



# **SAFETY PLAN**

## **SKYLINE BUILDERS LLC**

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## SECTION 1 - SAFETY ADMINISTRATION AND SITE PREPAREDNESS

### 1.01 Safety Officers

Every employee of Skyline Builders LLC (“Skyline”) is responsible for complying with applicable safety regulations and carrying out the company’s safety program. Notwithstanding each team member’s responsibility in this regard, Skyline has designated a **Company-Wide Safety Officer** and an **On-Site Safety Officer** to serve as the company’s safety representatives and formal administrators of Skyline’s safety program.

Below are the current safety officers designated by Skyline Builders LLC:

#### Company-Wide Safety Officer

Name: Ben Straka  
Phone: (541) 556-3372  
Email: ben@skyline-co.com

#### On-Site Safety Officer

Name: Cody Fox  
Phone: (503) 440-9444  
Email: cody@skyline-co.com

### 1.02 Code of Safe Work Site Practices

All persons working at Skyline Builders LLC job sites shall adhere to the following code of safe work site practices at all times.

- Obey all jobsite postings, including danger, caution, and safety instruction signs.
- Obey all traffic laws on and off the jobsite.
- Comply with all Skyline Builders LLC personal protective equipment (PPE) requirements.
- Learn and follow all specific regulations of the federal Occupational Safety and Health Administration (OSHA), Oregon OSHA, and all other Authorities Having Jurisdiction (AHJ) which apply to your job.
- Report accidents immediately to your foreman and/or Skyline’s On-Site Safety Officer.
- Properly dispose of debris and keep the work area free from accumulation of waste materials and rubbish.
- No alcohol, smoking or illegal drugs are permitted anywhere on the jobsite.
- No weapons of any kind are permitted on the jobsite.
- No horseplay or other acts which have an adverse influence on the safety or well-being of employees will be tolerated.
- Only authorized persons shall operate tools and equipment.
- Maintain all tools and equipment in safe working condition, and use only tools which are appropriate for the work being performed.

- Learn and comply with all sections of Skyline’s Safety Program relating to specific work site hazards.

### **1.03 Jobsite Postings**

Skyline Builders LLC shall, at each jobsite, post all required federal and state notices, relevant company safety policies, and site-specific safety signage as required by the federal Occupational Safety and Health Administration (OSHA), Oregon OSHA, and all other Authorities Having Jurisdiction (AHJ).

Such postings shall include, but are not limited to, the following:

- Skyline Builders LLC CCB License
- Oregon OSHA “It’s the Law”
- Federal “It’s the Law”
- Employee Rights Under the FLSA (Federal Minimum Wage)
- Equal Employment Opportunity is the Law (EEO)
- Employee Rights Under the Family and Medical Leave Act (Federal)
- Employee Polygraph Protection Act
- The Uniformed Services Employment and Reemployment Rights Act (USERRA)
- Oregon Family Leave
- Oregon Minimum Wage
- Oregon Smoke-Free Workplace (No Smoking or Vaping)
- Oregon Breaks & Meals and Overtime & Paychecks
- Oregon Equal Pay
- Oregon Sexual Harassment & Domestic Violence Protections
- Skyline Builders LLC Policy to Reduce and Prevent Harrassment, Discrimination, and Sexual Assault
- Skyline Builders LLC Code of Safe Work Site Practices
- Skyline Builders LLC Fall Protection Plan
- OSHA Form 300A (Summary of Work-Related Injuries and Illnesses)
- Skyline Builders LLC Safety Meeting Schedule
- Identification of Skyline Builders LLC Safety Officers
- Emergency Phone Numbers & Site Location
- Skyline Builders LLC Site-Specific Fire Prevention and Protection Plan
- Visitor Indemnification Agreement
- Site Entrance Signage
  - “Danger: Construction Area/Authorized Personnel Only”
  - “Caution: PPE Required”
  - “All Visitors Must Report to Office”
  - “No Smoking or Open Flame”
- Any other site or activity-specific signage as required by OSHA and/or specified in this manual

### **1.04 First Aid/Medical Care/Emergency Response**

Skyline Builders LLC shall have at least one person certified in First Aid and CPR, and shall provide and maintain a first aid kit on each jobsite that meets ANSI standards. Skyline shall check the first aid kit weekly to ensure that items are replaced as needed. Notwithstanding these measures taken by Skyline,

subcontractors are responsible for maintaining their own first aid kits and for ensuring their own employees are properly trained in First Aid and CPR as needed.

In the event of an emergency (fire, medical incident, etc.) requiring the immediate attention of emergency personnel, **dial 9-1-1**. Persons calling emergency services shall state their name, their contractor's name, the location of the emergency, and the type of emergency. Skyline Builders LLC shall have posted at each jobsite the following: emergency phone numbers, the latitude and longitude of the jobsite, and the contact information for nearby hospitals. Immediately after calling emergency services, the person who made the call shall contact Skyline's On-Site Safety Officer.

### **1.05 Personal Protective Equipment (PPE) Requirements**

All employees and subcontractors working at Skyline Builders LLC job sites shall wear proper PPE in accordance with company policy and as warranted by the conditions of their work. Skyline's PPE requirements, as outlined below, shall apply at all times, unless otherwise specified by the company's On-Site Safety Officer:

#### **Head Protection**

- Hard hats are required at all times.
- Hard hats must comply with ANSI standards.
- If working near exposed electrical conductors, hard hats designed to reduce electrical shock hazards must be worn.
- When employees are exposed to power-driven machinery or sources of ignition, hard hats must completely cover the hair.

#### **Eye and Face Protection**

- Safety glasses are required whenever employees are exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gasses or vapors, or potentially injurious light radiation.
- Safety glasses must comply with ANSI standards and be marked with the manufacturer's name/identifier.
- When exposed to flying objects, safety glasses must include side protection. Detachable side protectors (e.g., clip-on or slide-on side shields) are acceptable.
- Face shields may be required in addition to safety glasses whenever employees are exposed to flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gasses or vapors, or potentially injurious light radiation.
- Employees wearing prescription lenses must have eye protection that either (1) incorporates their prescription into the design of safety glasses that comply with these requirements, or (2) fits over their prescription lenses.

#### **Ear Protection**

- Ear protection is required whenever employees could be exposed to a time-weighted average noise of 85 decibels (85 dBA) or greater and such noise cannot be adequately reduced by engineering controls.

- Acceptable forms of ear protection include earmuffs and earplugs that are capable of reducing the noise hazard to below 85 dBA.
- Skyline Builders LLC shall provide ear protection for its employees and, notwithstanding each subcontractor's responsibility to its own employees in this regard, shall make ear protection available for all persons working on Skyline jobsites.

### **Foot Protection**

- Work boots are required at all times.
- Additional safety boot designs and/or foot guards may be required where conditions exist that make their use necessary for the safety of workers.

### **High-Visibility Clothing**

- Required to be worn when exposed to hazards caused by traffic or moving vehicles.
- Colors must contrast with other colors at the job site and be sufficiently bright to stand out, as determined by the company's On-Site Safety Officer (examples of generally acceptable colors are: strong red, strong orange, strong yellow, strong yellow-green).
- High-visibility clothing must include reflective materials when working in darkness or low-light conditions.

### **Hand/Skin Protection**

- Hand protection must be worn when exposed to potential hazards such as cuts, punctures, abrasions, harmful substances, and burns.
- Gloves must not be worn when exposed to moving parts in which they could be caught.
- Chemical protective gloves must be worn when there is potential skin contact with harmful chemicals, the selection of which will be made by the company's On-Site Safety Officer based on the characteristics of the tasks to be performed and the types of chemicals present.

### **Leg Protection**

- Employees using chainsaws must wear chaps or leg protectors, made of material designed to resist cuts from the chainsaw, that cover the leg from the upper thigh to mid-calf.

### **Appropriate Clothing**

- All clothing must be appropriate for the work performed and job site conditions.
- Workers exposed to contact with substances that may cause burns must wear appropriate high-temperature protective clothing.
- Loose clothing or jewelry that could get caught in moving machinery, or contact power driven machinery or electric circuitry, is prohibited.
- All clothing must be clean and free of any contamination by flammable liquids, corrosive or toxic substances, irritants, or oxidizing agents.
- The On-Site Safety Officer has discretion to determine appropriate work clothing in accordance with this section and with all applicable regulations.

## **1.06 Safety Orientation and Meetings**

### **Safety Orientation**

Prior to the start of any job, Skyline Builders LLC shall hold a site-specific safety orientation for all employees of Skyline. Subcontractors and their employees are encouraged, but not required, to attend such orientations as a means of satisfying their own requirement to hold pre-job safety meetings. If subcontractors and their employees do not attend the safety orientations held by Skyline, subcontractors must hold their own safety orientations and Skyline may request documentation that such orientations have been held. Such orientations shall cover, at minimum:

- Site conditions
- Safety and health issues
- Site-specific safety concerns and requirements
- PPE requirements
- Safety questions
- Accident investigations, causes, and corrective measures (if applicable)

### **Safety Meetings**

Skyline Builders LLC shall hold monthly safety meetings at each jobsite, which must be attended by all available Skyline employees working at the site. Skyline will post a schedule of the meetings at each job site. Subcontractors and their employees are encouraged, but not required, to attend such meetings as a means of satisfying their own requirements to hold safety meetings. If subcontractors and their employees do not attend the monthly safety meetings held by Skyline, subcontractors must hold their own safety meetings and Skyline may request documentation that such meetings have been held. Safety meetings shall cover, at minimum:

- Site conditions
- Safety and health issues
- Site-specific safety concerns and requirements
- PPE requirements
- Safety questions
- Accident investigations, causes, and corrective measures (if applicable)

### **Safety Meeting Documentation & Attendance Forms**

All safety orientations and meetings conducted by Skyline Builders LLC shall be documented, including the date, the names of those attending the meeting, and all safety and health issues discussed, using the company's Safety Meeting Attendance & Minutes Form. Such documentation shall be kept for a minimum of three (3) years.

### **1.07 Incident Reporting**

All injuries, accidents, and other incidents (including near misses) shall be reported to Skyline's On-Site Safety Officer, who in turn shall report all such events to the Company-Wide Safety Officer for investigation and corrective action.

