easily be transmitted by a single needle stick. Its incubation period is quite lengthy generally between 45 and 180 days. It affects all age groups. Recovery from hepatitis B does provide immunity. Generally, one can expect a complete recovery from viral hepatitis; however, it is potentially fatal depending on many factors including the virulence (aggressiveness) of the virus, prior hepatic damage, and natural barriers to damage and disease of the liver. It is possible for viral hepatitis to lead to fulminating viral hepatitis and sub-acute fatal viral hepatitis both of which are fatal. Onset symptoms may include headache, elevated temperature, chills, nausea, dyspepsia, anorexia, general malaise, and tenderness over the liver. These types of symptoms will last about one (1) week, and then subside, and jaundice will occur. Jaundice is caused by damaged liver cells. The convalescent stage begins with the disappearance of the jaundice and may last several months. Recovery is expected in six (6) months.

Risk of Exposure

Per the Department of Human Services of the Center for Disease Control, below is the risk of infection after occupational exposure:

HBV:

First aid providers who have received hepatitis B vaccine and have developed immunity to the virus are at virtually no risk for infection. For an unvaccinated person, the risk from a single needle-stick or cut exposure to HBV-infected blood ranges from 6-30% and depends on the hepatitis B e antigen (HBeAg) status of the source individual. In individuals who are both hepatitis B surface antigen (HBsAG) positive and HBeAg positive have more virus in their blood and are more likely to transmit HBV.

HCV:

Based on limited studies, the risk for infection after a needle-stick or cut exposure to HCV-infected blood is approximately 1.8%. The risk following a blood splash is unknown, but is believed to be very small; however, HCV infection from such an exposure has been reported.

HIV:

The average risk of HIV infection after a needle stick or cut exposure to HIV-infected blood is 0.3% (i.e., three-tenths of one percent, or about 1 in 300). Stated another way, 99.7% of needle-stick/cut exposures do not lead to infection.

The risk after exposure of the eye, nose, or mouth to HIV-infected blood is estimated to be, on average, 0.1% (1 in 1,000).

The risk after exposure of the skin to HIV-infected blood is estimated to be less than 0.1%. A small amount of blood on intact skin probably poses no risk at all. There have been no documented cases of HIV transmission due to an exposure involving a small amount of blood on intact skin (a few drops of blood on skin for a short period of time). The risk may be higher if the skin is damaged (for example, by a recent cut) or the contact involves a large area of skin or is prolonged (for example, being covered in blood for hours).

All employees with occupational exposure are encouraged to accept the hepatitis B vaccination.

Hepatitis B Vaccination

The hepatitis B vaccination series will be provided, at no cost, to all unvaccinated first aid providers as soon as possible (within 24 hours of initial exposure). All exposed first aid provider employees are encouraged to take this vaccination series unless they have previously received the complete hepatitis B vaccination series; antibody testing has revealed that the employee is immune; or the vaccine is contraindicated (not recommended) for medical reasons. Post-exposure evaluation, prophylaxis (prevention of or protection from disease), & follow-up will be provided at no cost to the employee.

The Hepatitis B vaccination will be performed under the supervision of a licensed physician or other licensed healthcare professional. All laboratory tests will be conducted by an accredited laboratory at no cost to the employee.

Should routine booster dose(s) of hepatitis B vaccine (as recommended by the U.S. Public Health Service at a future date) be required, they will be provided at no cost as long as the employee remains a first aid provider.

An employee may decline the Hepatitis B vaccination and this declination will not reflect unfavorably upon him/her; however, this declination must be in writing. See the Hepatitis B Declination Form.

It is important to note that if a first aid provider initially declines the hepatitis B vaccination series, he/she may decide at a later date to accept the vaccination series and it will be provided at no cost assuming he/she is still occupationally exposed to bloodborne pathogens or other potentially infectious materials.

Sharps Injury Log

A Sharps injury log will be maintained for the recording of percutaneous injuries from contaminated sharps.

The information on the log will be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

The sharps injury log will contain:

a. The type and brand of device involved in the incident.
b. The department or work area where the exposure incident occurred.
c. An explanation of how the incident occurred.

The sharps injury log will be maintained for the period of five years.

First Aid Provider Input

As a matter of policy, all first aid providers who are responsible for first aid delivery as an additional job are encouraged to suggest methods to improve our engineering and job site controls. This input may be made verbally to the Plan Administrator at any time. Additionally, during the annual refresher training, suggestions will be solicited.

Plan Review

This plan will be reviewed, and if necessary, updated annually to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure. As new medical devices are developed which reduce employee exposure, they will be introduced into our practice. A review of the “Sharps Log” will help identify problem areas and/or ineffective devices which may need replacement.

Post-Exposure Evaluation and Follow-Up

The information that has preceded *Post-Exposure Evaluation and Follow-up* has dealt with the methods to restrict occupational exposure to bloodborne pathogens and other infectious materials. Post-exposure evaluation and follow-up deals with the steps to take immediately following a potential exposure incident and the steps that will be taken over time to protect our employees from further health risk.

All incidents involving exposure to blood or other potentially infectious materials will be reported to the Exposure Control Plan Administrator, in writing, before the end of the shift in which the incident occurred using the Exposure Incident Report. This Report will be prepared regardless of whether or not there has been an "Exposure Incident" as defined in this Plan and in §5193. A separate Exposure Incident Report will be completed for each employee who was occupationally exposed.

Information in this Report will include:

a. The date and time the incident occurred.
b. A brief description of the events leading up to the exposure (what happened).
c. The name of the individual exposed.
d. The route of exposure.
e. “Source individual” and “exposed individual” information, including the acceptance or rejection of hepatitis B vaccination series.
f. A determination of whether or not an actual "exposure incident" occurred. Refer to Definitions in this Plan or §5193.

The Exposure Control Plan Administrator or his authorized representative will review the Exposure Incident Report and determine if methods or procedures may be altered to prevent a reoccurrence of the incident.

Further, an occupational bloodborne pathogens exposure incident which results in the recommendation for hepatitis B vaccination would be recorded on OSHA Form 300 as an injury. See Recordkeeping.

All unvaccinated employees who have assisted in any situation involving blood will be afforded the opportunity to receive the hepatitis B vaccination series as soon as possible but not later than twenty-four (24) hours after the situation.

A confidential medical evaluation and follow-up will be provided immediately, at no cost, to the employee. The healthcare professional evaluating an employee after an exposure incident will be provided a copy of §5193.

Further, the healthcare professional will be provided a description of the exposed employee's duties as they relate to the exposure incident; documentation of the route(s) of exposure; the circumstances under which the exposure occurred; the results of the source individual's blood testing, if available; and all medical records relevant to the appropriate treatment of the employee including vaccination status which is maintained by our office. See Recordkeeping.

The confidential medical evaluation and follow-up will include:

a. Documentation of the route(s) of exposure.
b. The circumstances under which the exposure incident occurred.
c. The identification and documentation of the source individual, unless it can be established that the identification is not feasible or prohibited by state or local law.
d. The exposed employee's blood will 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 will 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 will be done as soon as feasible.

e. The source individual's blood will 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 will be tested, and the results documented.

The results of the source individual's testing will be made available to the exposed employee and the employee will be informed of applicable laws and the identity and infectious status of the source individual.

The employee will 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 will 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 will remain confidential and will not be disclosed or reported, without the employee's express written consent, to any person within or outside the job site, except as required by law.

We will ensure that all records required by §3204, Access to Employee Exposure and Medical Records, are made readily available upon request of an employee as well as the Assistant Secretary & the Director for examination and copying. Medical records must have the written consent of employee before being released.

Per §3204(d), medical records will be maintained for at least the duration of employment plus 30 years. If we cease to do business, these records will be transferred to the successor employer. If there is no successor employer, we will notify affected current employees of their rights of access to these records at least three (3) months prior to cessation of business and notify the Director of NIOSH in writing of the impending disposal of records at least three (3) months prior to disposal. If we regularly dispose of records required to be maintained for at least thirty years, we may, with at least a (3) month notice, notify the Director of NIOSH on an annual basis of the records intended to be disposed of in the coming year.

Included in the employee's medical record will be:

a. The employee's name and social security number.
b. A copy of the employee's hepatitis B vaccination status including the date of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination.
    1. If the employee has declined to receive the hepatitis B vaccination series when appropriate, this declination will be included in the person's medical records.
c. A copy of all results of examinations, medical testing, and follow-up procedures as required following an exposure incident.
d. The employer's copy of the healthcare professional's written opinion following an exposure incident.
e. A copy of all information provided to the healthcare professional following an exposure incident.

All work-related injuries from needle-sticks and cuts, lacerations, punctures and scratches from sharp objects contaminated with another person's blood or other potentially infectious materials are to be recorded on the OSHA 300 as an injury.

a. To protect the employee's privacy, the employees name may not be entered on the OSHA 300.
b. If the employee develops a bloodborne disease, the entry must be updated and recorded as an illness.

Training

All of our first aid providers must have current certificates of first aid and CPR training on file. These records will be maintained by the Plan Administrator.

Initial training, training at the introduction of a new or altered task affecting exposure to bloodborne pathogens or other potentially hazardous materials, and annual training will be provided by a person knowledgeable in the subject matter contained in this Plan.

Training will be interactive between the instructor and employee. An opportunity to ask questions will be provided. Further, this Plan as well as §5193, *Bloodborne Pathogens*, will be readily available for review.

All training will be documented using the forms found in our **Training Information and Documentation Program.** Training documentation will be maintained for a period of three (3) years from the date on which the training occurred.

Training will include, but not be limited to, the following topics and materials:

a. A complete review of our Exposure Control Plan and its accessibility.
b. An accessible copy of §5193 and an explanation of its contents.

c. A general explanation of the epidemiology and symptoms of bloodborne diseases.
d. An explanation of the modes of transmission of bloodborne pathogens.
e. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
f. An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment.
g. Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.
h. An explanation of the basis for selections of personal protective equipment.
i. Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
j. Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.
k. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.
l. Information on the post-exposure evaluation and follow-up that is provided after an exposure incident.
m. An explanation of the color coding required by §5193(g)(1).
n. A request for input from employees in the identification, evaluation, and selection of effective engineering and work practice controls.

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

a. When workers are first employed, they will 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 will 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 will be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

Waste Management

Waste management, if necessary, will comply with State EPA standards regarding handling, storage, and shipping of medical wastes.

Summary

The whole thrust of the exposure control plan for bloodborne pathogens & other infectious material Plan is to provide an awareness of the dangers of bloodborne pathogens, provide a means of reducing the possibility of occupational exposure, and, should occupational exposure occur, provide a means of reducing health risk.

Millerick Engineering, Inc.

Exposure Determination Form - List I

All job classifications in which all employees have occupational exposure.

1. First Aid Providers
2. _____
3. _____
4. _____
5. _____
6. _____

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.

Millerick Engineering, Inc.

Exposure Determination Form - List II

Job classifications in which some employees have occupational exposure:

1. None
2. _____
3. _____
4. _____
5. _____
6. _____

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.

Millerick Engineering, Inc.

Exposure Determination Form - List III

All tasks and procedures or groups of closely related tasks and procedures in which occupation exposure occurs and are performed by employees in job classifications noted in List II.

	Job Classification	Tasks
1.	None	
2.		
3.		
4.		

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.

Millerick Engineering, Inc.

Housekeeping Schedule & Checklist

SCHEDULE

Following every incident where there is a possibility of the presence of residual bloodborne pathogens or other potentially infectious materials.

CHECKLIST

Only personnel who have had training in our Exposure Control will ensure that all surfaces are decontaminated and that cleaning materials are properly disposed of. Areas to consider include, but are not limited to:

	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 dust pan or forceps.

All sharps will be stored in a manner that allows easy access and safe handling.

Infectious waste will be placed in containers that are color coded red. These containers will be decontaminated as soon as practical.

Subsequent to rendering any procedures, employees will ensure that all surfaces on which blood, body fluids, bloodborne pathogens, or other infectious materials may be present are cleaned with an appropriate disinfectant.

Millerick Engineering, Inc.

Hepatitis B Declination Form

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis V vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

_____ _____

(WITNESS) (EMPLOYEES SIGNATURE)

_____

(PRINTED NAME)

_____

(DATE)

Millerick Engineering, Inc.

Sharps Injury Log

Note: A sharps injury log will be maintained for the recording of percutaneous injuries from contaminated sharps.

The information on the log will be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

This sharps injury log will be maintained for the period of five years.

_____

(Incident Date)

Type and brand of device involved in the incident:

_____

Work area where the exposure incident occurred:

_____

Explanation of how the incident occurred:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

_____

Tayla Millerick

Injury and Illness Prevention Program Administrator

Millerick Engineering, Inc.

Annual Exposure Control Plan Review

This Exposure Control Plan was prepared:

At least annually, this program will be reviewed and, if necessary, updated to reflect innovations in procedures and technological developments that eliminates or reduces exposure to bloodborne pathogens.

As part of the annual review, the below will be considered:

a. Employee Input
b. Sharps Injury Log
c. Exposure Incident Reports
d. Professional Journals

Date Reviewed:	Signature	Title
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Millerick Engineering, Inc.

Exposure Incident Report

ALL INFORMATION ON THIS FORM IS TO REMAIN CONFIDENTIAL

THIS FORM WILL BE COMPLETED AS SOON AS FEASIBLE AFTER AN EXPOSURE INCIDENT BUT, UNDER NO CIRCUMSTANCES, AFTER THE SHIFT ON WHICH THE INCIDENT OCCURRED.

DATE: _____ TIME: _____

NAME OF EMPLOYEE: _____

ROUTE OF EXPOSURE: _____

SOURCE INDIVIDUAL'S NAME: _____

a. Above individual did / did not consent to be tested for HBV or HIV.

b. Testing was done by: _____

1. Results: _____

EMPLOYEE WAS OFFERED AND ACCEPTED:	**NO**	**YES**	
a. Hepatitis Vaccination Series. [Date(s)]	☐	☐	_____
1. If "NO", written declination was signed.			
b. Post Exposure Evaluation and follow-up.	☐	☐	
c. Employee consents to baseline blood collection.	☐	☐	_____ (Signature)

Description of events leading to this exposure incident:

_____

_____

_____

_____

Corrective Measures to Prevent a Reoccurrence:

_____

_____

_____

_____

_____ _____

Tayla Millerick (Employee Signature)

(Exposure Control Plan Administrator Signature)

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 Factors

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.

<u>Provision of Water</u>

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 Christopher Millerick, our Safety Director.

OSHA Cold Stress Quick Card 3156

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 Millerick Engineering, Inc. 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 means the conditions that must exist in a permit space, before an employee may enter that space, to ensure that employees can safely enter into, and safely work within, the space.

Attendant means 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 means an employee who is authorized by the entry supervisor to enter a permit space.

Barrier means a physical obstruction that blocks or limits access.

Blanking *or* **Blinding** means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

Competent Person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate the hazards.

Confined Space means a space that:

a. Is large enough and so configured that an employee can bodily enter it;
b. Has limited or restricted means for entry and exit; and
c. Is not designed for continuous employee occupancy.

Control means 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 means 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 means 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 means 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 means 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 means 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 means 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 or not such action is intentional, or any work activities are actually performed in the space.

Entry Employer means 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) means 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 means occurs when a rescue service enters a permit space to rescue one or more employees.

Entry Supervisor means 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, as long as 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 the course of an entry operation.

Hazard means a physical hazard or hazardous atmosphere. See definitions below.

Hazardous Atmosphere means 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:

a. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

b. 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.

c. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

d. 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.

e. 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 means 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:

a. The location of each known permit space;

b. The hazards or potential hazards in each space or the reason it is a permit space; and

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.

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.