Skyline Builders LLC shall comply with all Oregon OSHA reporting requirements:

- In the event of a catastrophe or the death of any employee, Skyline shall notify Oregon OSHA within eight (8) hours of the event's occurrence or knowledge thereof. A catastrophe is defined as occurring when two (2) or more employees are fatally injured, or three (3) or more employees are admitted to a hospital or clinic as a result of the same incident.
- In the event of any accident resulting in in-patient hospitalization (defined as formal admission into the hospital) of an employee, or resulting in amputation, avulsion, or loss of an eye, Skyline shall notify Oregon OSHA within twenty-four (24) hours of the event's occurrence or knowledge thereof.

### 1.08 Disciplinary Procedures

In an effort to ensure compliance with Skyline Builders LLC's safety program, the following disciplinary procedures shall apply to all employees and subcontractors working on Skyline projects. Notwithstanding the foregoing, Skyline shall have sole authority and discretion to supersede these procedures and enforce different disciplinary actions, up to and including the immediate removal of violators from the projects, if warranted by the nature of the violation(s).

- 1st Offense:** Verbal warning given to violator and reported on a *Notice of Concern Form*, a copy of which shall be sent to Skyline's Company-Wide Safety Officer to keep a written record.
- 2nd Offense:** Violator shall be given another verbal warning and Skyline's On-Site Safety Officer shall note the continuing nature of the violation on the appropriate *Notice of Concern Form*. A copy of the form shall be sent to Skyline's Company-Wide Safety Officer to keep a written record, and another copy shall be forwarded to the main office of the violator's employer.
- 3rd Offense:** A *Stop Work Order/Removal of Individual Form* shall be issued, stating whether the individual violator is to be removed from the jobsite and/or whether the violator's employer is ordered to stop work entirely. Skyline Builders LLC may take action including but not limited to the temporary or permanent removal of the violator from the project, and/or, if the violator is a subcontractor, suspension or termination of the contract. Copies of the *Stop Work Order/Removal of Individual Form* shall be provided to the violator and sent to the main office of the violator's employer, if applicable.

### 1.09 Inspection Compliance

Skyline Builders LLC and its subcontractors shall fully cooperate with regulatory inspectors and shall not deny any compliance officer with the federal Occupational Safety and Health Administration (OSHA), Oregon OSHA, or any other Authorities Having Jurisdiction (AHJ) the right to enter and inspect each jobsite in the performance of their official duties.

### 1.10 Jobsite Sanitation

#### Drinking Water

- Skyline Builders LLC shall provide an adequate supply of potable drinking water for its employees at each jobsite.
- Containers used to dispense drinking water must be:

- Capable of being tightly closed.
- Equipped with a tap.
- Clearly marked as containing drinking water.
- Used only for that purpose.
- Refilled daily or more often if necessary.
- Regularly cleaned.

### Non-Drinking Water

- Outlets for non-potable water, such as water for industrial or firefighting purposes only, shall be identified by signs to indicate clearly that the water is unsafe and is not to be used for drinking, washing or cooking purposes.
- There shall be no cross-connection, open or potential, between a system furnishing potable water and a system furnishing non-potable water.

### Jobsite Toilets

- Skyline Builders LLC shall provide toilets at each jobsite according to the following minimums:
  - 20 or fewer employees = 1 toilet facility
  - 20-200 employees = 1 toilet seat and 1 urinal per 40 workers
  - 200 or more employees = 1 toilet seat and 1 urinal per 50 workers
- At any jobsite of a project with an estimated cost of \$1,000,000 or more, Skyline shall provide flush toilet facilities in accordance with the above minimums, and handwashing facilities that include wash basins, warm water and soap.

### 1.11 Housekeeping Requirements

It is the policy of Skyline Builders LLC to keep a clean and orderly worksite during all phases of construction. The following housekeeping requirements shall apply to all employees and subcontractors working at Skyline jobsites:

#### General Requirements

- Employees and subcontractors are responsible for cleanup of their immediate work areas on a daily basis.
  - If site cleanup does not meet Skyline's expectations, Skyline may walk the site with subcontractors and/or provide them with photos of the work area in question, along with a written request to specify whether the debris is due to their own work, or the work of others. If due to their own work, subcontractors must clean up the debris at Skyline's request.
  - If a subcontractor fails to clean up its work areas, Skyline may charge the subcontractor for its appropriate share of the cleanup costs.
- Cleanup must be accomplished by proper means in order to reduce airborne dust.
- At Skyline's request, all employees and subcontractors may be required to participate in general site cleanup efforts of common areas such as stairs, walkways and loading areas.

#### Material Storage

- Skyline Builders LLC shall provide suitable storage areas for materials and equipment. Only such designated areas shall be used for storage.
- Combustible material shall not be stored outdoors within 10 feet of a building or structure.
- If storing materials on any floor within a building or structure above ground level, the maximum safe load limits of those floors shall be posted conspicuously in all storage areas.
- All material shall be stacked in a safe and stable manner.
- Combustible materials shall not be piled higher than 20 feet.
- Driveways between and around combustible storage piles shall be at least 15 feet wide.
- Storage shall not obstruct or adversely affect any means of entrance or exit.
- See **Section 2.01 (Fire Protection and Prevention)** for additional requirements relating to the storage of flammable materials and liquids, and **Section #.## (Chemical Management)** for requirements related to chemical storage.

### Material/Waste Disposal

- Skyline Builders LLC shall provide suitable waste containers at each worksite and shall arrange for their disposal at regular intervals.
- All waste must be disposed of into appropriate waste or recycle containers.
- See **Section #.## (Name)** for additional requirements relating to the disposal of hazardous waste.

## SECTION 2 - SAFETY PROTOCOL FOR CONSTRUCTION ACTIVITIES

### 2.01 Fire Protection and Prevention

Skyline Builders LLC shall develop a site-specific fire protection and prevention plan for each project and shall post the same at the applicable job site(s). Such plans shall apply to all temporary offices, trailers, storage sheds and structures during construction. All employees and subcontractors working at Skyline job sites shall comply with company policies for fire protection and prevention, as outlined below and as specified for each project.

#### General Requirements

- Smoking shall be prohibited at or in the vicinity of operations which constitute a fire hazard, and shall be conspicuously posted: “No Smoking or Open Flame.”
- Access to all available firefighting equipment shall be maintained at all times.
- All firefighting equipment shall be conspicuously located.
- All firefighting equipment shall be periodically inspected and maintained in operating condition. Used or defective equipment shall be immediately replaced.
- All firefighting equipment and water drums subject to freezing shall be protected therefrom.
- If warranted by the project, Skyline Builders LLC shall provide a trained and equipped firefighting organization (Fire Brigade) to assure adequate protection to life.

#### Fire Extinguishers

- Skyline Builders LLC shall provide and maintain portable fire extinguishers at each job site, according to the following standards:
  - At least one (1) multipurpose 5 lb. ABC fire extinguisher for every 3,000 square feet of building area.

- For multistory buildings, at least one (1) multipurpose 5 lb. ABC fire extinguisher on each floor. *Note: In addition to, or as a means of, satisfying this requirement, at least one (1) fire extinguisher must be placed adjacent to each stairwell on each level.*
- Travel distance to a fire extinguisher within any building area must not exceed 100 feet.
- Wherever combustible materials (non-liquids) are being stored, multipurpose 5 lb. ABC fire extinguishers shall be provided at conspicuously accessible locations on the job site so that maximum travel distance to the nearest unit shall not exceed 100 feet.
- Wherever more than 5 gallons of flammable or combustible liquids or more than 5 lbs or flammable gas (except for vehicle gas tanks) are being used on the job site, a fire extinguisher rated at least 10B shall be provided and accessible within 50 feet.
- At least one (1) multipurpose 5 lb. ABC fire extinguisher shall be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.
- At least one (1) multipurpose 5 lb. ABC fire extinguisher shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage of more than 60 gallons of flammable liquids.
- At least one (1) portable fire extinguisher having a rating of not less than 20B:C shall be provided at each storage location of Liquefied Petroleum Gas (i.e, propane or butane).
- At least one (1) multipurpose 5 lb. ABC fire extinguisher shall be provided on all tank trucks or other vehicles used for transporting and/or dispensing flammable liquids.

#### **Water Supply and Hoses (if applicable)**

- If applicable to the type of firefighting equipment used (see below), a temporary or permanent water supply of sufficient volume, duration, and pressure required to properly operate the firefighting equipment shall be made available as soon as combustible materials accumulate.
- Where underground water mains are to be provided, they shall be installed, completed, and made available for use as soon as practicable.
- One 55-gallon open drum of water with two fire pails may be substituted for a fire extinguisher having a 2A rating.
- Hose lines may be substituted for fire extinguishers, pursuant to the following requirements:
  - Small (Garden) Hoses: A 1/2-inch diameter hose line, not to exceed 100 feet in length and equipped with a nozzle, may be substituted for a 2A-rated fire extinguisher, providing it is capable of discharging a minimum of 5 gallons per minute with a minimum hose stream range of 30 feet horizontally. Such hose lines must be mounted on conventional racks or reels and located so that at least one hose stream can be applied to all points in the area.
  - Fire Hoses: A 1-1/2-inch fire hose, not to exceed 100 feet in length and equipped with a nozzle capable of discharging water at 25 gallons or more per minute, may be substituted for a fire extinguisher rated not more than 2A in the designated area provided that the hose line can reach all points in the area.
- During demolition involving combustible materials, charged hose lines, supplied by hydrants, water tank trucks with pumps, or equivalent, shall be made available.
- If fire hose connections are not compatible with local firefighting equipment, Skyline Builders LLC shall provide adapters.

#### **Fixed Fire Protection Equipment**

- Fire Sprinklers: For projects that include the installation of automatic fire protection sprinklers, such sprinklers shall be placed in service as soon as applicable laws permit upon completion of each story.
- Standpipes: For structures in which standpipes are required, or where standpipes exist in structures being altered, standpipes shall be brought up as soon as applicable laws permit, and shall be maintained during construction in such a manner that they are always ready for fire protection use. The standpipes shall be provided with Siamese fire department connections on the outside of the structure at street level, which shall be conspicuously marked. There shall be at least one standard hose outlet at each floor.
- Fire walls and exit stairways required for the completed structures shall be given construction priority. Fire doors, with automatic closing devices, shall be hung on openings as soon as practicable.

### Temporary Buildings

- Temporary buildings, except those located within another building or structure, shall be placed at least 10 feet away from all other other buildings or structures.
- If located within another building or structure, temporary buildings must be constructed of fire resistant material.
- The placement of temporary buildings shall not obstruct any means of exit from the job site.

### Temporary Heating Devices

- Fresh air shall be supplied in sufficient quantities to maintain the health and safety of employees. Where natural means of fresh air supply is inadequate, mechanical ventilation must be provided.
- Temporary heating devices shall be installed to provide clearance in accordance with the following minimums:
  - Room heater, circulating: 12 in. (sides) x 12 in. (rear) x 18 in. (chimney connector).
  - Room heater, radiant: 36 in. (sides) x 36 in. (rear) x 18 in. (chimney connector).
  - Temporary heaters shall be located at least 6 feet away from any LPG (i.e., propane or butane) container. *Note: This does not prohibit the use of heaters specifically designed for attachment to a container.*
  - Heaters shall not be directed toward any LPG container within 20 feet.
- When temporary heaters are connected to LPG containers for use in an unpartitioned area on the same floor, the total nominal LPG capacity of the containers shall not exceed 300 lbs.
- Temporary LPG heaters shall be equipped with an approved regulator in the supply line between the LPG cylinder and the heater unit. Cylinder connectors shall be provided with an excess flow valve to minimize the flow of gas in the event the fuel line becomes ruptured.
- LPG container valves, connectors, regulators, manifolds, piping, and tubing shall not be used as structural supports for heaters.
- Heaters not suitable for use on wood floors shall not be set directly upon them or other combustible materials. When such heaters are used, they shall rest on suitable heat insulating material or at least 1-inch concrete, or equivalent. The insulating material shall extend beyond the heater 2 feet or more in all directions.
- Heaters used in the vicinity of combustible tarpaulins, canvas, or similar coverings shall be located at least 10 feet from the coverings. The coverings shall be securely fastened to prevent ignition or upsetting of the heater due to wind action on the covering or other material.

- Heaters, when in use, shall be set horizontally level, unless otherwise permitted by the manufacturer's markings.
- Solid fuel salamanders are prohibited in buildings and on scaffolds.

### **Material Storage (non-liquids)**

- Open Storage
  - All Skyline Builders LLC job sites shall be periodically cleaned and kept free from accumulation of unnecessary combustible materials.
  - No combustible material shall be stored outdoors within 10 feet of a building or structure.
  - Combustible materials shall be piled in a stable manner and in no case higher than 20 feet.
  - Driveways between and around combustible storage piles shall be at least 15 feet wide and kept free from accumulation of rubbish, equipment, or other articles or materials.
  - Portable fire extinguishers, rated not less than 2A, shall be provided at conspicuously accessible locations on the job site. Such fire extinguishers shall be placed so that maximum travel distance to the nearest unit shall not exceed 100 feet.
- Indoor Storage
  - Storage shall not obstruct or adversely affect any means of exit.
  - Material shall not be stored within 36 inches of a fire door opening or within 24 inches of the path of travel to fire doors.
  - Material shall be kept clear of all lights and heating units to prevent ignition of combustible materials.
  - All materials shall be stored with due regard to their fire characteristics.
  - Noncompatible materials, the combination of which may create a fire hazard, shall be segregated by a barrier having a fire resistance of at least 1 hour.
  - All material shall be piled in a stable manner and organized in such a way as to minimize the spread of fire internally and permit convenient access for firefighting purposes.
  - At least 36 inches of clearance shall be maintained between the top level of any stored material and any overhead sprinklers.

### **Flammable Liquids**

- Flammable and combustible fuels must be stored in a safety container approved by a national testing laboratory, with a maximum 5-gallon capacity and having a flash-arresting screen, spring-closing lid and spout cover designed to safely relieve internal pressure when subjected to fire exposure.
- Flammable liquids shall not be stored in areas used for exits, stairways, or normally used for the safe passage of people.
- For indoor storage of more than 25 gallons of flammable or combustible liquids, such liquids must be stored in an approved cabinet labeled "Flammable – Keep Away from Open Flames."
- At least one (1) multipurpose 5 lb. ABC fire extinguisher shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage of more than 60 gallons of flammable liquids.
- Materials that may react with water and create a fire hazard shall not be stored in the same room with flammable liquids.
- Outdoor storage of containers shall not exceed 1,100 gallons in any one pile or area. Piles or groups of containers shall be separated by a 5-foot clearance, and shall be placed at least 20 feet

away from any building with at least a 12-foot wide access way within 200 feet of each pile to permit approach of fire control apparatus.

- Outdoor storage areas of flammable liquids shall be graded in a manner to divert possible spills away from buildings or other exposures, or shall be surrounded by a curb or earth dike at least 12 inches high.
- At least one (1) multipurpose 5 lb. ABC fire extinguisher shall be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.
- Flammable liquids may be used only where there are no open flames or other sources of ignition within 50 feet of the operation, unless conditions warrant greater clearance.
- Leakage or spillage of flammable liquids shall be disposed of promptly and safely.
- There shall be no smoking or open flames in areas used for fueling, servicing fuel systems for internal combustion engines, receiving or dispensing of flammable liquids.
- The motors of all equipment being fueled shall be shut off during fueling operation.
- At least one (1) multipurpose 5 lb. ABC fire extinguisher shall be provided on all tank trucks or other vehicles used for transporting and/or dispensing flammable liquids.

### Liquefied Petroleum Gas (LPG)

- Storage of LPG (**i.e., propane or butane**) within buildings is strictly prohibited.
- Outside storage of LPG containers shall be located away from any nearby buildings in accordance with the following minimums, based on the quantity of LPG stored:
  - 0-500 lbs. = 0 ft.
  - 501-6,000 lbs = 10 ft.
  - 6,001-10,000 lbs = 20 ft.
  - Over 10,000 lbs = 25 ft.
- LPG containers shall be stored in a ventilated enclosure or otherwise protected against tampering.
- Storage locations of LPG shall be provided with at least one (1) portable fire extinguisher rated 20B:C or higher.
- When LPG and one or more other gasses are stored or used in the same area, the containers shall be marked to identify their content.
- When operational requirements make portable use of LPG containers necessary, and their location outside of buildings or structures is impracticable, containers and equipment may be used inside of buildings or structures in accordance with the following standards:
  - Containers exceeding a nominal LPG capacity of 1 lb. must be placed on a firm and substantially level surface and, when necessary, shall be secured in an upright position.
  - The maximum nominal LPG capacity of individual containers shall be 100 lb.
  - Containers, regulating equipment, manifolds, pipe, tubing, and hose shall be located to minimize exposure to high temperatures or physical damage.
  - Flanges, nozzles, valves, fittings having communication with the interior of the LPG container shall be protected against physical damage.
  - Valves on containers having greater than a nominal 20 lb. LPG capacity shall be protected from damage while in use or storage.
  - Container valves, connectors, regulators, manifolds, piping, and tubing shall not be used as structural supports for heaters.
  - Aluminum piping or tubing shall not be used.
  - When not permanently located on fire-resistant foundations, piping connections shall be sufficiently flexible to minimize the possibility of breakage or leakage of connections if the container settles, moves, or is otherwise displaced.

- Systems utilizing containers exceeding 1 lb. nominal LPG capacity shall be equipped with excess flow valves, either integral to the container valves or in the connections to the container valve outlets.
- Regulators shall be suitable for use with LPG and either directly connected to the container valves or to manifolds connected to the container valves. Manifolds and fittings connecting containers to pressure regulator inlets shall be designed for a working pressure of at least 250 PSI.
- Hoses shall be designed for a working pressure of at least 250 PSI. Design, construction, and performance of hoses and hose connections must be approved by a nationally recognized testing agency.
- Hoses shall be as short as practicable, but long enough to permit compliance with the spacing requirements listed below without kinking, straining, or coming into close contact with heat.
- Temporary heaters shall be located at least 6 feet away from any LPG container. *Note: This does not prohibit the use of heaters specifically designed for attachment to a container.*
- Heaters shall not be directed toward any LPG container within 20 feet.
- When temporary heaters are connected to LPG containers for use in an unpartitioned area on the same floor, the total nominal LPG capacity of the containers shall not exceed 300 lbs.
- Heaters shall be equipped with an approved regulator in the supply line between the LPG cylinder and the heater unit. Cylinder connectors shall be provided with an excess flow valve to minimize the flow of gas in the event the fuel line becomes ruptured.
- Portable heaters exceeding 7,500 BTU, including salamanders, shall be equipped with an approved automatic device to shut off the flow of gas to the main burner (and pilot, if used) in the event of flame failure. Such heaters having inputs above 50,000 BTU/hour shall be equipped with either a pilot, which must be lighted and proved before the main burner can be turned on, or an electrical ignition system.
- Filling of fuel containers for trucks or motor vehicles from bulk LPG storage containers must be performed at least 25 away feet from any buildings.
- Filling of portable containers or containers mounted on skids from LPG storage containers must be performed at least 50 feet away from any buildings.
- When damage to LPG systems from vehicular traffic is a possibility, precautions against such damage must be taken.
- Welding on LPG containers is strictly prohibited.

## 2.02 Fall Protection

Skyline Builders LLC requires fall protection for any activity that exposes workers to fall hazards in accordance with Oregon OSHA standards. All employees and subcontractors working at Skyline Builders LLC job sites shall comply with the fall protection measures outlined below and as specified for each project, in addition to any applicable requirements of OSHA, Oregon OSHA, and any other Authorities Having Jurisdiction (AHJ).

### General Requirements

- Fall protection is required:

- For any activities that expose workers to fall hazards of **6 feet or more**. This includes, but is not limited to:
  - Any wall openings where the inside bottom edge of the wall opening is less than 39 inches above the walking/working surface. In such cases, employees must be protected from falling by the use of guardrail systems, safety net systems, personal fall arrest systems, or personal fall restraint systems.
  - The edge of any excavation that is 6 feet or more in depth and not readily seen because of plant growth or other visual barrier. Such hazards must be protected against by guardrail systems, fences, or barricades.
  - The edge of any well, pit, shaft, or similar excavation that is 6 feet or more in depth. Such hazards must be protected against by guardrail systems, fences, barricades, or covers.
- For employees working above dangerous equipment, fall protection is required **at all times and regardless of the distance of the fall hazard**.
- To protect workers from stepping into holes in a walking/working surface, fall protection is required **at all times and regardless of the distance of the fall hazard**.
- All walking/working surfaces must be inspected by Skyline's On-Site Safety Officer and deemed to have the strength and structural integrity to safely support employees.