Hotwork operations capable of providing a source of ignition (for example, riveting, welding, cutting, burning, and heating).

Immediately Dangerous to Life or Health (IDLH) means 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 considered to be "immediately" dangerous to life or health.

Inerting means 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** means 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** means 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 means 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 means 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** means the minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion.

Monitor or **Monitoring** means 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 means occurs when a rescue service, usually the attendant, retrieves employees in a permit space without entering the permit space.

Non-Permit Confined Space means 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 means an atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen Enriched Atmosphere means an atmosphere containing more than 23.5 percent oxygen by volume.

Permit-Required Confined Space (PERMIT SPACE) means 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) means 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 means 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 means 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 means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

Representative Permit Space means a mock-up of a confined space that has entrance openings that are similar to, and is of similar size, configuration, and accessibility to, the permit space that authorized entrants enter.

Rescue means retrieving, and providing medical assistance to, one or more employees who are in a permit space.

Rescue Service means the personnel designated to rescue employees from permit spaces.

Retrieval System means 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 means 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 means (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** means 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** means 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 Millerick Engineering, Inc. 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 Millerick Engineering, Inc. 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 Millerick Engineering, Inc. 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 will be eliminated before the cover is removed.

b. When entrance covers are removed, the opening will 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 will 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, will be provided an opportunity to observe the pre-entry testing required by subsection (e).

d. No hazardous atmosphere is permitted within the space whenever any employee is inside the space.

e. Continuous forced air ventilation will be used as follows:

   1. An employee will not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;
   2. The forced air ventilation will be so directed as to ventilate the immediate areas where an employee is or will be present within the space and will continue until all employees have left the space;
   3. The air supply for the forced air ventilation will be from a clean source and will not increase the hazards in the space.

f. The atmosphere within the space will 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 will be evaluated to determine how the hazard developed;
   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 & exiting the space. If a hoisting system is used, it will be designed & 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 of 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 of 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 at the same time that 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 contractor will 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 that 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 into, 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 Millerick Engineering, Inc. 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 <u>before and during operation</u> 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;

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 the course of 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;

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 & 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 & that condition is temporary in nature and does not change the configuration of the space or create any new hazards within it; &

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 particular 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 of time 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. Summons 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 particular 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 in the event that 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 Millerick Engineering, Inc. 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; and
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 in the event that 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.

Millerick Engineering, Inc.

Emergency Phone Numbers

(To be Accessible to Attendant)

Main Office: 2099857750

Police: 911 [_____]
(If no 911 Service Available)

Fire: 911 [_____]
(If no 911 Service Available)

Ambulance: 911 [_____]
(If no 911 Service Available)

Hospital Name:

EMERGENCY RESCUE SERVICE NAME: _____
PHONE: _____

Christopher Millerick
Safety Director
Work: 2099857750
Cell: _____

Other:

_____ Work: _____
(Name/Title) Cell: _____

_____ Work: _____
(Name/Title) Cell: _____

_____ Work: _____
(Name/Title) Cell: _____

_____ Work: _____
(Name/Title) Cell: _____

When calling for EMERGENCY RESPONSE, this location is:

Millerick Engineering, Inc.

Confined Space/Permit Space Evaluation Survey

Name/Description of this space: _____

Location of this space: _____

Person performing this survey: _____

Date of this survey: _____

Section 1 – Use this section to determine if the space is a <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.

Millerick Engineering, Inc.

Permit-Space Information & Attendant Designation

CONFINED SPACE DATE: _____

SPACE IDENTIFICATION: _____
SPACE LOCATION: _____
CLIENT: _____

1. Reasons the above confined space is designated a Permit-Required Confined Space:

_____
_____
_____

2. Special precautions taken to protect personnel in or around the above space:

_____
_____
_____

3. Specific hazards and experience with the above confined space:

_____
_____
_____

CLIENT UNDERSTANDING

I, _____, have been provided the above
(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.

In the event that employees from Millerick Engineering, Inc. and your company's employees are working near or in the same Permit-Required Confined Space, the below listed person is designated as the one and only Senior Attendant. The person, listed below, will have authority over other Attendants.

_____
(Designated Senior Attendant)

_____ _____
(Client Representative Signature/Title) (Date)

_____ _____
Christopher Millerick (Date)
Safety Director

[A copy of this form will be kept at the job site during all operations.]

Millerick Engineering, Inc.

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

Millerick Engineering, Inc.

Entry Permit

Permit-Required Confined Space

Note: This Entry Permit must be used with the attached Pre-Entry Checklist. Additional pages may be added as necessary.

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)**

_____ **(Tayla Millerick/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 rapping sounds, tugs on a rope or line, air horn signals, voice communications

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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%	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________
____________________	*______ **______	_____/_____	_____/_____	_____/_____	_____/_____	________	________

***8 Hour Time Weighted Average: Employee can work in area 8 hours (longer with appropriate protection).**

****Short term exposure limit: Employee can work in area up to 15 minutes.**

This six (6) page Entry Permit and Pre-Entry Checklist as been prepared by the Entry Supervisor and reviewed by all personnel involved in this Permit-Required Confined Space Entry Operation.

ENTRY SUPERVISOR: ______________________________ ______________________________ ______________

(Name) (Signature) (Date)

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§1617. Signals.
§1617.1. Signals - General Requirements.
§1617.2. Signals - Radio, Telephone or Other Electronic Transmission of Signals.
§1617.3. Signals - Voice Signals - Additional Requirements.
§1618. Qualification and Training.
§1618.1. Operator Qualification and Certification.
§1618.2. Signal Person Qualifications.
§1618.3. Qualifications of Maintenance and Repair Employees.
§1618.4. Training.
§1619. Supplemental Requirements.
§1619.1. Tower Cranes.
§1619.2. Derricks.
§1619.3. Floating Cranes/Derricks and Land Cranes/Derricks on Barges.
§1619.4. Overhead & Gantry Cranes.
§1619.5. Dedicated Pile Drivers.

Because all personnel involved in crane operations must be trained, the below information is provided and specific information applicable to the work we do may be obtained by clicking the appropriate standard, above, identified by the below T8 CCR Section(s), in **bold**.

Hazards associated with crane operations are electrocution from overhead power lines and equipment failures because of operator error; faulty or damaged equipment; overloading; support failure such as ground or outrigger collapse; and miscommunication.

All of the regulations for cranes used in construction are covered in T8 CCR Sections **1610-1619**, **1694, 2940**, and **6060**. 1610-1619 covers Cranes and Derricks in Construction, 1694 covers Side Boom Cranes, 2940 covers Mechanical Equipment, and **6060** covers Procedures During Dive. For requirements/details on Cranes and Derricks in Construction refer to the above Sections/**CalOSHA Guide for Cranes and Derricks in Construction**. Employers and employees, in order to maintain safe and healthful working conditions, must ensure that:

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 perform tasks safely at all times.

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 of 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 will be developed by a qualified person. 1611.4
e. The employer will 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 will follow the power line safety requirements of T8 CCR 1612.1.
b. For power lines over 350 kV, the employer will 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 will 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, will be inspected by a certificating agency. The inspection will 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 will be conducted at least four times a year. Cranes will not be operated more than 750 hours, between periodic inspections. The inspection will 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 will stop using the equipment and a qualified person will inspect the equipment for structural damage, and the causing items/ conditions. 1613.7
h. Equipment that has been idle for 3 months or more will 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 will 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 & derricks are given in T8CCR 1616 & include:

a. The employer will follow manufacturer procedures for operation of the equipment including the use of attachments. Where procedures for operation are unavailable, the employer will comply with **1616.1**.

Note: While operating equipment, devices such cell phones will not be used for any other activities (texting, talking etc.) other than signaling.

b. Whenever there is a concern as to safety, the operator will 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 will be followed as per 1616.3.
d. Operations will 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 will be used. All requirements under 1616.4 will 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 will 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 will be provided in each of the situations given under 1617.1. Only qualified persons will be permitted to give signals except for a stop signal. Signals to operators will 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 will be tested on site before start of operations and the devices/ signaling will meet requirements in 1617.2
c. Follow the additional requirements in 1617.3 for voice signals.

Note: Employees will 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 will 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 in regard to 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 will meet all of the requirements of 1694(d).
g. A crane/derrick, used to get divers in/out of water, will not be used for other purpose until all divers are back on board. 6060.

§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 will provide for prompt rescue of employees in the event of a fall or will 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:

a. Expecting a suspended employee to perform self-rescue presupposes that the employee is:
    1. Of clear mind after the fall, and
    2. In excellent physical condition, and
    3. Has not sustained any injuries from the fall arrest, and
    4. Did not have a medical event that caused the fall in the first place (fainting, for example).
b. 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.
c. Specialize self-rescue equipment and training on that equipment would be required.
d. 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, Tayla Millerick our Injury and Illness Prevention Program Administrator, or designated competent person, will:

a. Assess the possible fall scenarios, and
b. Take inventory of in-house equipment that is readily available for possible rescue (ladders, forklifts, mobile scaffold, etc.), and
c. Be prepared to implement a plan of action utilizing our in-house equipment should a fall occur, **or**
d. Call an emergency rescue service and give them:
    1. Our exact location.
    2. A quick synopsis of what happened.
    3. The height of the suspended person.
    4. Known or suspected injuries.

_____

Christopher Millerick

Safety Director

Overview

One of the most serious hazards faced by our employees is falls from heights. Our Fall Protection Program has been developed to prevent injury from falls from a walking/working surface to a lower level, to prevent objects falling from above and striking persons below, and to prevent job site persons from falling into holes. Different types of work activities require different levels of fall protection. If an employee is not sure of proper fall protection to utilize in a specific work situation, he/she must ask a supervisor or competent person for the proper fall protection requirements before performing work.

Within the context of this program, the term “fall hazard” does not refer to falling off a ladder or scaffold. Scaffold and ladder safety is addressed within its own program.

A copy of our Fall Protection **Program** can be found readily accessible to our employees on appropriate job sites.

A copy of our Fall Protection **Plan** will be found on every applicable job site.

On all job sites where fall hazards exist, there will be at least one competent person who has the training and ability to identify fall hazards and the authority to ensure that proper fall protection systems are properly implemented.

The following areas of concern are addressed by this Program:

a. The need to know where fall protection is required.
b. Selection of fall protection systems which are appropriate for given situations.
c. Construction and installation of safety systems.
d. Supervision of employees.
e. Implementation of safe work procedures.
f. Training in selection, use, and maintenance of fall protection systems.

Our Fall Protection Program may be reviewed at any time by our employees. Should a question arise concerning this Program, personnel are encouraged to consult with their supervisor or Tayla Millerick, our Fall Protection Program Administrator.

Duties of the Program Administrator

The duties of Tayla Millerick include:

a. Training of personnel.
b. Maintenance of training records.
c. Random, unannounced job site inspections to assure compliance with both OSHA standards and company safety policies.
d. Resolution of specific problems that may present themselves regarding a particular job site situation.
e. Designating a competent (by training or experience) person at each applicable job site who will ensure:
    1. A copy of our fall protection program/plan is readily accessible on appropriate job sites.
    2. Subcontractors with whom we may work are appropriately trained in fall protection.

3. A written certification record has been prepared documenting that employees who have potential exposure to fall hazards at the job site have received the required training in protection.
4. The fall protection system(s) utilized at the job site are appropriate for the hazard(s) present.
5. That, before any work is initiated, the walking/working surfaces at the job site are capable of supporting both our personnel and equipment.

Tayla Millerick will be familiar with all applicable standards and will keep up to date of developments in the field of fall protection.

Pre-Project Planning

Fall protection requires a joint effort by our personnel, and the specialty subcontractors who may be working with us, to identify work situations in which fall hazards exist, determine the most appropriate fall protection system to be utilized, and to ensure that all persons understand the proper methods of utilizing the selected fall protection systems. A pre-construction survey by a competent person will often provide the information needed to make these determinations.

Fall protection system requirements may change during a project and the competent person on site will ensure that fall protection is maintained at all times. Care will be taken to assure that load limits are not exceeded on walking/working surfaces and attachment points and hardware is capable of withstanding (with the appropriate safety factor) the potential forces that may be generated during an actual fall incident.

Fall protection hardware and equipment owned, rented, or leased will be NIOSH/ANSI approved and it is assumed that the manufacturer's technical specifications and capabilities are accurate.

From the very inception of a potential project (pre-bid) to completion, fall protection needs and costs will be factored in.

Definitions

There are a number of terms and phrases, not common in everyday life, which must be understood to grasp the thrust of this Fall Protection Program. For those employees directly involved with this Program or affected by it, there are specific requirements and procedures which would be meaningless without an understanding of the "language" of our Fall Protection Program.

Note: Words used within the definitions which are themselves defined are printed in bold italic.

Anchorage means a secure point of attachment for *lifelines*, *lanyards* or *deceleration devices*.

Body Harness means 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 means any device for holding the *body harness* closed around the employee's body.

Carabiner means 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 means code of Federal Regulations.

Competent Person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees; and who has authorization to take prompt corrective measures to eliminate them.

Connector means a device which is used to couple (connect) parts of the *personal fall arrest system* and *positioning device systems* together. It may be an independent component of the system, such as a *carabineer*, or it may be an integral component of part of the system (such as a *buckle* or d-ring sewn into a self-retracting *lanyard*).

Controlled Access Zone (CAZ) means 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 means equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.

Deceleration Device means 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 means 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 means 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 means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

Free Fall means the act of falling before a *personal fall arrest system* begins to apply force to arrest the fall.

Free Fall Distance means 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 & fall arrest forces occur.

Guardrail System means a barrier erected to prevent employees from falling to *lower levels*.

Hole means 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 means 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 means 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 means the edge of a floor, *roof*, or formwork for a floor or other *walking/working surface* (such as the deck) which changes location as additional floor, *roof*, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Lifeline means 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 means a *roof* having a slope less than or equal to 4 in 12 (vertical to horizontal).

Lower-Levels means 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 means all motor or human propelled wheeled equipment used for *roofing work*, except wheelbarrows and mop carts.

Opening means 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 means 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 means 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 means 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 means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

Rope Grab means a *deceleration device* which travels on a *lifeline* and automatically, by friction, engages the *lifeline* and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

Roof means 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 means 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 means a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

Self-Retracting Lifeline/Lanyard means 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 means 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:

a. 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
b. 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 means a ***roof*** having a slope greater than 4 in 12 (vertical to horizontal).

Toeboards means 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 means 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 Surfaces means 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 means 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 means that portion of a ***walking/working surface*** where job duties are being performed.

Where Fall Protection is Required

The "key" distance is 7½ feet. All employees must be aware that if there is a possibility of falling 7½ feet or more, in most situations, at least one (1) fall protection system will be implemented. Further, protection from being struck by falling objects from above will be provided on all job sites.

Many areas are included because, over time, most of these areas will present themselves on job sites even if the exposures are the result of another contractor's work.

Below listed are specific situations where fall protection systems will be utilized.

Unprotected Sides and Edges:

Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge, which is 7½ feet or more above a lower level, will be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

Leading Edges:

Each employee who is constructing a leading edge 7½ feet or more above lower levels will be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems.

Hoist Areas:

Each employee in a hoist area will be protected from falling 7½ feet or more to lower levels by guardrail systems or personal fall arrest systems.

If a guardrail system is utilized in a hoist area and portions of the system are removed to facilitate the hoisting operation, and an employee must lean through the access opening or out over the edge of the access opening, that employee must be protected by a fall arrest system.

Holes:

Each employee on walking/working surfaces will 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 will 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 will 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 will 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 will be protected from falling 7½ feet or more to lower levels by guardrail systems.

Excavations:

Each employee at the edge of an excavation 7½ feet or more in depth will 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 will be protected from falling by guardrail systems, fences, barricades, or covers.