### Fall Protection System Requirements

Fall protection systems must be used to control fall hazards, either by preventing a fall from occurring (fall restraint systems) or by safely stopping a fall (fall arrest systems). The various types and requirements of acceptable fall protection systems are as follows:

- **Guardrail Systems**

- The top edge height of the top rail of all guardrail systems shall be 42 inches, plus or minus 3 inches, above the walking/working surface.
- Midrails are required when there is no wall extending at least 21 inches above the walking/working surface, and shall be installed at a height midway between the top edge of the guardrail system and the walking/working surface.
- Top rails shall be capable of withstanding, without failure, a force of at least 200 lbs. applied in any outward or downward direction at any point along the top edge. Additionally, the top edge of the guardrail must not deflect to a height less than 39 in. above the walking/working surface when such 200 lb. force is applied in a downward direction.
- Midrails shall be capable of withstanding, without failure, a force of at least 150 lbs. applied in any outward or downward direction at any point along the midrail.
- When constructed of wood, top rails and posts must be constructed of at least 2 in. x 4 in. nominal dimensional lumber, and posts must be spaced no greater than 8 ft. apart on center.
- If wire rope is used for top rails, it must have a diameter of at least ¼ in. and must be flagged at 6 ft. intervals with high-visibility material.
- Guardrail systems shall be constructed of materials so as to prevent injuries from punctures or lacerations, and to prevent snagging of clothing.
- To the extent that the overhang of horizontal or vertical members would constitute a projection hazard, the ends of top rails and midrails shall not overhang the posts, and posts shall not extend past the top rails.

- When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section shall be placed across the access opening when hoisting operations are not taking place.
- When guardrail systems are used around holes, they shall be erected on all unprotected sides or edges of the hole.
  - When guardrail systems are used around holes used for the passage of materials, no more than two sides of the hole shall have removable guardrail sections to allow for the passage of materials. When the hole is not in use, it shall either be (1) covered, or (2) a guardrail system shall be provided along all unprotected sides or edges of the hole.
  - When guardrail systems are used around holes which are used by workers as points of access (such as ladderways), they shall be provided with a gate, or be sufficiently offset so that a person cannot walk directly into the hole.
- **Safety Net Systems**
  - Safety net systems consist of mesh nets, including panels, connectors, and other impact absorbing components.
  - If safety nets are needed, Skyline's On-Site Safety Officer will oversee the installation and performance requirements of the system.
- **Personal Fall Arrest Systems**
  - Personal fall arrest systems consist of the following basic components: (1) body support, (2) connecting components, (3) deceleration devices, and (4) anchorage points.
  - The only acceptable body support component of a personal fall arrest system is a full body harness. Body belts shall not be used as part of a fall arrest system.
  - Ropes and straps used in lanyards, lifelines, and strength components of body belts and body harnesses shall be made from synthetic fibers.
  - Connecting components, such as D-rings and snaphooks/carabiners, shall comply with all OSHA requirements including, but not limited to, the following:
    - D-rings and snaphooks/carabiners shall have a minimum tensile strength of 5,000 lbs.
    - Only locking snaphooks/carabiners shall be used.
    - Snaphooks/carabiners shall only be engaged to the connections or which they are designed.
  - Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 lbs.
  - When vertical lifelines are used, each employee must be attached to a separate lifeline.
  - Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and shall be capable of supporting at least 5,000 pounds for each employee attached.
- **Personal Fall Restraint Systems**
  - Fall restraint systems and their use shall conform to the following provisions:
  - Shall be rigged to prevent the user from falling any distance.
  - Must use fall arrest system components that conform to the criteria in 1926.502
  - A body belt may be used in fall restraint systems.
  - The attachment point to the body belt or full body harness may be at the back, front or side D-rings.

- Anchorages used for attachment of personal fall restraint equipment shall be independent of any anchorage being used to support or suspend platforms and shall be capable of supporting 3,000 pounds per employee attached.
- Or be designed, installed and used as follows:
  - As part of a complete personal fall restraint system which maintains a safety factor of at least two.
  - Under the supervision of a qualified person.
- **Positioning Device Systems**
  - Positioning device systems and their use shall conform to the following provisions:
    - Shall be rigged such that an employee cannot free fall more than 2 ft.
    - Shall be secured to an anchorage capable of supporting 3,000 lbs.
    - Connecting assemblies shall have a minimum tensile strength of 5,000 lbs.
    - Positioning device systems shall be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service.
    - Shall be used in tandem with personal fall arrest systems wherever and whenever possible.
- **Warning Line Systems (Roofing Work Only)**
  - May be used for roofing work only.
  - Shall be erected on all sides of the work area.
  - Roofing work does not include construction of the roof deck or leading edge work.
  - Shall not be used on roof slopes greater than 2 in 12..
  - Shall be erected not less than 6' from roof edge.
  - Shall be erected not less than 10' from roof edge if mechanical equipment is used.
  - Shall be flagged with high-visibility material at not more than 6' intervals.
  - Height of warning line shall be 34" to 39".
  - Capable of withstanding a 16 pound force when applied horizontally at the stanchion.
  - Line must be of a material that has 500 lbs. of tensile strength.
  - Access points, material handling, storage and hoisting areas, if outside the warning line, must be connected to the work area by use of two warning lines.
  - Anyone working between the warning line and roof edge must use a different means of fall protection.
- **Safety Monitoring Systems (Roofing Work Only)**
  - At no time shall the Safety Monitoring Systems be used as a means for fall protection without prior approval of Skyline's On-Site Safety Officer.
  - Where the Safety Monitoring System is use the following shall apply:
    - All provisions of the warning line system shall be used at all times, even with roofs narrower than 50 ft.
    - No mechanical equipment can be used or stored in the area where the safety monitoring system is being used.
    - A competent person familiar with the regulations associated with the safety monitoring system shall be named as the Safety Monitor.
    - The Safety Monitor must:
      - Must be identified and recognizable as the Safety Monitor.
      - Be able to recognize fall protection hazards.

- Warn employees when they are approaching the fall hazard or acting in an unsafe manner.
  - Be on the same working surface as those being monitored.
  - Be in visual contact with those being monitored at all times.
  - Be close enough to easily communicate with those being monitored.
  - Have no other responsibilities while acting as the Safety Monitor.
- **Warning Barrier Systems (Non-Roofing Work)**
    - Warning barrier system may be used to mitigate the fall hazards by eliminating exposure.
    - When a safe work distance is designated, it must be one that eliminates the potential for the worker to stumble and fall over the unprotected edge but at a minimum 10 feet back from the fall hazard.
    - There should also be a margin of error included in the distance since there is not a positive means of stopping the worker's forward momentum toward the fall hazard.
    - Factors that might enter into such an evaluation could include weather conditions, lighting, the slope and condition of the walking surface, the kind of work being performed, materials being handled, the height of the worker above the work surface (such as working from a ladder), housekeeping, training, experience, how much time the job takes, or the distance that the worker stays away from any open sides or edges.
    - The guiding principle to follow when evaluating warning or barricade lines is that the distance from the unguarded edge of the work surface must be great enough to remove the worker from exposure to a fall hazard.
    - Warning Barrier should be constructed the same as the Warning Line System for roofing work.
  - **Hole Covers**
    - Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover.
    - Floor and roof openings shall be protected by a standard guardrail system or covered.
    - The cover shall be clearly marked "hole" or "cover".
    - All covers shall be secured to prevent accidental displacement.
    - Covers shall be capable of supporting at least twice the weight of employees, equipment or material that may be imposed on them at any one time.

### 2.03 Protection from Falling Objects

- Toeboards:
  - Shall be erected along the edge of the overhead walking/working surface for a distance sufficient to protect employees below.
  - Shall be capable of withstanding a force of at least 50 pounds applied in any downward or outward direction.
  - Shall be a minimum of 3 1/2 inches in vertical height
  - Shall have not more than 1/4 inch clearance above the walking/working surface
  - Shall be solid or have openings not over 1 inch in greatest dimension
  - Where tools, equipment, or materials are piled higher than the top edge of a toe-board, paneling or screening shall be erected from the walking/working surface to the top of a guardrail system's top rail

- Canopies or Tunnels
  - Canopies or tunnels shall be strong enough to prevent collapse and to prevent penetration by any objects which may fall onto the canopy or tunnel

## **2.04 Ladder and Stairway Safety**

### **General Requirements**

- A stairway or ladder must be provided at all personnel points of access where there is a break in elevation of 19” or more and no ramp, runway, sloped embankment, or personnel hoist is provided
- All ramps used for access and all walking working platforms must be at least 18 inches wide
- A double-cleated ladder or two or more separate ladders must be used when ladders are the only means of egress from a working area with 25 or more employees
- When a building or structure has only one point of access between levels, that point of access shall be kept clear to permit free passage of employees
- When work must be performed or equipment must be used such that free passage at that point of access is restricted, a second point of access shall be provided and used
- When a building or structure has two or more points of access between levels, at least one point of access shall be kept clear to permit free passage of employees

### **Stairways**

- When doors from an office or storage trailer open directly onto a stairway, a platform must be provided and the swing of the door must allow an additional 20” to prevent the door from striking an employee
- Employees are not allowed to use metal pan stairs unless they have been fitted with wooden filler blocks or poured with concrete
- Stairways with four or more risers or rising more than 30”, whichever is less, must have a stair rail or handrail along each unprotected side or edge

### **Ladders**

- When portable ladders are used for access to an upper landing surface, the ladder side rails shall extend at least 3 feet above the upper landing surface to which the ladder is used to gain access
- When such an extension is not possible because of the ladder's length, then the ladder shall be secured at its top to a rigid support that will not deflect, and a grasping device, such as a grabrail, shall be provided to assist employees in mounting and dismounting the ladder
- In no case shall the extension be such that ladder deflection under a load would, by itself, cause the ladder to slip off its support
- Ladders shall be maintained free of oil, grease, and other slipping hazards
- Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer's rated capacity Do not use a ladder that is rated less than a Type 1
- There are three classifications assigned to commercially manufactured ladders and a label must be affixed on the ladder showing the classification. They are:
  - Type I: INDUSTRIAL

- Type I ladders are for heavy-duty use such as that which is experienced by utilities, industrial contractors and other heavy-duty applications. There are three sub-classifications to this group
  - Type 1AA Special Duty, professional use. Load capacity: 350lbs.
  - Type 1A Extra Heavy Duty, professional use. Load capacity: 300lbs.
  - Type 1 Heavy Duty, industrial use. Load capacity: 250lbs.
- Type II: COMMERCIAL DO NOT USE
- Type III: HOUSEHOLD DO NOT USE
- Ladders shall be used only for the purpose for which they were designed
- Ladders shall be used only on stable and level surfaces unless secured to prevent accidental displacement
- Ladders shall not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement
- Slip-resistant feet shall not be used as a substitute for care in placing, lashing, or holding a ladder that is used upon slippery surfaces including, but not limited to, flat metal or concrete surfaces that are constructed so they cannot be prevented from becoming slippery
- Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways shall be secured to prevent accidental displacement, or a barricade shall be used to keep the activities or traffic away from the ladder
- The area around the top and bottom of ladders shall be kept clear
- The top of a non-self-supporting ladder shall be placed with the two rails supported equally unless it is equipped with a single support attachment
- Ladders shall not be moved, shifted, or extended while occupied
- Ladders shall have non-conductive side rails if they are used where the employee or the ladder could contact exposed energized electrical equipment
- Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use
- Portable ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, shall either be immediately marked in a manner that readily identifies them as defective, or be tagged with "Do Not Use" or similar language, and shall be withdrawn from service until repaired
- When ascending or descending a ladder, the user shall face the ladder
- When employees ascend or descend a ladder, they must maintain a three-point contact
- An employee shall not carry any object or load that could cause the employee to lose balance and fall
- Pull ropes should be placed at all access ladders so employees can safely lift tools or equipment to upper levels
- If your work position requires that your belt buckle be outside the side rails, you're in an unsafe position
- Stepladders must be opened fully and set level when in use
- The base of an extension and or straight ladder is to be placed 1 foot horizontal from the face of the surface for every 4 feet vertical

### **Job-Made Ladders**

- The width of a single cleat ladder must be at least 16 inches, but no more than 20 inches, measured inside to inside

- Wood cleats must be 1x4 inch site inspected material or nominal 2x4 inch stress-grade lumber
- Cleats must be parallel and level when the ladder is in position for use
- The cleats must be attached to the narrow face of the rail using three 3 inch long 10d common nails for 1x4 inch cleats or three 3 ¼ inch long 12d common nails for 2x4 inch cleats
- The nails must be staggered at least a ¼ inch to reduce splitting
- Filler blocks of the same thickness as the cleats must be inserted between cleats and must be butted tightly against the underside of each cleat
- The filler blocks must be 1x2 inch strips for 1x4 cleats and 2x2 inch strips for 2x4 cleats
- The 1x2 filler blocks must be attached using three 3-inch long 10d common nails
- The 2x2 filler blocks must be attached using three 3 ¼ long 12d common nails

## 2.05 Scaffold and Aerial Lift Safety

### Scaffolding

- **General Requirements**
  - Capacity
    - Scaffolds shall be designed by a qualified person and shall be constructed and loaded in accordance with that design
    - Each scaffold and scaffold component shall be capable of supporting, without failure, its own weight and at least 4 to 6 times the maximum intended load applied or transmitted to it
  - Erection
    - Scaffolds must be erected under the supervision of a competent person
    - The name and qualifications of this person must be submitted to Skyline prior to the start of work
  - Planking
    - Only scaffold grade planking shall be used
    - All working levels must be fully planked
  - Supported Scaffolds
    - Scaffold poles, legs, posts, frames and uprights must be placed on compatible wheel assemblies or steel base plates, then mudsills or other adequate firm foundations
    - Steel plates must be secured to the mudsills
    - When free standing scaffold exceed four times their minimum base dimension vertically, they must be restrained from tipping
  - Suspension Scaffolds
    - Counterweights must be made of non-flowable material
    - Sand, gravel, water or similar material may not be used
    - Counterweights must be secured to the outrigger beams by mechanical means to prevent accidental displacement
    - Outrigger beams that are not bolted to the structure must be secured by tiebacks
      - The tiebacks must be attached to a structural member of the building
      - Standpipes, vents, conduit and other piping systems are not adequate structural members
  - Scaffold Access
    - When scaffold platforms are more than 2' above or below a point of access, proper ladders must be installed

- Cross bracing must never be used as a means of access
- Stair rail and handrail systems must be smooth surfaced so as to prevent lacerations or puncture wounds
- A competent person must evaluate and decide whether a ladder, or other safe means of access, is feasible during the erection and dismantling of scaffolds
- Scaffold Use
  - A competent person must inspect each scaffold before every shift and after any occurrence that may affect its structural integrity
  - Scaffolding inspection checklist is included at the end of this section
  - A tagging program can be used to verify daily inspection of the scaffolding, stair tower or similar
  - If the tag system is used:
    - The tag shall be present on all scaffolding
    - The competent person will “tag” the scaffold “in service” or “out of service” prior to employee use
- Any damaged or defective component discovered during the inspection will require:
  - Scaffolding immediately taken out of service until the component is repaired or replaced
  - Scaffolding shall be tagged as “out of service” by a positive means
- Fall Prevention
  - A Personal Fall Arrest System (PFAS) or guardrail system must be in place on all scaffolds at 10 feet or higher
  - If cross bracing is used as the midrail, the competent person must demonstrate to Skyline that all components of the cross bracing meets the OSHA Standards for use as midrail
  - The use of fall prevention devices are required during the erection or dismantling of a scaffold
  - If the competent person does not feel this is feasible, Skyline must be consulted prior to erection or dismantling
  - On suspension scaffolds the personal lifelines must be independent of the scaffold support lines
- Falling Object Protection
  - The area below a working scaffold must be barricaded to protect employees from a falling object hazard
  - Toeboards or other means of falling object protection is required at all times
- **Requirements for Specific Scaffold Types**
  - Tube and Coupler Scaffolds
    - Tube and coupler scaffolds, in excess of 125’, must be designed by a Registered Professional Engineer (RPE)
  - Fabricated Frame Scaffolds
    - Frames and panels must be braced by cross, horizontal or diagonal braces
    - Frames and panels must be joined together vertically by stacking pins or equivalent couplings
    - Frame scaffolds, in excess of 125’, must be designed by an RPE
  - Pump Jack Scaffolds
    - Brackets, braces and accessories must be fabricated from metal
    - Each pump jack bracket must have two positive gripping mechanisms to prevent failure

- ‘Mobile Scaffolds
  - Mobile scaffolds must be braced by cross, horizontal or diagonal braces based on manufacturer’s requirements to prevent racking during movement
  - All wheels must be locked when in use
  - At no time will a worker “self propel” a mobile scaffolding
  - Caster and wheel stems must be pinned to the scaffold legs or adjustment screws
  - Scaffold sections must be pinned to prevent displacement
  - The height to base width ratio on a mobile scaffold cannot exceed 2:1 unless it is braced with outrigger frames
  - Scaffolds that are less than 45” in width (Baker Type), a guardrail is required when working height is greater than 6 feet above the floor. In addition, if more than one section is used on this type of scaffold, outriggers must be used
  - Do not attempt to move mobile scaffolding without sufficient help to watch for obstructions on the floor and overhead

### **Aerial Work Platforms**

- **General Requirements:**
  - All scissor lift, boom lifts and articulating boom platforms must be inspected pre-shift to assure there are no mechanical defects
  - Daily inspections shall be documented by the subcontractors and are subject to verification by the Skyline
  - Field modifications are not allowed on aerial lifts
  - Only authorized and trained individuals may operate aerial lifts
  - Boom and basket load limits specified by the manufacture should not be exceeded
  - The brakes shall be locked on when outriggers are used
  - The outriggers shall be positioned on pads or a solid surface
  - Wheel chocks must be used before using an aerial lift on an incline, provided they can safely be installed
  - An aerial lifts must be in the lowered position to travel
  - Slight movements can be made in the raised position to fine tune your placement
  - A spotter may be needed when there is a potential for operator or pedestrian injury due to physical contact with the facility, systems or structures or in congested areas
  - An unimpaired horizontal clearance of not less than 3 feet shall be maintained between the rotating superstructure of any mechanical equipment and any adjacent object or surface
  - If this clearance cannot be maintained, barricades shall be installed to isolate the hazardous area
  - Spotters may also be needed when there is a potential for damage to sensitive facility systems or structures
  - Employees must use personal fall arrest systems (PFAS) when working from articulating boom platforms
  - When working from a scissor lift, the use of fall prevention devices depends upon several factors, including, but not limited to the following
    - Client / contract requirements
    - Manufacturer’s recommendations
    - Site specific requirements

- Anytime a worker doesn't have at least one foot on the scissors lift deck, 100% fall protection is required

## **2.06 Cranes, Rigging and Hoists Safety**

## **2.07 Forklift Safety**

### **● Training Program Implementation**

- Trainees may operate a forklift only:
  - Under the direct supervision of persons who have the knowledge, training and experience to train operators and evaluate their competence
  - Where such operation does not endanger the trainee or other employees
  - Operator training and evaluations must be conducted by persons who possess the knowledge, training, and experience to train forklift operators and evaluate their competence

### **● Training Program Content**

- Forklift Operators shall receive initial general training on the following topics:
  - Operating instructions, warnings, and precautions for the types of forklift the operator will be authorized to operate
  - Differences between the forklift and the automobile
  - Forklift controls and instrumentation, where they are located, what they do, and how they work
  - Engine or motor operation
  - Steering and maneuvering
  - Visibility (including restrictions due to loading)
  - Fork and attachment adaptation, operation, and use limitations
  - Vehicle capacity and how to use the load chart
  - Vehicle stability
  - Any vehicle inspection and maintenance the operator will be required to perform
  - Refueling and/or charging of batteries
  - Operating limitations
  - Any other operating instruction, warnings, or precautions listed in the operator's manual for the type of vehicle the operator is being trained to operate
  - Familiarization training specific to the forklift the operator will use
  - Changing surface conditions where the vehicle will be operated
  - Composition of loads to be carried and load stability
  - Load manipulation, stacking, and un-stacking
  - Pedestrian traffic
  - Narrow and restricted areas where the forklift will be operated
  - Ramps and sloped surfaces that could affect the vehicles stability
  - Hazardous locations where the vehicle will be operated
  - Closed environments and other areas where insufficient ventilations could cause the buildup of carbon monoxide or diesel exhaust
  - Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation
  - Refresher Training