Dangerous Equipment:

Each employee less than 6 feet above dangerous equipment will 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 will 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 will comply with the provisions of Section 1509 and employees will 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 will 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 will 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, will be installed 34 to 45 inches above the roof surface to warn employees that they are approaching the edge of the roof.
        i. The stanchions (portable or fixed) supporting the warning lines will be designed and installed to minimize tip over or displacement under normal working conditions.
        ii. Warning lines will have a minimum tensile strength of 500 pounds.
        iii. The line will 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 will 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 will 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 will be placed no closer than 10 feet and the warning lines will 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 will 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 will 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 will be erected as follows:
    i. Points of access, materials handling areas and storage areas will be connected to the work area by a clear access path formed by two warning lines.
    ii. 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, will be placed across the path at the point where the path intersects the warning line erected around the work area.
7. Employees will 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 will 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 will 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 will 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 will 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 will 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 will 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 will 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 will 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 will 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. (5) Eave Barriers [Section 1724(e)].
    6. Roof Jack Systems [Section 1724(a)] (Safety lines will be required in conjunction with roof jack systems on roofs steeper than 7:12)

Note: For purposes of Section 1730, the height measurement will 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 will 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 will 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 Roof:

Each employee on a steep roof with unprotected sides and edges 7½ feet or more above lower levels will 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 will 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:

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.**

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 will 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 will 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 will 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 7½ feet or more above a lower level that is not addressed will be protected from falling by a guardrail system, a safety net system, or a personal fall arrest system.

Note: On multi-employer work sites, employees of all contractors and subcontractors must understand the fall protection hazards that exist and be aware of the various methods of fall protection even if they are NOT directly exposed to fall hazards in their particular work area. For example, a contractor may have a controlled access zone in place and all persons on the job site, regardless of their employer, must understand the importance of remaining outside that CAZ.

Pre-Construction Survey

Prior to the initiation of any construction project, the job site will be surveyed by a competent/qualified person to determine:

a. If fall protection systems will be required.
b. If fall hazards exist, the types of conventional fall protection systems to be utilized.
    1. Particular attention will be given to anchorage points, location of warning lines, etc.
c. Rescue procedures to be used if a fall actually occurs.
d. The load-carrying capabilities of the walking/working surface.
e. Assuring that all personnel utilizing a fall protection system have training in that system.

This survey may be made without the use of fall protection because no work will be accomplished during this survey and installing fall protection systems would create a greater hazard.

If it is determined that certain areas within the overall worksite have fall hazards that cannot be addressed with conventional fall protection systems (those areas being limited to leading edge work, residential construction work, and precast concrete work), **then** a Fall Protection Plan must be prepared to specifically protect employees from these hazards.

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 will 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 will 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 will 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 will 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 will be erected along each unprotected side or edge. Ramps, runways, and other walkways on which employees need protection from falling 7½ feet or more to a lower level must be protected by a guardrail system and only a guardrail system.

Personal Fall Arrest System:

A personal fall arrest system is, as the name implies, a means of safely decelerating a falling body before a lower level is hit. The three (3) main components of a personal fall arrest system are the:

a. Anchorage point
b. Lanyard
c. Body harness

Note: Body belts will not be used in a personal fall arrest system.

The tie-off attachment point must be at or above the connection point on the harness to prevent additional free fall distance.

As are guardrails, personal fall arrest systems are “passive” and require no employee involvement once they are properly rigged.

For all practical purposes, d-rings and locking type snaphooks will have a minimum tensile strength of 5,000 pounds and lanyards and vertical lifelines will 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 will be inspected prior to each use for wear, damage, and other deterioration and defective components will be removed from service.

Should a personal fall arrest system actually be used to stop a fall, it will be removed from service and not used again until inspected and determined to be undamaged and suitable for reuse by a competent person.

Safety Net Systems:

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 will 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 will extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net.	Minimum required horizontal distance of outer edge of net from the edge of working surface
Up to 5 feet More than 5 feet up to 10 feet More than 10 feet but not to exceed 30 feet.	8 feet 10 feet 13 feet

Nets will be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances will be determined by impact load testing.

Safety Net Labeling:

Safety nets purchased on or after January 1, 1998 will be labeled as meeting the requirements of ANSI A10.11-1989. Safety nets purchased before January 1, 1998 will be labeled as meeting the requirements of ANSI A10.11-1979 or ANSI A10.11-1989.

Warning Line System:

A warning line system is a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, body harness, or safety net systems to protect employees in the area.

A warning line system is to be used only during roofing work on low-sloped roofs over 50-feet in width with unprotected sides and edges 6-feet or more above lower levels (on a simple rectangular roof, width is the lesser of the two primary overall dimensions. This is also the case with roofs which are sloped toward or away from the roof center). Most importantly, warning line systems must be used in conjunction with either a guardrail system, a safety net system, a personal fall arrest system, or a safety monitoring system.

Note: In the above scenario, either a guardrail system, a safety net system, or a personal fall arrest system alone provides adequate fall protection.

As a general rule, warning line systems will be used in conjunction with a safety monitoring system.

A warning line made of ropes, wires, chains, and supporting stanchions will be flagged at no more than 6-feet intervals with high-visibility material. As the name implies, this line will only "warn" employees that they are approaching an unprotected side or edge. The horizontal resisting force of a warning line is 16 pounds versus 200 pounds for a guardrail system.

No personnel are allowed in the area between a roof edge and a warning line unless they are performing roofing work in that area.

Mechanical equipment on roofs will 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 will 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 will 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 will 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 will 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.

Projection 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 will 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 will 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 will 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 will identify each location where conventional fall protection methods cannot be used. These locations will 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 will 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 Tayla Millerick 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 Tayla Millerick, 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 will 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 will 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 will 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.

Millerick Engineering, Inc.

Fall Protection Plan

(Required when standard fall protection systems are not feasible)

With changes: _____
(If no changes, enter “None”)

This Fall Protection Plan is specific for the following project:

Project Name: _____

Location of Job: _____

_____

Date Plan Prepared: _____ by: _____
(Must be a Qualified Person)

Date Plan Modified: _____ by: _____
(Must be a Qualified Person)

Date Plan Modified: _____ by:_____
(Must be a Qualified Person)

Plan Approved by: _____

Plan Supervised by: _____

Policy Statements

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:

PO Box 3338

Turlock, CA 95381

2099857750

A copy of our Fall Protection Plan will be found on every applicable Job Site.

Fall Protection Systems to be used on this Job

All employees on this job/project will be protected from fall hazards by the use of one or more conventional fall protection systems. These systems include guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, warning line systems, controlled access zones, safety monitoring systems, covers, and protection from falling objects.

Further, the conventional fall protection system used in each required circumstance will be in compliance with 29 CFR 1926.502 which addresses which systems are appropriate (allowed) for specific types of work.

Training

All our personnel working on this job/project have received training in our Fall Protection Program and are able to recognize fall hazards and understand procedures to minimize these hazards. Further, they have been trained, as necessary, by a competent person qualified in the following areas using both formal and hands on training:

a. The nature of fall hazards in the work area.
b. The procedures for erecting, maintaining, disassembling, and inspecting the fall protections to be used.
c. The use and operation of guardrail systems, personal fall arrest systems, safety net systems' warning line systems, safety monitoring systems', controlled access zones, and other protection to be used.
d. Their role in the safety monitoring system when this system is used.
e. The limitations on the use of mechanical equipment during the performance of roofing work on low sloped roofs.
f. The procedures for handling and storage of equipment and materials and the erection of overhead protection.
g. The roll of employees in fall protection plans.

Enforcement

Awareness of and respect for fall hazards, and compliance with all safety rules are of great importance. Appropriate disciplinary action will be taken should an employee disregard our safety guidelines.

Accident Investigation

All accidents that result in injury to employees, regardless of their nature, will be investigated and reported. It is important that documentation of accidents take place as soon as possible so that the cause may be determined, and steps may be taken to prevent a reoccurrence.

Changes to this Plan

Changes to this plan, specifically a deviation from conventional fall protection systems, will be documented by a qualified person whose name appears on the front of this fall protection plan.

Changes will be limited to:

a. Leading edge work

Note: Leading edge work involves construction which moves the location of the edge forward (backward). Working at the edge of a walking/working surface (such as a roof) is not leading-edge work - it is (roofing) work at an unprotected side or edge.

b. Precast concrete construction work

c. Residential construction work

The criteria for determination that a conventional fall protection is infeasible is that it is impossible to perform construction work with a conventional fall protection system or it is technologically impossible to use a conventional fall protection system. Inconvenience and cost are not acceptable considerations.

Specific Fall Protection Plan criteria are found in 29 CFR 1926.502(k) and we will, if necessary, create a Fall Protection Plans that comply with the cited criteria.

A separate change will be made for each situation where conventional fall systems cannot be used.

Millerick Engineering, Inc.

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 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) will 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).

Millerick Engineering, Inc.

Safety Net Installation Certification

This is to certify that the Safety Net identified below was installed with sufficient clearance under it to prevent contact with the surface or structures below when subjected to an impact force equivalent to the drop test specified in 29 CFR 1926.502(c)(4)(i).

SAFETY NET MAKE: _____

SAFETY NET MODEL: _____

SAFETY NET LOCATION: _____

It was found to be unreasonable to perform the below listed drop test for the following reasons:

_____
_____
_____
_____
_____

Drop Test (Circle appropriate drop test to which the certification applies):

a. After initial installation and before using drop test.
b. After relocation drop test.
c. After major repair drop test.
d. After remaining in the same location for 6 months drop test.

_____ _____

(Competent Person) **(Date)**

Forklifts

§3650. Industrial Trucks. General
§3657. Elevating Employees with Lift Trucks
§3661. Brakes and Warning Devices
§3668. Powered Industrial Truck Operator Training

Overview

This program has been developed to make our truck operators aware of the hazards associated with motorized truck use as well as to provide guidance for safe truck operations.

Persons will be authorized to operate our forklifts only after they have successfully demonstrated their understanding of proper procedures for truck inspection, use, and refueling/recharging. Operators will demonstrate their truck knowledge and abilities by passing a written test and performing designated truck maneuvers. All truck operators will be evaluated by Tayla Millerick, our Forklift Program Administrator, or a designated competent person.

Because of their power, weight, size, restricted visibility, &, 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, Tayla Millerick, or other competent person, will determine whether the atmosphere or location in which our industrial trucks will operate is hazardous or non-hazardous &, after further assessing our needs, will determine which types of trucks are appropriate & allowed for our specific operations.

In the unlikely event that unsafe industrial motor truck operations are observed, retraining will be given with emphasis on correcting the improper behavior. To prevent the possibility of severe injury to the operator (or a bystander), our forklifts must be operated in a professional manner and anything less will not be tolerated.

All truck operators will have ready access to this program, appropriate OSHA standards, and the truck owner/operator manuals.

Forklifts

Forklifts are designed to move items quickly, safely, and cleanly. Forklift training would also apply to numerous types of powered industrial trucks such as: tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines.

While many safety features are designed into forklifts, accidents still happen, and they are generally the result of operator error. According to *Modern Materials Handling*, pg. E-18, Jul 97, powered industrial vehicles are involved in approximately 68,000 accidents annually, causing 90,000 injuries and 100 deaths.

There is a general agreement among safety professionals, as well as OSHA, that requiring training for all persons (including part-time, seasonal, and temporary employees) who operate forklifts will significantly reduce the accident and injury rates.

General Requirements

All truck operators must be thoroughly familiar with the truck, itself. This includes knowing:

a. Instinctively, what each and every control does.
b. How to perform a truck safety check.
c. The truck's limitations such as maximum load, height and width, visibility, stability, and surface requirements.
d. The truck's stopping and turning ability and its effect on loads.

The below safety rules and guidelines to which one must adhere while operating a forklift have been established. These rules are designed to protect the operator and/or persons adjacent to truck operations.

Specifically, no person will 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, in the judgment of Tayla Millerick, that a separate certification process may be required for a different type of truck. There may be instances where a new vehicle does not necessitate new training and a demonstration of proficiency. A newer model of a currently used truck may be identical to the truck the operator is qualified on as far as safety and operations are concerned.

As a general rule, each **type** of truck has its own characteristics, limitations, and idiosyncrasies -- each **model** of a type of truck may or may not be unique.

No riders are allowed on our forklift unless:

a. The truck is specifically designed for such use.
b. The rider is authorized by Tayla Millerick.

Note: Forklifts are generally designed to move product, supplies and equipment, not personnel.

Tayla Millerick 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 Tayla Millerick 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 & guidelines to control the hazards identified & reduce the likelihood of accident/injury. While some of the procedures may seem too obvious to mention or just plain common sense, remember this —serious, even fatal, accidents have occurred because for one split second an operator forgot or ignored a basic safety rule.

Hitting a Person or Object

a. Never drive up to a person standing in front of a fixed object.
b. When possible, stay within delineated travel lanes or aisles.
c. Be seen and/or heard.
d. Ensure that adequate lighting is available.
e. Maintain a clear view of travel. If the load blocks or restricts the view, the operator will drive with the load trailing (backwards).
f. Slow down, sound horn, and do not pass where vision is restricted.
g. Operate the truck at speeds that will allow it and the load to be stopped in a safe, smooth, manner.
h. Be aware of floor conditions. Remove loose objects that have found their way to the truck travel lanes. Operate the truck at slower speeds on wet or slippery floors.
i. Of course, stunt or reckless driving is prohibited.
j. Be aware of the height of the truck and, if equipped, its mast and load. Carelessness can damage ceiling, lights, pipes, etc.
k. Never allow anyone to stand or pass under an elevated portion of any truck at any time.

Falling Loads:

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.

a. 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 is capable of supporting the forklift and its load.
    6. The lighting within the trailer is adequate.

    Note: Falling off a dock edge because a trailer has moved is invariably a serious accident. Do not count on the tractor-trailer driver to lock his brakes or even trust that his brakes work. Physically check and ensure that the trailer into which you are taking your forklift is flush against the dock. If possible, the trailer should be actually attached to the dock, but in all cases, it should be chocked.
c. Travel with the load in the lowest possible position and avoid sharp turns at higher speeds as well as abrupt truck movements.
d. Be aware of the surface on which you are traveling -- its traction, ability to hold weight, slope, and surface.

Fire/Explosion During Refueling/Recharging:

Refueling accidents are not common experiences, however, should they occur, they would be sudden and possibly catastrophic. Follow the manufacturer's owner's manual and local fire laws.

a. There is absolutely NO SMOKING or open flame during any portion of the refueling/recharging process.
b. At least one approved portable fire extinguisher having a minimum rating of 8B:C must be readily available when refueling propane.
c. Facilities for quick drenching of the eyes and body must be readily available.

Other Concerns

The program deals primarily with the personal safety of our forklift operators. However, when discussing truck operations, we would be remiss if it were not pointed out that improper truck operations could also result in physical damage to products, trucks, and/or facilities. Proper truck operation will reduce personal injury accidents, and, as an added benefit, prevent general damage.

Operator Protection

A hazard assessment of forklift operations will be conducted by Tayla Millerick. 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.

Tayla Millerick 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 will be maintained from the edge of ramps or platforms while on any elevated dock, platform, or freight car.
d. Trucks will 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 will be yielded to other trucks in emergency situations.
i. Trucks traveling in the same direction will not be passed at all.
j. Driving on grades:
    1. Grades will be ascended or descended slowly.
    2. When ascending or descending grades in excess of 10 percent, loaded trucks will be driven with the load upgrade.
k. Motorized hand trucks must enter confined areas with the load end forward.

Maintenance

While the operator is responsible for checking the truck before use, actual mechanical maintenance must be performed by an authorized person.

a. If at any time a forklift is found to be in need of repair, defective, overheating, or in any way unsafe, the truck will 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 Tayla Millerick, 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

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 will 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 will 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 will 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.

Millerick Engineering, Inc.

Forklift Operating Rules

The below set of Forklift operating rules will be strictly enforced:

a. Only trained and authorized drivers may operate forklifts.
b. Stunt driving and horseplay are prohibited.
c. Employees must not ride on the forks.
d. Employees must never be permitted under the forks (unless forks are blocked).
e. The driver must inspect the vehicle at the beginning of each shift.
f. The operator must look in the direction of travel and must not move the vehicle until all persons are clear of the vehicle.
g. Forks must be carried as low as possible.
h. 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).
i. Trucks must be blocked, and brakes must be set before a forklift is driven onto the Truck bed.
j. Extreme care must be taken when tilting elevated loads.
k. The forklift must have operable brakes capable of stopping it safely when it is fully loaded.

_____

Christopher Millerick

Safety Director

Hazard Communication

§3203. Injury and Illness Prevention Program.
§5194. Hazard Communication (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix A (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix B (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix C (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix D (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix E (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix F (adopted on May 6, 2013)
§5194. Hazard Communication, Appendix G (adopted on May 6, 2013)
§5203. Carcinogen Report of Use Requirements.

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), primarily Revision 7. The transmittal of information is to be accomplished by means of our comprehensive hazard communication program.

We will 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, importers, and distributors will 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 will 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 will 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 will ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked. Where the manufacturer, importer, or distributor is required to label, tag or mark the following information will be provided:

a. Product identifier;
b. Signal word;
c. Hazard statement(s);
d. Pictogram(s);
e. Precautionary statement(s); and,
f. Name, U.S. address, U.S telephone number, and manufacturer, importer, or other responsible party.

The manufacturer, importer, distributor or employer preparing the safety data sheet will ensure that the information provided accurately reflects the scientific evidence used in making the hazard determination. If the manufacturer, importer, distributor, or employer become aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information will be added to the safety data sheet within three months. If the chemical is not currently being produced or imported, the manufacturer, importer, or distributor will 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, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by the above to be on a label. The written materials will be readily accessible to the employees at Millerick Engineering, Inc. 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 **are not required** to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer.

We will not remove or intentionally deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

We will 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 will 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 will consist of at least the following topics:

a. Employees will be informed of the requirements of §5194. Hazard Communication (adopted on May 6, 2013).
b. Employees will be informed of any operations in their work area where hazardous chemicals are present.
c. Employees will 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 will 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 will 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 will 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) will be maintained for at least one (1) year.

Documentation will 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 will 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.

Millerick Engineering, Inc.

List of Hazardous Chemicals

The Safety Data Sheets for the below listed Hazardous Chemicals will follow this list. The Safety Data Sheets are arranged in the order listed below:

Chemicals

Heat Illness Prevention Program

§3395 Heat Illness Prevention

In order to lessen this threat and to comply with Heat Illness Prevention Standard T8 CCR 3395, this program has been prepared.

Our Contact Person/Program Administrator is: Tayla Millerick

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 80º F. 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:

The following designated persons, such as a program administrator, safety coordinator, supervisor, foreman, field supervisor, crew leader, has the authority and responsibility for implementing the provisions of this program at this worksite.

Name	Title	Phone Number
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Fluids

If you heard in advance that this safety meeting was on fluids, you may well have thought that the meeting would focus on the storage, use, clean-up, and possible emergency procedures involved with the liquid chemical products used on or near work areas. You'd be wrong. While the above are important topics and questions related to them should be addressed to the competent person, this safety meeting is about **your** bodily fluids.

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

Drink fluids! From a life process standpoint, what fluid intake is doing is keeping you healthy by allowing your body to maintain its core body temperature at its appropriate level. When your brain senses that cooling action is needed, your body circulates blood to your skin to allow it to cool with the outside temperature. If the water used for sweat is not replaced, a water deficit starts to occur. The millions of chemical reactions taking place in your body at every moment can only occur in the presence of water. The fluids in your body transport nourishment, gases, and waste.

Imagine your body as a water based chemical factory that functions only within a narrow temperature range. An average healthy person at rest has an oral temperature of between 98.6º F and 100.4º F. If your body temperature reaches 105.8º F, convulsions may occur. Your whole central nervous system is impaired when your body temperature raises 9º F above normal.

At 106.0º F, 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 107.6º F, 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**.

In addition to the procedures above, Millerick Engineering, Inc. will ensure the provision of water using the following procedures:

a. _____

b. _____

c. _____

d. _____

Stay healthy! Drink water! Water is truly the stuff of life.

Provision of Shade

The supervisor will ensure that employees have access to shade to minimize the risk of heat related illnesses. If natural shade is not available, the supervisor will ensure that sun umbrellas or portable canopies are provided in adequate number. These umbrellas or canopies will be placed in close proximity to the work activity (i.e., no more than 50-100 yards).

Note: "Shade" means block of direct sunlight. Shade is insufficient if the heat underneath the shade is so extreme as to defeat the purpose of allowing the body to cool. Employees should not encounter any obstacles, hazards, or unreasonably unpleasant conditions in order to reach shaded areas or while resting in shaded **areas.**

At or below temperatures of 80º F, the supervisor will ensure that employees have timely access to shade upon request. Any employee who feels the need for shade is encouraged to protect himself/herself from the sun for a period of not less than 5 minutes.

Note: "Temperature" means the dry bulb temperature in degrees Fahrenheit obtainable by using a thermometer to measure the outdoor temperature in an area where there is no shade. While the temperature measurement must be taken in an area with full sunlight, the bulb or sensor of the thermometer should be shielded while taking the measurement, e.g., with the hand or some other object, from direct contact by sunlight.

Supervisors will monitor (by radio, television, Internet, or on-site thermometer) whether the temperature is in fact exceeding 80º F at the work site. For temperatures above 80º F, one or more areas with shade will be provided at all times while employees are present. Shade areas will accommodate all employees on a recovery, rest, or meal period at any one time. Breaks may be staggered if necessary to provide adequate shade to a large number of employees on-site.

Lastly, but importantly, persons must provide personal shade in the form of shirts (preferably light colored to reflect the sun). Shirts are required to prevent sunburn, another health hazard.

In addition to the procedures above, Millerick Engineering, Inc. will ensure the provision for shade using the following procedures:

a. _____

b. _____

c. _____

d. _____

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.

Weather Monitoring

The supervisor will be trained and instructed to check in advance the extended weather forecast. Weather forecasts can be checked with the aid of the internet (http://www.nws.noaa.gov/), by calling the National Weather Service phone numbers, or by checking the Weather Channel TV Network. The work schedule will be planned in advance, taking into consideration whether high temperatures or a heat wave is expected. This type of advanced planning should take place whenever the temperature is expected to reach 70 degrees Fahrenheit or higher.

Prior to each workday, the forecasted temperature and humidity for the worksite will be reviewed and will be compared against the National Weather Service Heat Index to evaluate the risk level for heat illness. Determination will be made of whether or not employees will be exposed to a temperature and humidity characterized as either "extreme caution" or "extreme danger" for heat illnesses. It is important to note that the temperature at which these warnings occur must be lowered as much as 15 degrees if the employees are working in direct sunlight. Additional steps, such as those listed below, will be taken to address these hazards.

Prior to each workday, the supervisor will monitor the weather (using http://www.nws.noaa.gov/ or a simple thermometer, available at most hardware stores) at the worksite. This critical weather information will be taken into consideration to determine when it will be necessary to make modifications to the work schedule such as stopping work early, rescheduling the job, working at night or during the cooler hours of the day, increasing the number of water and rest breaks.

A thermometer will be used at the job site to monitor for a sudden increase in temperature and to ensure that once the temperature exceeds 80 degrees Fahrenheit, shade structures will be opened and made available to the employees. In addition, when the temperature equals or exceeds 95 degrees Fahrenheit, additional preventive measures, such as high-heat procedures, will be implemented.

In addition to the procedures above, Millerick Engineering, Inc. will ensure the provision for monitoring the weather using the following procedures:

a. _____
b. _____
c. _____
d. _____

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 people to a job task to lessen the effort required of each, & the use of machinery in lieu of physical effort.

All employees, but new employees in particular, should be allowed to acclimate to hotter weather. It takes a body four to fourteen days to acclimate to hotter weather. Careful attention to employees is required during heat waves & during 2-week break-in periods for new hires. Reducing workloads during these times is considered a best practice.

Handling a Heat Wave

In relation to employee safety, a "heat wave" means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit & at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding 5 days & at least ten degrees Fahrenheit higher than the average high daily temperature in the previous five days.

During a heat wave or heat spike, the workday will be cut short or rescheduled; for example, conducted at night or during cooler hours.

During a heat wave or heat spike & before starting work, tailgate meetings will be held to review the company Heat Illness Prevention Procedures (HIPP), the weather forecast, & emergency response procedures. Additionally, if schedule modifications are not possible, employees will be provided with an increased number of water & rest breaks & observed closely for signs & symptoms of heat illness.

Each employee will be assigned a "buddy" to be on the lookout for signs & symptoms of heat illness & to ensure that emergency procedures are initiated when someone displays possible signs or symptoms of heat illness.

In addition to the procedures above, Millerick Engineering, Inc. will ensure that heat waves are addressed using the following procedures:

a. _____
b. _____
c. _____
d. _____

Procedures for Extremely High Heat

When the temperature exceeds 95º F, 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 & signs/symptoms of heat illness. Depending on the work site & 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, & 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.

In addition to the procedures above, Millerick Engineering, Inc. will ensure that high heat is addressed using the following procedures:

a. _____
b. _____
c. _____
d. _____

Procedures for Acclimatization

Acclimatization is the temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. In more common terms, the body needs time to adapt when temperatures rise suddenly, and an employee risks heat illness by not taking it easy when a heat wave or heat spike strikes, or when starting a new job that exposes the employee to heat to which the employee's body hasn't yet adjusted.

Inadequate acclimatization can be significantly more perilous in conditions of high heat and physical stress. We are responsible for the working conditions of our employees, and we will implement additional protective measures when conditions result in sudden exposure to heat our employees are not accustomed to.

a. The weather will be monitored daily. The supervisor will be on the lookout for heat waves, heat spikes, or temperatures to which employees haven't been exposed for several weeks or longer.
b. During a heat wave or heat spike, the workday will be cut short, be rescheduled, or if at all possible, cease for the day.
c. New employees and those who have been newly assigned to a high heat area will be closely observed by the supervisor or designee for the first 14 days. The intensity of the work will be lessened during a two-week break-in period by using procedures such as scheduling slower paced, less physically demanding work during the hot parts of the day and the heaviest work activities during the cooler parts of the day such as early morning or evening. Steps taken to lessen the intensity of the workload for new employees will be documented.
d. The supervisor or the designee will be extra vigilant with new employees and stay alert to the presence of heat-related symptoms.
e. New employees will be assigned a "buddy," or experienced coworker, so they can watch each other closely for discomfort or symptoms of heat illness.
f. During a heat wave, all employees will be observed closely (or maintain frequent communication via phone or radio) for possible symptoms of heat illness.
g. Employees and supervisors will be trained on the importance of acclimatization, how it is developed, and how these company procedures address it.

In addition to the procedures above, Millerick Engineering, Inc. will ensure that employees are acclimatized using the following procedures:

a. _____
b. _____
c. _____
d. _____

Emergency Response

When a crew is assigned to a particular worksite, the employees and the foreman will be provided a map of the site that will allow them to give clear and precise directions to the worksite such as street or road names, distinguishing features and distances to major roads, to avoid a delay of emergency medical services.

Prior to assigning a crew to a worksite without an infirmary, clinic, or hospital nearby, Millerick Engineering, Inc. will ensure that an appropriately trained and equipped person is available at the site to render first aid, if necessary.

Prior to the start of the shift, a determination will be made as to whether a language barrier is present at the site, and, if necessary, steps will be taken, such as assigning the responsibility to call emergency medical services to the foreman or an English speaking employee, to ensure that emergency medical services can be immediately called in the event of an emergency.

All foremen and supervisors will carry cell phones or other means of communication to ensure that emergency medical services can be called. Checks will be made to ensure that these electronic devices are functional prior to each shift.

When an employee shows symptom(s) of possible heat illness, emergency medical services will be called, and steps will immediately be taken to keep the stricken employee cool and comfortable to prevent the progression to more serious illness. Under no circumstances will the affected employee be left unattended.

At remote locations, such as rural farms, lots, or undeveloped areas, the supervisor will designate an employee or employees to physically go to the nearest road or highway where emergency responders can see them. If daylight is diminished, the designated employee(s) will be given reflective vests or flashlights to direct emergency personnel to the sick employee's location, which may not be visible from the road or highway.

During a heat wave, heat spike, or hot temperatures, employees will be reminded and encouraged to immediately report to their supervisor any signs or symptoms they are experiencing.

In addition to the procedures above, Millerick Engineering, Inc. will provide for emergency response using the following procedures:

a. _____
b. _____
c. _____
d. _____

Employees and supervisors will be trained on every detail of these written Procedures for Emergency Response.

Handling a Sick Employee

When an employee displays possible signs or symptoms of heat illness, a trained first aid employee or supervisor will evaluate the sick employee and determine whether resting in the shade and drinking cool water will suffice or if emergency service providers will need to be called. A sick employee will not be left alone in the shade, as they could take a turn for the worse!

When an employee displays possible signs or symptoms of heat illness and no trained first aid employee or supervisor is available at the site, emergency service providers will be called.

Emergency service providers will be called immediately if an employee displays signs or symptoms of severe heat illness such as decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior, incoherent speech, convulsions, red and hot face; does not look okay; or does not get better after drinking cool water and resting in the shade. While the ambulance is in route, first aid will be initiated by cooling the employee by placing the employee in the shade, removing excess layers of clothing, placing ice packs in the armpits and groin area, and fan the victim. **Do not let a sick employee leave the site, as they can get lost or die before reaching a hospital!**

If an employee displays signs or symptoms of severe heat illness and the worksite is located more than 20 minutes away from a hospital, emergency service providers will be called, the signs and symptoms of the victim will be communicated to them, and an Air Ambulance will be requested.

In addition to the procedures above, Millerick Engineering, Inc. will ensure sick employees are attended to using the following procedures:

a. _____
b. _____
c. _____
d. _____

Training

Employee Training

All employees will read this program and be given interactive training in its provisions. A copy of this program will be kept in our project manual during applicable periods of heat and humidity. Training will be provided before any work involving a risk of heat illness and refresher training will be provided as needed.

Employee training will focus on:

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. Tayla Millerick will ensure that supervisors are well versed in the hazards of, and prevention of, heat related illnesses.

Supervisor training will focus on:

a. All of 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

Training will include reading the below informational items prior to utilization of this program and having the opportunity for discussion and clarification of the below topics as well as the provisions of this program with Tayla Millerick.

§3395. Heat Illness Prevention

Heat Illness Prevention Training Materials 2015

The American Red Cross Health & Safety Tips, Heat Wave Safety

Training records will be maintained as specified in the California Code of Regulations, title 8, section 3203 (Injury and Illness Prevention Program).

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

a. When workers are first employed, they will 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. We will only permit 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 will 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.

Heat Illness Prevention (Indoor) Program

§3396 Heat Illness Prevention in Indoor Places of Employment

In order to lessen this threat and to comply with Heat Illness Prevention Standard T8 CCR 3396, this program has been prepared.

Millerick Engineering, Inc. will establish, implement and maintain this program that includes procedures for drinking water, cool-down areas, preventative rest periods, close observation during acclimatization, assessment and measurement of heat, training, prompt emergency response, and feasible control measures.