- Operator refresher training shall be conducted at least every three years by persons who possess the knowledge, training, and experience to evaluate operators in their competence
- Refresher training may be required if
  - An operator has been observed operating a forklift in an unsafe manner
  - An operator is involved in an accident or near miss incident
  - An operator is assigned to operate a different type or size of forklift
  - A condition in the workplace changes which could affect the safe operation of the forklift
- **Documentation**
  - It is required by OSHA that any operator that is trained and or evaluated in forklift operation be “Qualified” by documentation of such.
  - Skyline will issue trained operators a forklift card which includes the following:
    - The name of the operator being trained
    - The date the training was conducted
    - The date the operator was evaluated
    - The name and signature of the trainer
  - It is required by OSHA that any operator that is trained and or evaluated in forklift operation be trained on the specific forklift the operator will use and on the conditions of the site where the equipment will be operated
    - This training will be documented by use of the familiarization sheets at the end of this section
- **Inspections**
  - Inspections procedures will be conducted as follows
    - All powered industrial trucks must be inspected by the certified operators daily or prior to each shift
    - Qualified operators will document the daily or pre shift inspections
    - If for any reason, a powered industrial truck is found to be unsafe or not in compliance OSHA or the Manufactures standards, it must be taken out of service, tagged as unsafe for use, repaired or removed from the site as soon as possible
- **Use of Elevated Platforms with Powered Industrial Trucks (Forklifts)**
  - Forklifts must be designed to lift personnel on a work platform. (Owner’s Manual)
    - This must be verified, if it cannot be then the Forklift cannot be used
  - Forklifts manufacturer must allow the use of a platform with its equipment (Owner’s Manual)
    - This must be verified, if it cannot be then the Forklift cannot be used
  - Forklifts hydraulic lifting mechanism shall not drop faster than 135 ft per minute in the event of a failure of any part of the system
  - Forklifts must not travel from point to point while platform is occupied.
  - The operator shall be in the operators position when anyone is on the platform
  - The operator shall be in the operators position when raising or lowering the platform
  - The platform shall be equipped with a standard guardrail system
  - The platform shall be firmly secured to the lifting carriage or the forks
  - The platform shall have an anchorage point designed for use with a lanyard
  - The anchorage shall be rated at 5,000 and be verifiable
  - The width of the platform shall not exceed 10 inches on each side beyond the width of the wheels

- Pinch points and shear points between the platform and the Forklift must be screened and/or guarded
- Personnel in the platform must be tied off to the anchorage points discussed above
- Operator of the pit must be trained to operate the Forklift with personnel in a platform

## 2.08 Vehicle and Motorized Equipment Safety

### ● General Requirements:

- Heavy machinery, equipment, which are suspended or held aloft by use of slings, hoists, or jacks shall be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them
- Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, shall be either fully lowered or blocked when being repaired or when not in use
- All controls shall be in a neutral position, with the motors stopped and brakes set, unless work being performed required otherwise
- All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment
- All operations requiring the use of heavy equipment will require a pre-planning meeting to coordinate and prevent injuries to workers and the public
- Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines shall have the wheels chocked and the parking brake set
- No equipment, vehicle, tool, or individual shall operate within 10 feet of any power line or electrical distribution equipment
- All vehicles must be equipped with an operable audible warning device (horn) at the operator's station
- All motor vehicles and material handling equipment, with an obstructed view to the rear, must have a reverse signal alarm audible above the surrounding noise
- A “spotter”, wearing an ANSI approved high visibility traffic vest, may be used in lieu of an alarm, but only if such devices are not routinely supplied on such a vehicle
- Vehicles must never back “blind” on the project
- A seatbelt must be provided and used when operating equipment
- All windows must be in full working condition. Any equipment with broken glass of any size, including mirrors will be taken out of service
- Each employee working near or crossing a site where equipment is in use must wear High Visibility Clothing
- Equipment without a rollover protective structure (ROPS) or seatbelt is not allowed unless they are specifically designed by the manufacturer not to have them.
- Cell phones and radios should not be used while operating machinery
- No one may work within 20’ of motorized equipment like an excavator, backhoe, loader etc. unless that persons presence is fundamental to the operation underway and the operator can observe the person at all times
- All pieces of equipment must be inspected daily or prior to each shift
- If for any reason, a piece of equipment is found to be unsafe or not in compliance OSHA or the Manufactures standards, it must be taken out or service, tagged as unsafe for use, repaired or removed from the site as soon as possible

## 2.09 Tool Safety

### General Requirements

- Additional personal protective equipment (PPE), such as a face shield, Kevlar gloves, metatarsal protection, chaps, respirator or hearing protection, may be required while operating a tool
- Hand and power tools must be maintained in a safe condition, per manufacturer's guidelines
- If for any reason, a tool is found to be unsafe or not in compliance OSHA or the Manufacturer's standards, it must be taken out of service, tagged as unsafe for use and removed from the site as soon as possible
- Only trained employees may operate the tools
- If the tool is designed to accommodate a guard, the guard must be in place while the tool is being used

### Hand Tools

- Drift pins, wedges, chisels and other impact tools must be kept free of mushroomed heads
- Wrenches must not be used when the jaws are sprung and slippage is probable

### Electric Powered Tools

- All power tools must be double insulated or provided with a three wire, grounded connection

### Pneumatic Power Tools

- Each connection on a pneumatic tool and air hose must be secured with a "whip-check" or similar device
- All air hoses, with an inside diameter exceeding ½ inch, must have a flow reduction device at the supply source to reduce pressure in case of hose failure
- Compressed air must not be used for cleaning personnel unless the pressure is reduced to less than 30 PSI. and appropriate guarding and PPE are in place

### Fuel Powered Tools

- Fuel powered tools must be stopped and turned off while being refueled, serviced or maintained

### Abrasive Wheels and Tools

- All workers using hot saw or chop saw type tools are required to wear goggles or a face shield/safety glass combination
- All workers using hand held, bench mount or floor mount grind wheels on metal surfaces are required to wear Kevlar gloves, goggles or a face shield/safety glass combination
- The RPM rating on all grinding machine motors must not exceed the speed rating of the grinding wheel attachment
- All abrasive wheels must be closely inspected and ring tested before mounting to ensure they are free from cracks or defects
- The gap between the work rest and abrasive wheel of a bench or floor mounted grinder must not exceed 1/8 inch

### **Backpack Type Gas Powered Leaf Blowers and Similar Tools**

- All workers are required to place both arms through the shoulder straps when operating this tool
- All workers are required to wear 18 inch flame retardant protective sleeves on both arms when operating this tool

### **Chainsaws**

- Persons using chainsaws must wear chaps or leg protectors that cover the leg from the upper thigh to mid-calf
- The chaps must be made of a material designed to resist cuts from the chainsaw

### **Woodworking Tools**

- All fixed, power driven woodworking tools must be equipped with a disconnect switch that can be locked out in the off position
- All portable, power driven circular saws must be equipped with guards above and below the base plate or shoe
- When the tool is withdrawn from the wood, the lower guard must automatically and instantly return to the covering position

### **Powder Actuated Tools**

- Permit only trained, competent and authorized personnel to use powder actuated tools
- These tools operate like loaded guns, so handle them with the same respect and safety precautions
- Operators must have an operator's card supplied by the manufacture
- Safety rules for operation:
  - The tool should NEVER be pointed at anyone
  - Before use, the tool should be checked to see that it is clean, that all moving parts operate freely, and that the barrel is free of obstructions
  - All body parts should be kept clear of the barrel end
  - These tools should not be used in an explosive or flammable environment
  - Face shield or glasses, and hearing protection must be worn during tool operation
  - The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles the tool might create when it is fired
  - Load powder-actuated tools just before use
  - Do not carry loaded tools from task area to task area
  - Do not leave powder-actuated tools unattended
  - Warning signs must be posted in the area of use, stating "POWDER-ACTUATED TOOLS IN USE"
  - Clean and maintain tools according to manufacturer's recommendations
  - If the tool develops a defect, it should be tagged and removed from use immediately

### **Fasteners**

- Use only fasteners recommended by the manufacturer

- Make sure to use the correct loads for the job
- Fasteners must not be driven into material that would let them pass through the other side
- The fastener must not be driven into materials like brick or concrete close to an edge or corner
- In steel, the fastener must not come any closer than ½” from a corner or edge
- Fasteners must not be driven into very hard or brittle materials that might, chip, splatter, or make the fastener ricochet
- Use the tool at a right angle to the work surface
- If the tool should misfire, you should hold the tool in the fixed position for at least 30 seconds and then unload with extreme caution
- Misfired loads should be placed in water
- Store tools and cartridges in a locked container
- Do not attempt to force a cartridge in a tool
- Do not carry cartridges loose, in a pocket or in a tool pouch
- Provide adequate ventilation in confined spaces where powder-actuated tools may be used

## **2.10 Lockout/Tagout Requirements**

### **General Requirements**

- Lock Out/Tag Out (LOTO) will not be considered for use until all other avenues of attaining a “zero-energy state” have been exhausted
- All subcontractors working with electrical systems are required to have a written Lock Out / Tag Out Procedure
- A Competent Person (CP) shall be responsible to control all aspects of the Lock Out / Tag Out (LOTO) procedure
  - They will ensure coordination with the appropriate tradesmen
- If a system can be locked out through design or by other means, this will be the preferred method
- The lockout device shall be substantial enough to prevent removal
- The lock shall be a separately keyed lock for use only with the lockout system
- The lockout device must be tagged with the name of the employee and their company
- There shall be one lock for each employee exposed to the system
- If working in a multi-shift environment, each employee shall remove their respective locks at the end of their shift
- Employees shall not leave their lock on past the end of their shift
- The use of 100% LOTO must be maintained until the completion of the task
- Verification by all competent persons in charge of the LOTO shall be completed prior to re-energizing the system
- Tag out devices, including their means of attachment, shall be substantial enough to prevent accidental removal
- The tag shall warn against energizing the tagged out system such as: Do Not Start, Do Not Open, Do Not Close, Do Not Energize, Do Not Operate, etc.
- The name of each employee shall be displayed on the tag
- The competent person shall be responsible for un-tagging and activating the system after all exposed employees have removed their tags