Our Contact Person/Program Administrator is: Tayla Millerick

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.

This program will be implemented when indoor temperatures equal or exceed 82 degrees Fahrenheit when employees are present.

Exceptions:

a. Incidental exposure where an employee is exposed to temperatures at or above 82 degrees Fahrenheit and below 95 degrees Fahrenheit for less than 15 minutes in any 60-minute period.
    1. These exceptions do not apply to:
        i. Vehicles without properly functioning air conditioning; or
        ii. Shipping or intermodal containers during loading, unloading, or related work.
b. Emergency operations directly involved in the protection of life or property.

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 from 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 the 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. 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.

The following designated persons, such as a program administrator, safety coordinator, supervisor, foreman, field supervisor, crew leader, has the authority and responsibility for implementing the provisions of this program at this worksite.

Name	Title	Phone Number
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

As a reminder of the importance of water to the human system, the following information is supplied, which was extracted from one of our safety meetings:

Fluids

If you heard in advance that this safety meeting was on fluids, you may well have thought that the meeting would focus on the storage, use, clean-up, and possible emergency procedures involved with the liquid chemical products used on or near work areas. You'd be wrong. While the above are important topics and questions related to them should be addressed to the competent person, this safety meeting is about your bodily fluids.

From a safety standpoint, you must not neglect your need for potable (drinkable) fluids. Water is not only the most abundant of all compounds found on the earth, but also 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 98.6º F and 100.4º F. If your body temperature reaches 105.8º F, convulsions may occur. Your whole central nervous system is impaired when your body temperature raises 9º F above normal.

At 106.0º F, 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 107.6º F, 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.

In addition to the procedures above, Millerick Engineering, Inc. will ensure the provision of water using the following procedures:

a. _____
b. _____
c. _____
d. _____

Stay healthy! Drink water! Water is truly the stuff of life.

Access to Cool-Down Areas

The supervisor will ensure that employees have access to cool-down areas to minimize the risk of heat related illnesses. The cool-down area will maintain a temperature less than 82 degrees Fahrenheit.

At or below temperatures of 82º F, the supervisor will ensure that employees have timely access to cool-down areas upon request. Any employee who feels the need for a cool-down period is encouraged to set in the cool-down area for no less than 5 minutes.

Note: "Temperature" means the dry bulb temperature in degrees Fahrenheit obtainable by using a thermometer to measure the indoor temperature in work areas.

Supervisors will monitor on-site thermometers to determine whether the temperature is in fact exceeding 82º F in the work areas. For temperatures above 82º F, one or more cool-down areas will be provided at all times while employees are present. Cool-down areas will accommodate all employees on a recovery, rest, or meal period at any one time. The cool-down area must allow employees to sit in a normal posture fully in the cool-down area without having to be in physical contact with others. Breaks may be staggered if necessary to provide adequate shade to a large number of employees on-site.

Employees who take a preventative cool-down rest will:

a. Be monitored and asked if they are experiencing symptoms of heat illness; and
b. Be encouraged to remain in the cool-down area; and
c. Not be left alone; and

d. Not be sent home until being offered onsite first aid and/or being provided with emergency medical services in accordance with our Emergency Response Procedures; and
e. Not be ordered to work until the employee is no longer experiencing signs or symptoms of heat illness, and in no event less than 5 minutes.

If an employee displays signs or reports symptoms of heat illness while on a cool-down rest period, the appropriate first aid or emergency response will be provided per our Emergency Response Procedures in this program.

In addition to the procedures above, Millerick Engineering, Inc. will ensure the provision for shade using the following procedures:

a. _____
b. _____
c. _____
d. _____

Weather Monitoring

Supervisors will be trained and instructed how to check weather reports and how to respond to hot weather advisories that may affect indoor work areas.

In addition to the procedures above, Millerick Engineering, Inc. will ensure the provision for monitoring the weather using the following procedures:

a. _____
b. _____
c. _____
d. _____

Assessment and Control Measures

Our company will measure the temperature and heat index of work areas, and record whichever temperature is higher. We will identify and evaluate all other environmental risk factors for heat illness. All records must include:

a. Date
b. Time
c. Specific location of measurement

An initial measurement will be taken when it is reasonable to suspect the work area will be at or above 82 degrees Fahrenheit. Additional measures will be taken when employee exposure is expected to be the greatest.

Measures will be taken when it is reasonably expected to be 10 degrees Fahrenheit or more above the previous measurement, and during the time worker exposure is expected to be the greatest.

All temperature records will be retained for 12 months or until the next measurements are taken, whichever is later. Records will be available for employees, designated representatives as defined in section 3204, and representatives of the Division at the worksite and upon request.

All instruments used to record temperature or heat index will be used and maintained per the manufacturer's recommendations. Any device used to measure the heat index will provide the same results as those in the NWS heat index chart in Appendix A.

Employees and their union representatives will actively participate in the planning, conducting, and recording the measurements of temperature or heat index, whichever is greater, as required per subsection (e)(1) of §3396 - Heat Illness Prevention in Indoor Places of Employment. Employees and their union representatives will also participate in identifying and evaluating any other potential environmental risk factors for heat illness.

Millerick Engineering, Inc. will implement control measures to minimize the risk of heat illness. Controls measures will depend on the environmental risk factors for heat illness present in the work area.

When employees are present and the temperature and heat index are at or above 87 degrees Fahrenheit, or the temperature is 82 degrees Fahrenheit or more where employees wear clothing that restricts heat removal or work in radiant heat areas, we will implement engineering controls to reduce and maintain a temperature and heat index below 87 degrees Fahrenheit, or the temperature below 82 degrees Fahrenheit except to the extent that our company can demonstrate such controls are infeasible.

When it is infeasible to meet the temperature and heat index limits, we will use engineering controls to reduce the temperature, heat index, or both, to the lowest feasible level, except to the extent that we can demonstrate the controls are infeasible. We will use engineering controls to minimize the risk of heat illness, except to the extent that we can demonstrate such controls are not feasible.

When engineering controls are not enough to reduce and maintain the temperature and heat index below 87 degrees Fahrenheit when employees are present, or the temperature to below 82 degrees Fahrenheit where employees wear clothing that restricts heat removal or work in radiant heat areas, our company will use administrative controls to minimize the risk of heat illness, except to the extent that it can be demonstrated such controls are not feasible.

Personal heat-protective equipment will be used when engineering controls are not capable of reducing and maintaining the temperature and heat index below 87 degrees Fahrenheit when employees are present, or reducing and maintaining 82 degrees Fahrenheit where employees wear clothing that restricts heat removal or work in high radiant heat areas and feasible administrative controls are unable to minimize the risk of heat illness, except to the extent that we demonstrate such equipment is not feasible.

Procedures for Acclimatization

Acclimatization is the temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. In more common terms, the body needs time to adapt when temperatures rise suddenly, and an employee risks heat illness by not taking it easy when a heat wave or heat spike strikes, or when starting a new job that exposes the employee to heat to which the employee's body hasn't yet adjusted.

Inadequate acclimatization can be significantly more perilous in conditions of high heat and physical stress. We are responsible for the working conditions of our employees, and we will implement additional protective measures when conditions result in sudden exposure to heat our employees are not accustomed to.

a. The weather will be monitored daily. The supervisor will be on the lookout for heat waves, heat spikes, or temperatures to which employees haven't been exposed for several weeks or longer.
b. During a heat wave or heat spike, the workday will be cut short, be rescheduled, or if at all possible, cease for the day.
c. New employees and those who have been newly assigned to a high heat area will be closely observed by the supervisor or designated person for the first 14 days. The intensity of the work will be lessened during a two-week break-in period by using procedures such as scheduling slower paced, less physically demanding work during the hot parts of the day and the heaviest work activities during the cooler parts of the day such as early morning or evening. Steps taken to lessen the intensity of the workload for new employees will be documented.
d. The supervisor or the designee will be extra vigilant with new employees and stay alert to the presence of heat-related symptoms.
e. New employees will be assigned a "buddy," or experienced coworker, so they can watch each other closely for discomfort or symptoms of heat illness.
f. During a heat wave, all employees will be observed closely (or maintain frequent communication via phone or radio) for possible symptoms of heat illness.
g. Employees and supervisors will be trained on the importance of acclimatization, how it is developed, and how these company procedures address it.

In addition to the procedures above, Millerick Engineering, Inc. will ensure that employees are acclimatized using the following procedures:

a. _____
b. _____
c. _____
d. _____

Training

Employee Training

All employees will read this program and be given interactive training in its provisions. A copy of this program will be kept in our project manual during applicable periods of heat and humidity. Training will be provided before any work involving a risk of heat illness and refresher training will be provided as needed.

Employee training will focus on:

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.
j. Our Emergency Response Procedures

Supervisor Training

All supervisors will receive heat illness training prior to supervision of employees. Tayla Millerick will ensure that supervisors are well versed in the hazards of, and prevention of, heat related illnesses.

Supervisor training will focus on:

a. All of 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

Training will include reading the below informational items prior to utilization of this program and having the opportunity for discussion and clarification of the below topics as well as the provisions of this program with Tayla Millerick.

§3396. 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 will 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. We will only permit 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 will 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.

§1595.Repair of Haulage Vehicles, Tractors, Bulldozers and Similar Equipment.
§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.
§2320.9.Backfeeding or Interconnection.
§2940.General Provisions.

Overview

As a contractor, we would not be involved in normal production operations. We could, however, be involved in the constructing, installing, setting up, adjusting, inspecting, modifying, maintaining, or servicing with the possibility of injury due to the unexpected energization, start up, or release of stored energy. During these situations, we will comply with the provisions of §3314, *The Control of Hazardous Energy for the Cleaning, Repairing, Servicing, Setting Up, and Adjusting Operations of Prime Movers, Machinery and Equipment, Including Lockout/Tagout*, the Cal/OSHA standards on which this program is based.

Coordination will be established between the client and, if appropriate, subcontractors to clearly indicate who is responsible for what function of the program, as well as the identifying characteristics of the lockout/tagout devices, shape, color, color codes for locks and tags, if used.

Coordination is required because – for example: our employee may complete lockout/tagout procedures and perform maintenance on a fixed piece of equipment while a client's employee is affected by that work.

All our employees affected by this program will be "authorized employees" by virtue of their work (see "Definitions" below.)

Definitions

There are a number of terms and phrases which must be understood by all employees to grasp the general thrust of this Program. For those employees directly involved with this Program or affected by it, there are specific requirements and procedures which would be meaningless without an understanding of the "language" of Control of Hazardous Energy.

Affected Employee means 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 means a person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing service or maintenance covered under §3314, the Control of Hazardous Energy standard.

Note: An authorized employee is authorized to service only machines and equipment with which he/she is familiar by training and/or experience.

Capable of Being Locked Out means 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 means connected to an energy source or containing residual or stored energy.

Energy Isolating Device means 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 means any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Fixed Equipment means equipment fastened in place or connected by permanent wiring methods.

Hot Tap means a procedure used in the repair, maintenance and service activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout means 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 means 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 means the utilization of a machine or equipment to perform its intended production function.

Other Employees means those employees whose work operations are or may be in an area where energy control procedures may be utilized.

Servicing and/or Maintenance means job site activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes where the employee may be exposed to the unexpected energization or startup of equipment or release of hazardous energy.

Setting Up means any work performed to prepare a machine or equipment to perform its normal production operation.

Tagout means 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 means 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 & 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 & will 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 will 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 will 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 will 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 will 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 will 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 shutting 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 do 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, will be placed on each energy-isolating device where feasible. Lockout is the primary means of non-electrical hazardous energy isolation and, where possible, will always be used in lieu of tagout. In the event a machine or piece of equipment will not accept a lock on its energy isolating device(s), it will be modified to do so whenever it is replaced, renovated, or undergoes a major repair.

There are occasions where lockout cannot be accomplished and, in those instances, tagout alone may be used as long as it provides full employee protection as explained below:

a. A tag may be used without a lock if a lock cannot be physically applied. This procedure must be supplemented with at least one additional safety measure providing a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include, but are not limited to the:
    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 of time that exposure is expected.
b. Be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.
c. Be standardized in at least one (1) of the following:
    1. Color
    2. Shape
    3. Size
d. Be standardized in print and format.
e. In their method of attachment, be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment methods and means will 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 will 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 will be released. Capacitors will be discharged, and high capacitance elements will 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 will be treated as energized until they have been totally discharged.
c. Stored non-electrical energy in devices that could reenergize electric circuit parts will 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 & experience with high-voltage circuits & equipment & who has demonstrated by performance familiarity with the work to be performed & 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 will be placed on each disconnecting means used to de-energize circuits and equipment on which work is to be performed except:

a. A tag may be used without a lock if it can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock. This demonstration must be documented. This is an allowable, but not preferred, option. A tag may also be used without a lock, if a lock cannot be physically applied. Under either of the above two circumstances that a tag is used without a lock, the procedures must be supplemented with at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include:
    1. The removal of an isolating circuit element.

2. The blocking of a controlling switch.
3. The opening of an extra disconnecting device.

b. A lock may be used without a tag if, and only if:
   1. Only one circuit or piece of equipment is being de-energized, and
   2. The lockout period does not extend beyond the work shift, and
   3. Employees exposed to the hazards associated with re-energizing the circuit are familiar with this procedure -- utilizing a lock without a tag.

After electrical hazards are locked out, tagged out, or locked and tagged out, a Qualified Person must verify de-energization before work can proceed on de-energized equipment. Verification by the Qualified Person will include:

a. Operation of the equipment's operating controls, or otherwise verifying that the equipment cannot be restarted.
b. Using test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and verifying that the circuit elements and equipment parts are de-energized.
c. Using test equipment to determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been de-energized and presumed to be safe.

Note: If the circuit to be tested is over 600 volts, the test equipment will 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 will 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 will 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 will be accomplished to ensure all employees are clear of the circuits energized.

Special Considerations

Whether using lockout, tagout, or lockout and tagout procedures, the below special considerations apply.

There may be special circumstances where, during a lockout procedure, a machine or equipment must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine or equipment or components thereof. The below procedures will be followed to accomplish this task:

a. The machine or equipment will be cleared of tools and nonessential items and, if it is to be operated, all components will be operationally intact.
b. The work area will be checked to ensure that all employees have been safely positioned or removed.
c. The standard release from lockout procedures will be implemented.
d. The machine or equipment will be energized and testing, or positioning will proceed.
e. After testing or positioning, de-energize all systems and reapply the energy control device following standard procedures.

Group Lockout and/or Tagout Procedures

In the event that servicing, or maintenance is performed by more than one individual, the following will be implemented:

a. One person will be designated as Group Leader and that person will have overall responsibility for a set number of employees working under his/her control.
b. The Group Leader will have exclusive control of a Master Group Lockout and/or Group Tagout device.
c. The Group Leader will ascertain the exposure status of individual group members with regard to the lockout and/or tagout of the machine or equipment.
d. Each authorized employee within the group will affix his personal lockout/tagout device to a group lockout box or comparable device before beginning work and will remove his/her personal lockout/ tagout device upon completion of work.

If there is more than one group of personnel working a machine or piece of equipment, an employee will be designated to coordinate and take responsibility for all the individual groups.

Shift and/or Personnel Changes

In the event that Energy Control Procedures must extend into the next shift or if there are individual or group personnel changes, the procedures listed below will be implemented in the order listed:

a. If the energy isolation device will accept two lockout/tagout devices:
    1. The authorized employee coming on duty will place his personalized lockout/tagout device in place, and
    2. After the above step has been completed, the employee going off duty will remove his lockout/tagout device.
b. If the energy isolation device will not accept two lockout/tagout devices, both the incoming and outgoing authorized employees will:
    1. Ensure that all affected employees are aware that a lockout/tagout change is about to take place, then

2. Ensure that the area is clear of tools and affected employees, then
3. The outgoing authorized employee will remove his lockout/tagout devices and immediately the incoming authorized employee will install his lockout/tagout devices, and
4. The incoming authorized employee will inform the affected employees that the change has been completed.

Following the above procedure will ensure the energy isolating device was never disturbed and that complete control of hazardous energy was maintained. The above procedure provides for continuing protection for both incoming and outgoing employees from the potential hazards of the unexpected release of hazardous energy and an orderly transfer of lockout/tagout responsibilities.

Periodic Inspections

Christopher Millerick, our Safety Director, will conduct periodic inspections of this Control of Hazardous Energy Program at least annually to ensure that the procedures and requirements of 29 CFR 1910.147 are being followed. The information gleaned from the periodic inspection will be used to correct any deviations or inadequacies identified. These inspections will be documented, and certification will be prepared to identify the machine or equipment on which an energy control procedure was utilized, the date of the inspection, the employees included in the inspection, and the name of the person performing the inspection. It should be noted that all periodic inspections will be conducted by a competent person designated by Christopher Millerick other than the person who actually used the energy control procedure being inspected.

Training

Control of Hazardous Energy training will be documented giving the name of the trainer, the name of the trainee, and the date. Authorized employees must be familiar with this program and will be trained in the following areas: recognition of all applicable hazardous energy sources, types and magnitude of energy sources, methods and means necessary for energy isolation and control, and changes to our program.

Retraining will be conducted when a periodic inspection reveals inadequacy in an authorized employee's knowledge, there has been a deviation from established policy or procedure, or our procedures are changed.

All training will be interactive with applicable standards readily accessible.

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

a. **When workers are first employed, they will 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 will 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 will 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.**

Millerick Engineering, Inc.

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)

Millerick Engineering, Inc.

Control Procedures Form

Machine/Equipment Identification: _____

Location of Machine Equipment:_____

Authorized Person Name:_____ Date: _____

These Procedures must be accomplished in the order listed.

1. **PREPARATION FOR SHUTDOWN:** The Authorized Employee will be totally familiar with the first page of this form. The Affected Employees will be notified that the piece of equipment is about to be shut down and locked out.

Specific Instructions:_____

_____

_____

_____

2. **SHUTDOWN:** Affected Employees will be given the reason(s) for the lockout/tagout procedures. If the machine is running, it will be turned off using normal procedures. It may be shut down by either the Authorized Employee or the Affected Employee.

Specific Instructions:_____

_____

_____

_____

3. **MACHINE ISOLATION:** All real or potential hazardous energy listed on the first page of this form will be isolated from their source. The location of the isolation devices and the methods used are also found on the first page of the form.

Specific Instructions:_____

_____

_____

_____

4. **LOCKOUT/TAGOUT DEVICE APPLICATION:** Authorized Employees will (circle appropriate procedure): [lockout] [tagout] [lockout and tagout] the energy isolating devices. Lock and tag devices will be color coded and they will contain the identity of the Authorized Employee actually performing this procedure. The lockout/tagout devices will be applied so that they hold the energy isolating device in a "Neutral" or "Off" position.

Specific Instructions: _____

_____

_____

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 will 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 will 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:_____

_____

_____

_____

Millerick Engineering, Inc.

Group Leader Documentation Form

One (1) person will be designated as Group Leader. The Group Leader will have overall responsibility for a set number of employees.

The Group Leader will have exclusive control of a Master (Group) Lockout and/or Group Tagout device.

The Group Leader will ascertain the exposure status of individual group members with regard to the lockout and/or tagout of the machine or equipment.

Each individual authorized employee within the group will affix his personal lockout/tagout device to a group lockout box or comparable device before beginning work and will remove his/her personal lockout/tagout device upon completion of work.

If there is more than one group of personnel working on a machine or piece of equipment, an employee will be designated to coordinate and take responsibility for all the individual groups.

NAME OF DESIGNATED GROUP LEADER: _____

EQUIPMENT REQUIRING CONTROL OF HAZARDOUS ENERGY

NAME: _____ SERIAL NUMBER: _____

DATE: _____ MODEL NUMBER: _____

AUTHORIZED (QUALIFIED) EMPLOYEES OF THE GROUP

_____ (Name)	_____ (Signature)
_____ (Name)	_____ (Signature)
_____ (Name)	_____ (Signature)
_____ (Name)	_____ (Signature)

_____
Tayla Millerick
Program Administrator

SIGNATURE OF GROUP LEADER: _____

Millerick Engineering, Inc.

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 Christopher Millerick, our Safety Director.
If no, complete the below section, sign the form and return to Christopher Millerick, our Safety Director.

EMPLOYEES PERFORMING THE PROCEDURE

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

IMPROPER PROCEDURES NOTED

_____

_____

_____

_____

_____

_____

_____ _____
(SIGNATURE OF INSPECTOR) (Date)

NOTE: If improper procedures are noted, the above employees must have retraining or the Program must be modified

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 Tayla Millerick, 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 Tayla Millerick, 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 Tayla Millerick, or designated competent person, on a job site to determine the PPE requirements allows for knowledgeable selection and consistency, and eliminates chaos that would result if each individual were to decide when, where, and if PPE should be used.

Dissemination of PPE Selection Information

Employees must understand when PPE is necessary and what type(s) of PPE are necessary.

All persons for whom PPE will provide a measure of safety will be given appropriate training on that item of PPE as well as an explanation of the importance of its use.

ANSI Standards and PPE

Most items of PPE are manufactured in accordance with a specific American National Standards Institute (ANSI) or American Society for Testing and Materials (ASTM) standard. For example, Protective helmets placed in service on or before October 30, 2004 will comply with one of the following ANSI standards, which are hereby incorporated by reference: ANSI Z89.1-1969 Safety Requirements for Industrial Head Protection; ANSI Z89.2-1971 Industrial Protective Helmets for Electrical Workers, Class B; ANSI Z89.1-1981 Requirements for Protective Headwear for Industrial Workers; ANSI Z89.1-1986 Protective Headwear for Industrial Workers -- Requirements; or ANSI Z89.1-1997 Industrial Head Protection.

PPE safety products are tested to ensure they meet ANSI standards. Because products are tested in the manner in which they are designed to be used, ANSI certification is valid only if the user follows the manufacturer's instructions for proper sizing, fitting, wearing, and adjusting. A review of OSHA citations reveals that fines can be levied because employees were improperly using PPE. For example, a hard hat worn with the bill toward the rear may provide adequate protection from impact; however, because it is tested with the bill toward the front, this improper use is cause for a safety violation.

Prior to purchase, items of selected PPE will be checked to ensure they were manufactured in accordance with the proper ANSI standard.

The importance of hazard assessment takes on added significance when judgments are made matching the hazard to the protection desired in cases where ANSI certification is not available. What matters most is: does the selected PPE do what it is intended to do?

Employee owned PPE must be approved for use by Tayla Millerick. 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 & face. Dirty or fogged lenses can impair vision &, rather than offer protection from a hazard, actually becomes a contributory factor in causing an accident.

Lastly, should PPE become contaminated with a chemical substance and decontamination is impossible, the PPE will be properly disposed of following the disposal instructions on the Safety Data Sheet for that substance.

Training

Affected employees will be given an understanding of:

a. When PPE is necessary.
b. What PPE is necessary.
c. How to properly put on, take off, adjust, and wear PPE.
d. The limitations of the PPE.
e. The proper care, maintenance, useful life and disposal of the PPE.

Retraining will be given in situations when changes in PPE requirements render the previous training obsolete or it is noticed that an employee is not following our PPE policies – specifically, not properly wearing the selected PPE in identified locations or work situations.

As a contractor, we are not required to have a PPE Program, per se, nor is the hazard assessment a ***specific*** requirement. In fact, there is no hand protection standard. Construction standards are short and to the point. The complete standard for head protection is printed 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 will wear approved head protection in accordance with subsections (b) and (c).
b. When head protection is required, the employer will 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 will comply with American National Standards Institute (ANSI) Z89.1-1997 Industrial Head Protection, which is hereby incorporated by reference. The employer will ensure that the appropriate class of ANSI designated helmet is selected and used in accordance with the following:
        i. 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 will be ANSI approved Class C, E, or G.
        ii. When there is a risk of head injury from contact with conductors less than 600 volts, protective helmets will be ANSI approved Class E or G.
        iii. When there is a risk of head injury from contact with conductors greater than 600 volts, protective helmets will be ANSI approved Class E.
    2. 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. The employer will ensure that the appropriate class of ANSI designated helmet is selected and used in accordance with the following:

i. 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 will be ANSI approved Class A, B, C, D, E, or G.

ii. When there is a risk of head injury from contact with conductors less than 600 volts, protective helmets will be ANSI approved Class A, B, D, E, or G.

iii. When there is a risk of head injury from contact with conductors greater than 600 volts, protective helmets will be ANSI approved Class B or E.

c. Each approved protective helmet required by subsection (a) will bear the original marking required by the ANSI standard under which it was approved. At a minimum, the marking will 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 will confine their hair to eliminate the hazard.

Most PPE requirements are obvious and PPE wear is so simple that training is almost unnecessary.

What is important – vitally important – is actually using the proper PPE when it is required.

To ensure employee compliance with PPE requirements, we have opted to treat all employees as intelligent, responsible persons who, when reminded of what PPE actually protects, will enthusiastically endorse PPE use.

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

a. When workers are first employed, they will 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 will 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 will be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

Eye and Face Protection

Your eyes are a marvel of engineering. Most of us take them for granted as we do all our senses, until an accident, injury, or disease forces us to realize the miracle we lost or almost lost. Can you imagine a system that can take (absorb) light and convert it to electrical signals (by way of the 120 million rods and 6 million cones on the retina) and transfer these signals through an optic nerve which has about one million fibers directly into the brain?

Most of us see the world in living color and with depth perception. The body itself does much to protect the eyes. Bony eye sockets in the skull protect the eye from many mechanical injuries. Orbital fluids and tissues cushion direct blows. Eyelids close reflexively from visual or mechanical stimuli. Eyes reflexively rotate upward with the lid closing to protect the cornea. Tears can flush away chemicals and foreign bodies. We all come with these safeguards. Sometimes, they are not enough.

Eye protection is required when there is a possibility of eye injury. Eye injury is not confined to flying objects. Eye injury can be caused by bright light, dust, chemicals, heat, and, literally, anything that can reach them. Different hazards require different types of protection.

Eye (and face) protection is required when one is exposed to flying particles, chemicals, or injurious light radiation. Types of eye protection include impact resistant safety glasses, safety glasses with side shields, goggles, goggles with a face seal, face masks, and shaded goggles with varying degrees of darkness.

Affected employees who wear prescription lenses will wear eye protection over the prescription lenses without disturbing the proper positioning of the prescription lenses or will wear eye protection that incorporates their prescription into the design.

All prescription glasses should be made with impact-resistant lenses. Hardened lenses, through a tempering process, are extremely hard and resistant to impact and breakage. Safety lenses are similar to hardened lenses but are 1 mm thicker. Safety lenses are used in goggles where there is a danger of flying glass or chips of metal.

All employees who wear contact lenses must also wear appropriate eye and face protection in hazardous environments.

Welding helmets and face shields, if required, should be worn over primary eye protection (spectacles or goggles).

An inexpensive pair of safety glasses can save your priceless eyesight.

Head Protection

Talking about head protection is really talking about brain protection. Your brain, either through divine providence, evolution, or quirk of nature, is you. The brain, that soft mass of gray and white convoluted matter, is what you are all about. Destroy your brain and you no longer exist.

Your brain is naturally protected by a cranium. Your skull actually has many bones which protect your brain and support your face. Obviously, there are other parts to your head which need protecting such as your eyes, ears, nose, tongue, skin, etc., but your brain is the most important.

Head protection is required when there is a possibility of injury to the head from falling objects and when working near exposed electrical conductors which could contact the head.

Brain injury is the second most common cause of major neurologic deficits and causes more deaths than injury to any other organ.

When the skull receives an impact, it actually can indent and deform. A fracture may occur, and the fracture may be distant from the point of impact. A direct blow to the head can cause the brain to actually move within the skull. Surprisingly, there is often a reverse correlation between skull damage and brain damage. Just because there is no external visible injury to the skull does not preclude the possibility of brain injury.

Wearing head protection (a hard hat) accomplishes two major objectives: it reduces the rate of energy transfer and spreads out the area of energy transfer. Just as your head should be checked out at a hospital after a head impact, so should your hard hat. A hard hat can absorb energy by destructing and this destruction may be unnoticeable.

A head injury may occur after a blow to the head and the following symptoms may be present: unconsciousness or disorientation, confusion, nausea, vomiting, and/or double vision. Get medical help immediately. Cover open wounds lightly with sterile dressing. Keep victim still, warm, and reassured. DO NOT move the victim unless he/she would be in greater danger if you did not. DO NOT apply pressure to a head wound. DO NOT try to stop blood or clear fluid coming from ears, nose, or mouth.

Hearing Protection

Wherever it is not feasible to reduce the noise levels or duration of exposures to those specified in Table 3, below, ear protective devices will be provided and used.

Ear protective devices inserted in the ear will 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, & stirrup. The stirrup (stapes) is the smallest bone in your body -- thinner than a grain of rice. Also, in the middle ear is the Eustachian tube which connects the middle ear to the back of the throat to maintain equal air pressure on both sides of the ear drum.

The inner ear, where sound waves are converted to electrical impulses, actually has a function unrelated to hearing. It contains the semicircular canals which completely control your balance. Also, in the inner ear is the cochlea, a small spiral coil in which you would find the basilar membrane which has over 15,000 hair cells. These hair cells are the end of the auditory nerve which goes directly to the temporal lobe of the brain.

The hardest bone in your whole body is the temporal bone which protects two thirds of the auditory canal and all of the middle and inner ear. Nature, itself, seems to have placed a high priority on your hearing.

Protect your hearing. If you are issued hearing protection, use it!

Foot Protection

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, & 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 & 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 & cold. However, there are many other types of gloves. Hands need protection from chemicals, abrasions, cuts & lacerations, temperature extremes, germs, radiation, impact, punctures, electricity, & 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.

Flame-Resistant (FR) Clothing

Flame-Resistant clothing will be used whenever there is a possibility of an electric arc in the work area. Employees are prohibited from wearing clothing made from material that is entirely, or blended with, synthetic materials such as acetate, nylon, polyester, or rayon.

Clothing made from 100% cotton or wool will be acceptable as long as its weight is appropriate for the flame and arc conditions present where the employees will be working. Additional guidance for FR clothing can be found at https://www.osha.gov/laws-regs/standardinterpretations/1995-08-10

Miscellaneous Personal Protection

PPE immediately brings to mind eye, head, hand, and foot protective equipment. However, there may be other types of protective equipment which are readily available, and which have the capability of protecting employees from identified hazards on the job site. Some of these items may not fall under a specific Cal/OSHA standard or may not be ANSI approved or disapproved; however, in the judgment of Tayla Millerick, they may be appropriate for use in our operations.

Summary

The true beneficiary of PPE utilization is the user. The whole thrust of this Program is to protect our employees from injury. This is accomplished by, among other things, explaining the process of hazard assessment, the reasons for PPE use, and the necessity of using the PPE selected.

Millerick Engineering, Inc.

Certificate of Job Site Hazard Assessment

I certify, this date, that I have performed a hazard assessment of our job sites and our methods of operations.

This hazard assessment was accomplished to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE).