## **2.11 Welding and Cutting Safety**

## **2.12 Excavation and Trenching Safety**

### **Responsibilities**

- A “competent person” shall be present when employees or subcontractor employees are working in any excavation
- The competent person will also be responsible for the following:
  - Performing daily inspections of excavations and recording the results of these inspections on the inspection form at the end of this section
  - Track inspections and their results
  - Testing for and controlling hazardous atmospheres
  - Conferring with registered professional engineer for the design of shoring systems or shielding systems
  - The availability of rescue equipment and services to include emergency medical response
  - Removing employees from the excavation or trench when conditions deteriorate, threatening employee safety
  - Determining the scope of all work performed in the trench or excavation.
  - Locating all underground utility installations
  - Ensuring that only those employees who have received appropriate training enter the trench or excavation
  - Supervising the installation of shoring/shielding systems
  - Correcting unsafe conditions within the excavation or trench
  - Removing or supporting underground installations that would threaten the safety of employees

### **Surface Encumbrances**

- All surface encumbrances such as rail road tracks, footings, etc. will be removed or supported, as necessary to safeguard employees
- Equipment, workers, etc. are not to disturb the actual top of slope
- Equipment and materials will be evaluated individually

### **Underground Installations**

- The estimated location of all underground installations such as telephone, fuel, electric, and water lines are to be determined before opening any excavation
- When excavation operations approach the estimated location of underground installations, the exact location of these installations shall be determined by requesting a “locate” from the client or their representative
- While the excavation is open underground installations will be removed or supported as necessary to safeguard employees (utilizing local utility companies as required)

### **Access and Egress**

- Ladders, stairways, ramps or other safe means of egress shall be located in trenches and excavations greater than four (4) feet in depth, so as to require no more than twenty-five (25) feet of lateral travel for employee

### **Requirements for Protective Systems**

- Excavations greater than 5 feet in depth must be protected by one or more of the following systems:
  - Sloping / benching of sides to allowable configurations and slopes
  - Using tabulated data
  - Utilizing a trench box or shield
  - Using a slope or shield system designed by a registered professional engineer
- A registered professional engineer must design sloping or benching systems for excavations greater than 20 feet in depth

### **Exposure to Falling Loads**

- No employee will be permitted under loads handled by lifting or excavation equipment
- No employee will enter the bucket or scoop of any excavation equipment for the purposes of being lifted or lowered, steadying equipment etc.
- Employees will stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials
- Spoil piles will be located at least two (2) feet from the edge of the excavation
- Large rocks, scrap pipe etc. will not be placed on the edge of any excavation as to present a hazard to workers in the excavation
- Pipe staged along a trench will be placed at least two (2) feet from the edge of the trench to prevent it from being dislodged and rolling into the trench

### **Warning Systems for Mobile Equipment**

- When mobile equipment is operated adjacent to an excavation or when equipment must approach an excavation, if the operator does not have a clear view of the edge of the excavation, a ground guide will be used to guide the operator in conjunction with appropriate back up alarms on bi-directional equipment.

### **Hazardous Atmospheres**

- To assure acceptable atmospheric conditions the following requirements will apply:
  - Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet (1.22 m) in depth
  - Adequate precautions will be taken (providing respiratory protection, or ventilation) to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen
  - Adequate precaution (ventilation etc.) will be taken to prevent exposure of employees to atmospheres containing more than twenty (20) percent of the lower explosive limit of flammable gas
  - When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe

### **Protection from Hazards Associated With Water Accumulation**

- No employee will work in any excavation where there is water accumulation, or where water is accumulating, unless adequate precautions (pumping, installing wells, etc.) have been taken to protect employees from the hazards associated with water accumulation (trench wall soaking up water and sloughing in etc.)
- The competent person will be responsible to see that dewatering activities take place
- Excavations subject to run off from heavy rains or excessive ground water will be inspected by the competent person

### **Protection of Employees from Loose Rock or Soil**

- Adequate protection shall be provided to protect employees from loss rock or soil that could pose a hazard by falling or rolling from an excavation face
- Such protections shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection
- Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations
- Protection shall be provided by placing and keeping such materials or equipment at least 2 feet (.61m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent material or equipment from falling rolling into excavations, or by a combination of both if necessary

### **Inspections**

- Daily inspection of excavations, adjacent areas, and protective systems will be made by the competent person
- The inspections will focus on situations that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres or other hazardous conditions
- When the competent person finds a hazardous condition to exist, employees will be removed or prevented from entering the excavation/trench until corrective action, has been taken, including flagging off the area with danger tape to ensure their safety
- A log of these inspections will be kept to include:
  - The name of the excavation inspected
  - The date and time of the inspection
  - Results of the inspection (hazards found etc.)
  - Name of “competent person” making the inspection

### **Fall Protection**

- Walkways shall be provided where employees or equipment are required or permitted to cross over excavations
- Guardrails which comply with OSHA, Oregon OSHA, shall be provided where walkways are six (6) feet or more above lower level
- Each employee at the edge of an excavation six (6) feet or more in depth shall be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other visual barrier

- Each employee at the edge of a well, pit, shaft, and similar excavation six (6) feet or more in depth shall be protected from falling by guardrail systems, fences, barricades, or covers

## 2.13 Confined Space Safety

### Evaluation Of Worksites

All worksites must be evaluated to determine if there are confined spaces on/in the worksite. You then must evaluate your confined spaces to determine if they are Permit Required Confined Spaces (PRCS).

- Evaluations must include:
  - Any known or anticipated hazard
  - If the only hazard associated with a confined space is a fall hazard, it is not covered by the Confined Space rule
  - If the space contains other hazards that make it a permit space, the fall hazard must be addressed on the permit
- The determination from any previous evaluation of that space
- Any precautions and procedures previously implemented for entering the space
- Employers of mobile workers (for example, contractors, electricians, plumbers) where they are not the property owner or controlling contractor are not required to perform this evaluation for the entire site
- Controlling contractors on sites with existing confined spaces are responsible for performing this determination only for the area under their control
- On sites where confined spaces are being built, the host employer or controlling contractor is responsible for ensuring this determination is accomplished only when:
  - Any of their employees enter that space
  - An agent of the employer enters that space
  - Employees of an employer accountable to that controlling contractor or host employer enter that space
  - They assume control over that space
- Controlling contractors must share all their evaluation information about confined spaces under their control with subcontractors who have employees who will be required to enter those confined spaces
  - This information must be shared prior to subcontractor employees enter the confined space
- Prevent all employees or subcontractor employees from entering a confined space until it is fully evaluated
- When a confined space is evaluated and deemed to be a permit required confined space the following must take place:
  - Develop and implement a means so all workers can identify the permit required confined space
    - Signs, labels or tags are acceptable means
  - Allow the workers or their representatives to observe the evaluation or re-evaluation of the space
  - When conditions within the confined space or permit space change re-evaluate the space
  - Take all necessary measures to prevent unauthorized workers from entering a permit spaces

- When your employees are considered mobile, you must determine if they will be exposed to permit-required confined spaces at their assigned work locations
- This determination must include information, if any, from the host employer or controlling contractor
  - Identify any physical and atmospheric hazards that make the space a permit-required confined space
  - Allow employees or their representatives to observe the evaluation or re-evaluation of the space
  - When conditions within a confined space or a permit space change, re-evaluate it
  - Take all necessary measures to prevent unauthorized employees from entering permit spaces
  - Prevent employees from entering any unevaluated confined space until it is fully evaluated

### **Multi-Employer Worksites**

- If Skyline is the controlling employer, before employees of a subcontractor enter permit spaces under Skyline control, Skyline must:
  - Inform the subcontractor and their employees:
    - That the work space contains PRCS and can only be entered when the applicable regulations are met
    - Location of the spaces
    - Skyline experience with the spaces, if any
    - Hazards of the spaces
    - Any procedures Skyline requires
  - Coordinate entry operations when employees of more than one subcontractor are working in or near the same PRCS
  - Discuss entry operations with subcontractor after they are complete including:
    - The program followed during permit space entry
    - Any hazards confronted in the space
    - Any hazards created in the space
- When Skyline employees enter a permit space under the control of another entity, at the conclusion of entry operations, inform the controlling contractor or host employer about the precautions and procedures you followed and any hazards that were present or that developed during entry operations

### **Confined Space Entry Procedures**

When workers are required to enter a permit space the following procedures must be adhered to:

- General Requirements
  - Entrants and/or their representatives shall have access to the following before entry into the PRCS:
    - Access to the written Confined Space Safety Plan
    - The completed permit
    - The results of the initial testing
  - As long as the attendant is at the PRCS, they are in charge of the immediate vicinity outside the PRCS, as well as all persons entering and exiting the area

- If the attendant instructs everyone to exit the space, they must do so immediately
- Canceled entry permits must be kept on file for one year
- An effective means of communication shall be maintained between the attendant and each entrants at all times
- This can be accomplished by sight, voice, or radio communications
- The attendant must also have in their possession a signaling device that is capable of producing an alarm sound of 110db such as a police whistle or an air horn in case of an emergency
- Should situations arise such as employee complaints, unauthorized entry, or discovery of additional hazards, the program shall be reviewed and changes implemented as necessary
- **Eliminating Potential Hazards**
  - Prior to entering a confined space all existing or potential physical hazards in or near the confined space must be eliminated
  - Prior to entering a confined space all existing or potential atmospheric hazards in or near a confined space must be eliminated or controlled
  - Existing or potential physical and atmospheric hazards includes, but is not limited to:
    - Explosives or explosive atmospheres
    - Excessive oxygen
    - Lack of oxygen
    - Mechanical
    - Electrical
    - Hydraulic
    - Pneumatic energy
    - Radiation
    - Temperature extremes
    - Engulfment
    - Inwardly converging surfaces
    - Chemicals
  - Elimination of the hazards may include, but is not limited to
    - Shutting down of systems
      - This may require a complete system walk down
    - Introducing fresh air
    - De-energizing electrical components
      - Great care must be taken when working around electrical hazards
      - All electrical components that are present may pose a hazard and the hazard must be eliminated:
        - Locking out and tagging out the system
        - All lighting and power cords must also be protected from damage by power cords must also be protected from damage
        - All portable tools shall be grounded or double-insulated, and used in conjunction with a GFCI
- **Atmospheric Monitoring**
  - Prior to entering a PRCS, PRELIMINARY atmospheric monitoring must be done
  - Atmospheric monitoring must be performed in three locations:
    - Top of the confined space
    - Mid way down the confined space
    - Bottom of the confined space
  - All monitoring results must be documented on the entry permit