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

All affected employees will be informed of the required PPE for specific work locations or specific types of work to be performed and will receive initial training or retraining, if necessary, before being allowed to perform work requiring PPE.

If conditions or procedures change, a reassessment will be made.

_____ _____

Tayla Millerick 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 period of time and, when finally realized, the damage is permanent.

Because of the above, it is vital that cooperation between all affected employees & 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 & use of hearing protectors. Information is provided on how sound is transmitted to your brain, & 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 Tayla Millerick, 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 will be provided and used.

Ear protective devices inserted in the ear will be fitted or determined individually by competent persons. Plain cotton is not an acceptable protective device.

Permissible Noise Exposures	
Sound Level Duration per day, hours	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, Tayla Millerick 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 means an 8-hour time-weighted average of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of fifty percent.

Attenuate means to lessen the intensity.

Audiogram means a chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

Audiologist means 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 means the audiogram against which future audiograms are compared.

Criterion Sound Level means a sound level of 90 decibels.

Decibel (dB) means unit of measurement of sound level.

Dosimeter means 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) means unit of measurement of frequency, numerically equal to cycles per second.

Medical Pathology means a disorder or disease which should be treated by a physician specialist.

NIHL means noise Induced Hearing Loss.

Noise Dose means 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 means a physician specializing in diagnosis and treatment of disorders of the ear, nose and throat.

Representative Exposure means 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 means 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 micro pascals. Unit: decibels (dB). For use with OSHA standard 29 CFR 1910.95, SLOW time response is required.

Sound Level Meter means an instrument for the measurement of sound level.

Time-Weighted Average means 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 Tayla Millerick, 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.

Tayla Millerick will also be responsible for recordkeeping, testing, and training. Lastly, Tayla Millerick 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 Tayla Millerick. 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:

Sounds 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 hr time-weighted avg. of 85 decibels, the monitoring program will be implemented to identify employees to be included in the hearing conservation program.

Hearing loss generally occurs over a lengthy period of time. Of course, as one would reasonably expect, acoustic trauma to your hearing can cause instant and permanent damage.

Our monitoring program is designed to identify:

a. Areas where feasible administrative controls may be implemented to reduce noise exposure. Example: shorter exposure times.
b. Areas where feasible engineering controls may be implemented to reduce noise exposure. Example: soundproofing.
c. Which employees should be included in our hearing conservation program.
d. The types of hearing protection to be used.

Noise monitoring equipment and procedures will be determined by employee mobility, variations in workplace sound levels, individual types of noise such as impact, impulse, or steady stream; and/or the noise type combinations.

Noise Level Monitoring

The monitoring equipment and procedures will be designed to determine the actual sound levels that reach the employee's ears and the length of time there is exposure to those levels.

Noise level monitoring is generally conducted by using a dosimeter, a sound level meter, or both. Because a sound level meter takes one measurement at one point in time, it is useful when sound is fairly constant, and the employee is not moving in and out of the noise area.

A dosimeter, on the other hand, stores sound level measurements and can produce an average noise exposure which can be calculated into an 8-hour time weighted average. When using a dosimeter in an area where employees are exposed to varying sound levels or they move in and out of the noise area, the dosimeter is actually worn and the sound pick-up is placed close to the employee's ear to get an accurate measurement of the sound level exposure. Generally, a dosimeter is the best choice for the workplace.

Noise level monitoring results, as well as §5097, Hearing Conservation Program, will be made available to affected employees and copies of these items be **posted** in the workplace.

Monitoring Plan

All continuous, intermittent and impulsive sound levels from 80 dB to 130 dB will be integrated into the noise measurements.

All instruments used to measure employee noise exposure will be calibrated to ensure measurement accuracy.

Representative personal sampling will be used, in lieu of area sampling, when there is high employee mobility, significant variations in sound levels, or a significant component of impulse noise.

Area sampling will be used when sound levels are relatively constant, and employees have a constant exposure to them.

When there is a change in workplace activity or equipment which would likely increase noise levels, additional monitoring will be undertaken.

a. All persons found to be exposed to sound levels at or above the action level will be notified.
b. Affected employees or their representatives will be allowed to observe the noise monitoring process.

Noise Level Monitoring Records

All noise level monitoring records will be kept for a period of two (2) years.

Audiometric Testing Program

Audiometric testing will be made available at no cost to affected employees.

When noise exposures reach the action level, **8-hour time-weighted average of 85 dbA**, the audiometric testing will be initiated.

Audiometric tests will be performed by a licensed or certified audiologist, otolaryngologist, physician, technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining, and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist, or physician.

Audiometric Tests - Recordkeeping

Audiometric test records will be retained for the duration of the affected employees' employment.

These records will include:

a. The employee's name and job classification.
b. The date of the audiogram.
c. The examiner's name.
d. The date of the last acoustic or exhaustive calibration of the audiometer.
e. The employee's most recent noise exposure assessment.
f. Accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

Upon request, employees may have access to these records.

Baseline Audiogram

Within 6 months of an employee's first exposure at or above the action level, a valid baseline audiogram will be established against which subsequent audiograms can be compared. Hearing loss can occur as a result of age, trauma, drug reaction, and exposures that are not work related. However, with a baseline audiogram -- which measures the frequency (125 or 250 Hz to 8000 Hz) and loudness (-10 or 0 dB to 110 dB) -- it is possible from subsequent audiograms to determine with accuracy if hearing loss is due to occupational noise exposure or some other cause.

For the purposes of this program, audiograms must measure, in each ear, at least the frequencies of 500, 1000, 2000, 3000, 4000, and 6000 Hz.

Occupational hearing loss occurs within the inner ear in the cochlea. By using a bone-conduction vibrator, sounds can be carried directly to the inner ear and bypass the outside and middle ear areas.

An annual audiogram may be substituted for the baseline audiogram if the audiologist, otolaryngologist or physician who is evaluating the audiogram determines:

a. The standard threshold shift revealed by the audiogram is persistent.
b. The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

Procedure

To ensure an accurate test, employees must not be exposed to occupational noises for at least **14 hours prior to the establishment of a baseline audiogram.** To meet this requirement, if needed, hearing protectors may be worn during the preceding work shifts. This procedure is to factor out temporary hearing changes from the test.

Annual Audiogram

At least annually, after obtaining the baseline audiogram, a new audiogram will be obtained for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee's annual audiogram will be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a standard threshold shift has occurred, the employee will be notified **in writing within 21 days** of this determination.

A standard threshold shift would be a change in hearing of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

While audiograms may be compared by a technician, problem audiograms will be referred to an audiologist, otolaryngologist, or physician for further evaluation.

The person performing this evaluation will be provided the following:

a. A copy of this program including all standards.
b. The baseline audiogram and most recent audiogram of the employee to be evaluated.
c. Measurements of background sound pressure levels in the audiometric test room.
d. Records of audiometer calibrations.

Note: If the annual audiogram shows that an employee has suffered a standard threshold shift, the employee will be re-tested within 30 days and these results will be considered the annual audiogram.

If the physician determines that a standard threshold shift has occurred, the following steps will take place:

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 will be referred for a clinical audiological evaluation or an ontological 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, Tayla Millerick 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, & attenuation of various types, & instructions on selection, **fitting, use, & 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 will 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 will permit only qualified persons to operate equipment and machinery.

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

Process of Hearing

Hearing involves, in its simplest terms, conducting sounds from outside your body to your brain. The ear is divided into three main sections:

a. EXTERNAL EAR — collects sound and directs them to the tympanic membrane (ear drum).

Major Components:

- Pinna: the visible part of the ear.
- External auditory canal: approximately 1¼ inch tube to direct sound to the eardrum.
- Tympanic membrane: vibrates as it is hit with incoming sounds.

b. MIDDLE EAR — 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 of the ear drum.

c. INNER EAR — transfers sound vibrations to nerve impulses 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:	
a. cochlear nerve:	connects the cochlea to the brain.
b. vestibular nerve:	connects the semicircular canals to the brain.

Noise Induced Hearing Loss (NIHL)

Moderate exposure to loud noise (over 90 dB for one or more hours) may cause **reversible** changes within the inner ear such as: subtle intracellular changes in the hair cells or swelling of the auditory nerve endings. These temporary changes present themselves as temporary threshold shifts (TTS) 10 dB or more at various frequencies in either ear. This temporary hearing loss will go away within hours -- 16 hours maximum.

How this loss may occur is as follows: continued sound may decrease the stiffness in the hair bundles at the top of the hair cells in the inner ear. This in turn would cause less vibration at a given sound level and an accompanying loss in hearing.

However, continued exposure to loud noise over time will result in permanent threshold shift (PTS) and the resultant permanent, **non-reversible** hearing loss.

Additionally, the most common cause of tinnitus (an annoying ringing in the ears) is damage to the ear from noise exposure resulting in hearing loss.

Because the loss of hearing is so gradual, so painless, so unnoticeable, there may be a tendency to not take hearing conservation seriously until it is too late and you have lost one of your major contacts with the world around you – your hearing.

Why bother with a Hearing Conservation Program? Why not, instead, just require hearing protectors at all times, in all situations?"

This misses the point. Your hearing – just as your sight, touch, and smell – is your means of contact and placement in the world around you. By wearing hearing protectors when not needed, you lessen your ability to hear and be in touch with your environment.

You certainly wouldn't want to save your hearing and lose your life because you didn't hear the warning "Watch out!", "Stop!" or you missed the sound of approaching danger.

Hearing Conservation Program Recordkeeping

The below records will be retained.

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.

Personal Protective Equipment - Respiratory Protection

§5144. Respiratory Protection
Appendix A to Section 5144: Fit Testing Procedures (Mandatory)
Appendix B-1. to Section 5144: User Seal Check Procedures (Mandatory)
Appendix B-2. to Section 5144: Respirator Cleaning Procedures (Mandatory)
Appendix C to Section 5144 OSHA Respirator Medical Evaluation Questionnaire (Mandatory)
Appendix D to Section 5144: (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Overview

The best respiratory protection one can have is clean, breathable air. Engineering controls are our first line of defense against contaminated or oxygen deficient air. These controls include, but are not limited to, using measures such as enclosure or confinement to keep atmospheric hazards away from employees, general or local ventilation to exhaust hazardous atmospheres, and/or substitution of less toxic materials to avoid hazardous atmospheres in the first place. When effective engineering controls are not feasible, or during the time frame they are being instituted, appropriate respirators will be used.

The concept of respiratory protection is quite simple. Certain types of atmospheric hazards are simply particles that can be filtered out of the air, through the use of an air-purifying respirator. Air-purifying respirators force the harmful particles into a filter specifically designed for the hazard(s) where they are trapped or absorbed. The air reaching the employee's lungs is essentially free of the hazard.

a. If the action of inhalation causes the ambient air to be sucked through the filter, the respirator is considered a negative pressure respirator.
b. If the ambient air is forced through the respirator filter (with a blower, for example), the respirator is considered a positive pressure respirator.

A respirator that removes harmful contaminants is of no value in an oxygen deficient (less than 19.5% oxygen) or oxygen enriched (more than 23.5 % oxygen) atmosphere.

An atmosphere-supplying respirator will be used in oxygen deficient atmospheres or in atmospheres where a filter cannot reduce the particulate hazard to an acceptable level. This type of respirator provides clean, breathable air from a source independent of the ambient atmosphere.

Different types of respirators provide different levels of protection. **Never** may an air-purifying respirator be substituted for a required atmosphere-supplying respirator.

Unfortunately, respiratory protection is more complicated than it first appears. Because of the variety and severity of respiratory hazards, the types of respirators and their limitations, the methods for fitting and testing, and, most importantly, the detrimental ramifications of respirator misuse, this respiratory protection program is required.

Proper respirator selection and use can prevent occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, and vapors. In atmospheres that are immediately dangerous to life or health, proper respirator selection and use will save your life.

When required, employees will be supplied appropriate respirators and all incidental costs associated with respirator use (fit testing, repair parts, filters, medical examinations, cleaning supplies, etc.) will be borne by the company.

Duties of the Program Administrator

Tayla Millerick, 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, Tayla Millerick will:

a. Measure, estimate, or review data on the concentration of airborne contaminants in the work area prior to respirator selection.
b. Select the appropriate type of respirator that will provide adequate protection from the airborne contaminants or provide clean, breathable air.
c. Maintain applicable records including:
    1. Fit test record
    2. Medical records
    3. Inspection records
    4. Evaluation records
    5. Training records

Definitions

There are a number of terms and phrases, not used in ordinary everyday life, which must be understood by affected employees.

Air-Purifying Respirator means 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 means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere & includes supplied-air respirators (SARs) & self-contained breathing apparatus (SCBA) units.

Canister or Cartridge means 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 means 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 means 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 means 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) means 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 means a respirator intended to be used only for emergency exit.

Filter or Air-Purifying Element means a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering Facepiece (DUST MASK) means 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 means 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 means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

Helmet means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High Efficiency Particulate Air (HEPA) Filter means 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 means 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 of Health (IDLH) means 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 means a respiratory inlet covering that is designed to form a partial seal with the face.

Negative Pressure Respirator (Tight Fitting) means 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 means 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 means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered Air-Purifying Respirator (PAPR) means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure Demand Respirator means 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) means 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) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory Inlet Covering means 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) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service Life means 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 means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Tight-Fitting Facepiece means a respiratory inlet covering that forms a complete seal with the face.

User Seal Check means an action conducted by the respirator user to determine if the respirator is properly sealed to the face.

Respirator Selection

Respirators will be selected on the basis of hazards to which the employee will be exposed. Using an inappropriate respirator is just as bad, if not worse, than using no respirator at all because it can evoke a false sense of security while offering no protection to the hazard at hand.

All respirators will be NIOSH approved.

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. Work area surveillance will be made by Tayla Millerick taking into consideration the actual work area conditions, the degree of exposure and employee stress.

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 will 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.

Tayla Millerick will rely on past experience and cartridge manufacturer recommendations. If the competent person on site or any respirator user notices that breathing becomes more strained, the change schedule will be modified.

For protection against particulates, the respirator provided will be:

a. Atmosphere-supplying; or
b. Air-purifying equipped with a filter certified by NIOSH under 30 CFR part 11 like a HEPA filter; or

Note: Filters manufactured under 30 CFR part 11 standards may continue to be used, however, as of July 10, 1998, other than PAPR's, they are not to be purchased. Only 42 CFR part 84 type filters will be used.

c. Air-purifying equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or

Note: These respirators and filters, other than PAPR's are identified on the packaging with numbers that take the form: TC-84A-XXX.

a. Filters will have an "N", "R", or "P" designation followed by "100", "99" or "95." Examples: N100 or R99

1. "N" indicates the filter is for any solid or non-oil containing particulate contaminant.

2. "R" indicates the filter is for any particulate contaminant. If used for an oil containing particulate, a one shift use limit applies.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.

Tayla Millerick 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 & 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 Tayla Millerick 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
Isoamyl Acetate Fit Test Procedure	Paragraph B2 Paragraph B2(b)
Saccharin Solution Aerosol Fit Test Procedure	Paragraph B3 Paragraph B3(b)
BitrexTM Solution Aerosol Fit Test Procedure	Paragraph B4 Paragraph B4(b)
Irritant Smoke (Stannic Chloride) Fit Test Procedure	Paragraph B5 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 area of 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.

As explained in the protocols, the fit tests will not be conducted if there is any hair growth between the skin and the facepiece sealing surface. Further, there will not be mustaches that are so long as to interfere with the inlet or exhaust valves in the respirator. Of course, these requirements apply not only to fit testing procedures, but they also apply to actual on the job use where the seal between face and respirator must be maintained.

User Seal Check

A user seal check performed in accordance with the manufacturer's instructions or Appendix B-1 to §5144. See program index page. This check will be made prior to each use by the wearer of a tight-fitting respirator.

A user seal check is solely for respiratory protection of the employee and without this check there is no way of knowing if the selected respirator is actually working. Failure to perform a seal check may result in the use of a respirator which is of little or no value.

Hazard Communication & Emergency Procedures

One would not be wearing a respirator in the first place if there were not some detrimental health consequences of non-use. Often, these consequences are chronic (long term) and immediately unnoticeable.

If respirator failure would lead to noticeable physical or mental impairment, then, in these situations, two (2) employees will be assigned in the same area and in view of each other. If one employee presents symptoms of physical or mental distress, the second employee will remove the first employee from the area. If there is not an immediate, total recovery, the affected employee will be provided medical care by emergency responders.

In the event work is being performed in an IDLH atmosphere, a safety harness and safety lines will be used so that the employee may be pulled to safety. Suitable rescue equipment will be available and a standby man or men with suitable self-contained breathing apparatus will 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, Tayla Millerick, or competent person, will reevaluate the continued effectiveness of the respirator.

Employees are to leave the respirator use area:

a. To wash their face and respirator facepiece as necessary to prevent eye or skin irritation associated with respirator use.
b. If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece.
c. To replace the respirator or the filter, cartridge, or canister elements.

Defective respirators will be repaired or replaced before returning to the respirator use area.

Air Quality

Atmosphere-supplying respirators, depending on the type (supplied-air or SCBA) use compressed air, compressed oxygen, liquid air or liquid oxygen. Compressed and liquid oxygen must meet the requirements of the United States Pharmacopoeia for medical or breathing oxygen. Compressed breathing air must meet the requirements of Grade "D" breathing air including: oxygen content (v/v) of 19.5-23.5%; hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less; carbon monoxide content of 10 ppm or less; carbon dioxide content of 1,000 ppm or less; and lack of noticeable odor. Compressed oxygen will 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 will be in place. If an oil lubricated system is used, it will have a high temperature and carbon monoxide alarm. Additionally, we will ensure that compressed air does not have oxygen concentrations that are greater than 23.5%.

Compressors used to supply breathing air to respirators must be constructed and situated so as to:

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 will 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 will 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;
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 will be inspected monthly and air and oxygen cylinders will be fully charged according to the manufacturer's instructions. All warning devices will be checked to ensure they are properly functioning.

Maintenance of Emergency/Unassigned Respirators

Emergency and unassigned respirators (respirators used by more than one person) will be cleaned and inspected for defects every thirty (30) days and after each use. Particular attention will be given to the elasticity of the respirator and ensuring that the respirator is defect free. Only the latest record of this inspection will be maintained. A tag showing the name of inspector, the date, and condition of the respirators will be attached to the respirator.

Storage of Respirators

Respirators will be stored in a convenient, clean, and sanitary location in such a manner as to protect them from dust, heat, sunlight, extreme cold, excessive moisture, and damaging chemicals. In the work area, a plastic bag can help protect a respirator from dust and moisture. Respirators will not be stored in lockers or toolboxes 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 will 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 will 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 will be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

Dusk Masks – Use of Respirators when not Required

Tayla Millerick, or competent person in the work area, will determine when respirator use is required. Dust masks may be used at any time to reduce annoying particles in the air in the work area.

An employee who wants to wear an actual respirator in the work area for comfort or an additional level of safety that is not required for health reasons according to standards, must obtain medical approval for respirator use according to the procedures outlined in this program.

Additionally, that employee should read this program (formal training is not required) and:

a. Read and heed all manufacturers' instructions on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
b. Choose a respirator certified for use to protect against the contaminant of concern. The respirator must be NIOSH approved.
c. Not wear the respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. A respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
d. Not interchange the respirator with another employee.

Disposable Respirators:

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

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

Disposable filters are actually negative pressure respirators. They protect the user by filtering particles out of the air breathed.

Though disposable filters cannot be fit-tested in the traditional sense, they must be fit-tested in accordance with the manufacturer's instructions.

Under no circumstances may any respirator other than the above disposable respirators be used without compliance with a respiratory protection program.

Appendix D to Section 5144: (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

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.

Millerick Engineering, Inc.

Respiratory Protection Program Evaluation Form

Tayla Millerick, 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: _____

_____

Do respirators fit without interfering with job performance?	☐	☐

Problem areas: _____

Corrective action: _____

_____

Are respirators being properly maintained?	☐	☐

Problem areas: _____

Corrective action: _____

_____

Are appropriate respirators selected for the hazard?	☐	☐

Problem areas: _____

Corrective action: _____

_____

_____ _____

(Signature of Person performing evaluation) (Date)

Note: Retain only the latest evaluation.

Millerick Engineering, Inc.

Report of Medical Examination

_____
(Date)

_____
(Applicant's Name)

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:

Millerick Engineering, Inc.
Christopher Millerick
PO Box 3338
Turlock, CA 95381
2099857750

Millerick Engineering, Inc.

Medical Opinion for Respirator Wear

_____
(Date)

_____
(Applicant's Name)

_____
(Applicant's SSN)

Return this form to:

Millerick Engineering, Inc.
Tayla Millerick
PO Box 3338
Turlock, CA 95381
2099857750

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)

Millerick Engineering, Inc.

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 area of 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.

Millerick Engineering, Inc.

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, & 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, & effectively deal with them. If you are aware of a scaffold hazard (or any safety hazard), immediately bring it to the attention of your immediate Supervisor or the competent person on the job site.

Scaffold Safety

A scaffold, by definition, is any temporary elevated platform and its supporting structure used for supporting employees or materials or both. Because of the numerous types of scaffolds, the infinite possible combinations of uses, the various surface features on which the scaffold may rest, and the varying conditions in which scaffolds may be used, it would be impossible to detail what to do in every situation. The goal of any safety program – including scaffold safety – is to eliminate the possibility of harm to employees while they are performing their duties.

Only safety harnesses, not belts, will be used in fall protection.

Leading causes for scaffold accidents and injuries are plank slippage, being struck by falling objects, and the actual collapse of the support structure or plankage.

Definitions

There are a number of terms and phrases which must be understood by all employees when dealing with scaffolds. Below are listed important definitions to aid in the understanding of this Program, however they are not all-inclusive. A complete list of definitions, including the many types of scaffolds and their individual components is found in 29 CFR 1926.450.

Body Harness means 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 means 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 means 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 means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

Guardrail System means a vertical barrier consisting of, but not limited to, toprails, midrails, and posts erected to prevent employees from falling off a scaffold platform or walkway to lower levels.

Landing means a platform at the end of a flight of stairs.

Lifeline means 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 means 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 means the total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.

Open Sides and Ends means 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 means 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 means a work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.

Qualified Person means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

Rated Load means the manufacturer's specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold equipment.

Scaffold means 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 means 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 will not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

b. Scaffolds and scaffold components will be inspected for visible defects by a competent person before each work shift and after any occurrence which could affect a scaffold's structural integrity.
c. Damaged or weakened parts will be immediately replaced.
d. Scaffolds will 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 will 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 will be used.
h. Debris will not be allowed to accumulate on platforms.
i. Make-shift devices on top of scaffold platforms will 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 will be fully planked or decked between the front uprights and the guardrail supports and each platform unit will 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 will not be used as working platforms.

4. Front-end loaders and similar pieces of equipment will not be used to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.
5. Fork-lifts will 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 will be plumb and braced to prevent swaying and displacement.
e. Scaffolds will 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 will 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 will confirm that the supporting surfaces are capable of supporting the loads to be imposed.
c. Counterweights will 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 will be used as counterweights. Construction material will not be used as counterweights.
    2. Counterweights will 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 will not be joined together except through the use of eye splice thimbles and secured by eye splicing or equivalent means.
f. Wire ropes will 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 will not be used on suspension scaffolds.
h. Gears and brakes of power-operated hoists used on suspension scaffolds will be enclosed.
i. Manually operated hoists will 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 will 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 toprail capacity.	

Special Precautions for the Prevention of Falling

Planking Requirements:

Plank slippage causes falls and falls cause injuries. Below are requirements for platforms and/or planks used on scaffolds and walkways:

a. Each platform unit (e.g., scaffold plank, fabricated plank, fabricated deck, or fabricated platform) will be installed so that the space between adjacent units & the space between the platform & 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 will 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 will 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 will 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 will be as wide as feasible. In these instances, personnel will 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 will 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 will be 3 inches.
        ii. For plastering and latching operations, the maximum distance from the face of the work will be 18 inches.
d. Each end of a platform unless cleated or otherwise restrained by hooks or equivalent means, will extend over the centerline of its support by at least 6 inches and not more than:
    1. Twelve (12) inches for a platform 10 feet or less in length unless the platform is designed and installed so that the cantilevered* portion of the platform is able to support personnel and/or material without tipping or has guardrails which block access to the cantilevered end.
    2. Eighteen (18) inches for a platform greater than 10 feet in length unless it is designed and installed so that the cantilevered* portion of the platform is able to support personnel without tipping or has guardrails which block access to the cantilevered end.

Note: Cantilevered portion of the platform is the portion of the platform which extends beyond the support by 12 or 18 inches.

e. On scaffolds where scaffold planks are abutted to create a long platform, each abutted end will 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 will occur only over supports and will 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 will be laid first; platforms which rest at right angles over the same bearer will be laid second on top of the first platform.
h. With the exception that the edges may be marked for identification, wood platforms will not be covered with opaque finishes. Platforms may be coated with wood preservatives, fire-retardant finishes, and slip-resistant finishes as long as the coatings allow the actual wood to be seen. This is so the wood platforms may be inspected for damage and/or deterioration.

i. Scaffold components manufactured by different manufacturers cannot be intermixed unless the components fit together without force and the scaffold's structural integrity, as determined by a competent person, is maintained.

j. Scaffold components made of dissimilar metals will not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component below acceptable levels.

Fall Protection during Erection & Dismantling of Supported Scaffolds

Supported Scaffolds: The competent person must determine the feasibility & safety of providing fall protection for employees erecting & dismantling supported scaffolds.

Suspended Scaffolds: Fall protection for those erecting and dismantling suspended scaffolds is possible because the anchorage points used for supporting the scaffold would certainly support a fall protection system. Therefore, fall protection will be utilized for personnel erecting or dismantling suspended scaffolds.

Guidelines for the Control of Falling Objects

All personnel working on a scaffold must wear hard hats. Further protection from falling objects will be provided, if needed, by toeboards*, screens, or guardrail systems; or through the erection of debris nets, catch platforms, or canopy** structures that contain or deflect the falling objects.

Objects that are too heavy or massive to be prevented from falling by the above measures will be kept away from the edge of the scaffold and secured as necessary to prevent their falling.

Where there is a possibility of falling objects (tools, materials, or equipment), the below safeguards must be implemented:

a. The area below the scaffold to which objects can fall will be barricaded and employees will not be permitted to enter the hazard area, or

b. A toeboard will be erected along the edge of platforms more than 10 feet above lower levels for a distance sufficient to protect employees below.

When tools, material, or equipment are piled to a height higher than the top edge of the toeboard, the below listed safeguards must be implemented:

a. Paneling or screening extending from the toeboard or platform to the top of the guardrail will be erected for a distance sufficient to protect employees below, or

b. A guardrail system will 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 will 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 toprail and midrail (stair rail) on each side.
b. A landing platform at least 18 inches by 18 inches at each level.
c. A width of 18 inches between stair rails.
d. Resistant surfaces on treads and landings.

Employees must be able to safely get on and off a scaffold platform and at 24 inches, you will need a specific method of access.

General versus Specific Scaffold Safety Guidelines

General safety guidelines apply to all situations. In all situations, employees must be aware of:

a. Potential electrical hazards, fall hazards, and falling object hazards and how to eliminate them.
b. The proper use of scaffolds and the proper handling methods of materials on the scaffold being used.
c. The maximum intended load and the load-carrying capacities of the scaffold being used and never exceeding these limits.

Within the broad categories of suspended and supported scaffolds, there are many specific types of scaffolds – each with its own limitations and special characteristics. Each job site has its own unique ground composition on which a supported scaffold is erected, or unique attachment points for suspended scaffolds. The competent person on the job site will instruct affected employees on any unusual or unique items that must be known about a specific circumstance.

Specific Cal/OSHA Requirements

Cal/OSHA T8 CCR 3632

Below are the requirements for mobile ladders stands and scaffolds.

All scaffolds will 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 will 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 will 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 will be capable of supporting at least **4 times** the design working load.

The materials used in mobile ladder stands and scaffolds will be selected to safely support the design working load and will be maintained to protect against corrosion and deterioration.

Nails, bolts, or other fasteners used in the construction of ladders, scaffolds, and towers will be of adequate size and in sufficient numbers at each connection to develop the designed strength of the unit. Nails will be driven full length. All nails must be immediately withdrawn from dismantled lumber.

All exposed surfaces will be free from sharp edges, burrs, or other laceration hazards.

Work Levels:

a. The maximum work level height will not exceed 3 times the least base dimension below the platform. Where the basic mobile unit does not meet this requirement, outrigger frames will be employed to achieve this least base dimension, or provisions will be made to guy or brace the unit against tipping.
b. The minimum platform width for any work level will not be less than 20 inches for mobile scaffolds (towers). Ladder stands will have a minimum step width of 16 inches.
c. The supporting structure for the work level will be rigidly braced, using cross bracing or diagonal bracing with rigid platforms at each work level.
d. The steps of ladder stands will be slip-resistant.
e. The work level platform of scaffolds (towers) will be the full width of the scaffold, except for necessary openings. Work platforms will be secured in place. All scaffold platforms will meet the requirements of the Construction Safety Orders, Section 1637.

All scaffold work levels **6 feet or higher** above the ground or floor will 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 will 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 will be provided for proper access and egress and will 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 will be provided at intervals not to exceed 30 feet.

Wheels or Casters:

a. Wheels or casters will be properly designed for strength and dimensions to support **4 times the design working load**.
b. All scaffold wheels, casters and swivels will be provided with a positive locking device, or other effective means to prevent movement of the scaffold.
c. Ladder stands will have at least 2 locking casters or other means of locking the unit in position. If only 2 casters are used, they will be of the directional type and if 4 casters are used, at least 2 of the 4 will be of the swivel type.
d. Locking devices will 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 will be provided in the base section of each mobile unit. The screw jack will extend into its leg tube at least 1/3 its length, but in no case will the exposed portion of the screw jack exceed 12 inches.

Training

Interactive training will be given to all employees who will be performing work on scaffolds by a competent person; it will focus on the hazards associated with the type(s) of scaffolding used on our job site, as well as the methods to minimize or eliminate those hazards.

For those employees who will be erecting, disassembling, moving, operating, repairing, inspecting, or maintaining our scaffolds, the competent person will provide additional training applicable to their job requirements.

Retraining will be provided should new types of scaffolding be introduced, standards change, or on-the-job performance indicate that a particular employee has not retained the required proficiency in scaffold safety.

Training will be given, as necessary, to all employees who will be performing work using ladders by a competent person. Issues addressed will include:

a. the nature of fall hazards in the work area.
b. the correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used.
c. the proper construction, placement, care and handling of all ladders.
d. the maximum intended load-carrying capacities of ladders used.
e. the availability of the ladder standards which are contained within this program.

Retraining will be provided, as necessary. Observation of failure to follow established ladder safety procedures would be a cause for retraining.

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

a. **When workers are first employed, they will 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 will 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 will 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.**

Millerick Engineering, Inc.
Injury & Illness Prevention Program Addendum

There also may be times when Millerick Engineering, Inc. requires its employees to meet safety policies that are specific to our company. If we implement these additional policies, they must have more stringent safety requirements than what CalOSHA has developed.