- Use only properly calibrated direct reading meters to test the atmosphere
- Verify the meters are used according to the manufacturer's instructions
- Test atmosphere before each entry into the space
- Continuous air monitoring is required in the area where employees are working in all PRCS
- When an entrant, their representative, attendant or entry supervisor has reason to believe that the testing or monitoring is/was inadequate, retest will be conducted
- Ventilation
  - If the atmosphere monitoring indicates a lack of oxygen, there must be at least 5 air exchanges completed by ventilating the confined space
  - If the atmosphere monitoring indicates a toxic, flammable or both, you will need to have a minimum of 10 air exchanges
  - Continuous ventilation must be maintained while workers are in the confined space, if there is any possibility that a hazardous atmosphere could develop, including by the work process, i.e. welding, grinding, etc., being performed in that space
  - If for some reason the ventilation stops, the workers must evacuate the space until it can be reestablished and the minimum per-entry air exchanges completed
  - All fans and other equipment used to remove flammable gasses or vapors shall conform to NFPA requirements and not create an ignition hazard
- Maintain safe entry conditions for the duration of the entry
- When a space is too large to isolate, or part of a continuous system, such as a sewer. Continuous monitoring is required where entrants are working for the duration of the entry
- After work in the PRCS is complete, the confined space shall be secured by posting or closing the access
- The permit to enter is to be closed out by the Entry Supervisor and is to remain in file as a permanent job record
- All barriers are to be removed, and emergency services are to be contacted and informed of the job completion if, applicable

### **Permit Required Confined Space (PRCS)**

- If the physical hazards cannot be eliminated and/or the atmospheric hazards cannot be controlled or eliminated then you must consider the space a PRCS
- Prior to entering a PRCS a permit must be issued by the Entry Supervisor
- Prior to issuing a permit, the Entry Supervisor must ensure:
  - The space has been evaluated for physical and atmospheric hazards as addressed above
  - The hazards of the work to be performed have been evaluated
  - Determine safe entry conditions and/or procedures
- Prior to entering a PRCS the following must be in place
  - Entry Permit
  - Documentation of the space evaluation
  - Documentation of pre-entry atmospheric monitoring
    - Documentation of training on use and maintenance of monitoring equipment
    - Documentation of hazard elimination
    - Documentation of employee training on specific duties
    - Documentation of employee training on the PRCS Program and entry permit
    - Rescue procedures
    - Procedures to eliminate unauthorized entry

- Barricades/Postings
  - During the initial set-up of the confined space, caution barrier are to be set-up around the entry of the confined space and barrier tags are to be filled out describing the work taking place
  - This area is to be maintained by the Attendant while any confined space work is in process
- Permit must be maintained at the entry point until it is cancelled
- If conditions of the PRCS warrant an evacuation then:
  - All entrants must evacuate immediately
  - Remain outside the space until Entry Supervisor gives approval to re-enter
  - Prior to re-entry the Entry Supervisor must
    - Re-assess the conditions of the space to ensure it is safe to reenter
    - Verifies the reason for the evacuation has been eliminated
    - Verify the permit reflects the reason for evacuation
    - Verify all PRCS entry procedures, including initial air monitoring, have been performed
    - Issue a new permit
  - Entrants or their representative must have the opportunity to observe the re-evaluation process

#### **Alternate Entry Confined Space (AECS)**

- Alternate entry cannot be used to enter a continuous system unless:
  - You can isolate the area to be entered from the rest of the space
  - Can demonstrate that the conditions that caused the hazard or potential hazard no longer exist within the system during the entry
  - Can demonstrate that engulfment cannot occur and continuous ventilation in the area to be entered is sufficient to control atmospheric hazards
- A permit required space maybe entered without a permit when:
  - All hazards have been eliminated; or
  - All physical hazards have been eliminated and all atmospheric hazards have been controlled with continuous forced-air ventilation
  - Tag out alone does not eliminate a hazard
  - Continuous forced-air ventilation does not eliminate atmospheric hazards it only controls them
- When employees enter permit spaces under “Alternate Entry” they do not need to meet the following sections:
  - Permit Required Confined Space
  - Entry Permit
  - Entry Supervisor or Attendant
  - Rescue Procedures
  - Keep Records
- Alternate entry procedures must be developed for each space
- Alternate Entry Procedures must address:
  - Who can authorize alternate entry procedure and is responsible for ensuring safe entry conditions
  - The hazards of the space

- When fall hazards (if any) have been addressed and all other physical hazards, if any, have been eliminated and all atmospheric hazards have been eliminated, or are controlled with continuous ventilation, alternate entry is allowed
  - The methods used to eliminate hazards
  - The methods used to ensure that the hazards have been eliminated
  - The methods used to test the atmosphere within the space, where applicable, for all atmospheric hazards
  - The methods used to determine if unsafe conditions arise before or during entry
  - The criteria and conditions for evacuating the space during entry
  - The methods for training employees in these procedures.
  - The methods for ensuring employees follow these procedures
- When using ventilation to control atmospheric hazards:
  - Use only properly calibrated direct-reading meters to test the atmosphere
  - Test the atmosphere for all identified atmospheric hazards before entering the space
  - Do not allow employees to enter until testing verifies that all identified atmospheric hazards are adequately controlled by the ventilation
  - Perform continuous monitoring for all atmospheric hazards during the entry
  - Immediately evacuate the space:
    - When monitoring indicates the return of atmospheric hazards
    - Upon any failure with the direct-reading instrument
    - Upon any failure with the ventilation.
    - When a new hazard is introduced or conditions within the space change
- Provide all employees who will conduct the entry or their representatives the opportunity to observe all activities used to comply with this program
- Provide all employees who conduct entry an effective means of communication, such as a two-way radio, cell phone, or voice if other employees are present, to summon help while within the space
- When a space is evacuated, it cannot be re-entered as an alternate entry unless:
  - The conditions that necessitated the evacuation are corrected; and
  - The re-entry is treated and documented as a new entry
- Document each entry.
- This documentation must include:
  - The location of the space
  - The hazards of the space
  - The measures taken to eliminate the hazards
  - When applicable, the measures used to control the atmospheric hazards
  - When applicable, the identity of the direct-reading instruments used to test the atmosphere
  - When applicable, the results of the atmospheric testing.
  - The date of the entry
  - The duration of the entry
  - When applicable, any and all conditions that required the evacuation of the space
  - The name, title, and signature of the person responsible for ensuring the safe entry conditions
- Maintain this documentation for the duration of the entry at the location of the entry

### Program/Entry Procedures Review

- Review the entire permit program when there is any reason to believe the employees are not adequately protected
- Situations that would trigger this review would include but are not limited to:
  - Unauthorized entry into a PRCS
  - New hazard is discovered
  - A condition prohibited by the permit or the permit program is discovered
  - Any injury or near miss occurs related to the PRCS
  - An employee reports a concern
  - Any condition that affects employee safety
- At a minimum the entire permit program must be reviewed annually
- Review permits and permit procedures for effectiveness within one year of cancellation of the permit
- If a revision of the program/entry procedures is warranted, no PRCS entries will be allowed until the revisions have been made and implemented
- Employees or their representatives must have access to these revisions

### **Specific Duties**

- Entry Supervisors Must:
  - Know the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards
  - Understand the means and methods to control and/or eliminate the hazards of the permit space
  - Verify, 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 signing the permit and allowing entry to begin
  - Inform entrants and attendants of the hazards and conditions associated with the space and the methods used to eliminate and/or control those hazards
  - Verify all entrants and their representative have reviewed and have access to all information concerning the PRCS including but not limited to:
    - The confined space program
    - Space evaluations
    - Confined space procedures
    - PRCS Permits
    - Monitoring results
  - Terminate the entry and cancel the permit as required by the permit entry program
  - Verify that rescue services are available and that the means for summoning them are operable
  - Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations
  - Reevaluate the conditions within the space whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space
- Attendant Must:
  - Know the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards
  - Be aware of possible behavioral effects of hazard exposure in authorized entrants

- Continuously maintain an accurate count of authorized entrants in the permit space and ensure that the means used to identify authorized entrants accurately identifies who is in the permit space
- Remain outside the permit space during entry operations until relieved by another attendant
- Ensure all actions and precautions identified on the permit are followed
- Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and order the authorized entrants to evacuate the permit space immediately under any of the following conditions:
  - If the attendant detects a dangerous or hazardous condition
  - If the attendant detects the behavioral effects of hazard exposure in an authorized entrant
  - If the attendant detects a situation outside the space that could endanger the authorized entrants
  - If the attendant cannot effectively and safely perform all the duties required of the attendant
- Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards
- Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:
  - Warn the unauthorized persons that they must stay away from the permit space
  - Advise the unauthorized persons that they must exit immediately if they have entered the permit space
  - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space
- Perform non-entry rescues as specified by the employer's rescue procedure
- Perform no duties that might interfere with the attendant's primary duty to monitor and protect any authorized entrant
- **Authorized Entrants Must:**
  - Know the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards
  - Communicate with the attendant as necessary so the attendant can monitor the entrant's status and to enable the attendant to alert entrants of the need to evacuate the space
  - Alert the attendant whenever the entrant detects a dangerous or hazardous condition or warning sign or symptom of exposure to a dangerous situation
  - Exit from the permit space as quickly as possible whenever:
    - An order to evacuate is given by the attendant or the entry supervisor
    - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
    - The entrant detects a dangerous or hazardous condition
    - An evacuation alarm is activated

### **Rescue Procedures**

- Before entering a PRCS a means must be developed and implemented to rescue an entrant that is unable to evacuate without outside assistance

- These means must include:
  - The process for summoning rescue services
  - At a minimum, if an off-site rescue service is being considered, the employer must contact the service to plan and coordinate the evaluations required by the standard
  - Merely posting the service's number or planning to rely on the 911 emergency phone number to obtain these services at the time of a permit space emergency would not comply with the rescue requirements of the standard
  - The process for summoning emergency medical services or transporting injured entrants to a medical facility
  - 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
- Ensure rescue personnel can respond to a rescue call in a timely manner
  - Timeliness is based on the identified hazards of the space
  - Rescuers must be able to reach potential victims within an appropriate time frame based on the identified hazards of the permit space
- When there are multiple entrants in a permit space, the rescue plan needs to address how all entrants will be removed in a timely manner
- Ensure all rescuers, including non-entry, entry, and third-party, are knowledgeable in basic first aid and cardiopulmonary resuscitation (CPR)
- At least one member must be certified in first aid and CPR
- Additional medical training, such as oxygen administration, the use of automated external defibrillators (AEDs), and personnel decontamination should be considered
- Rescuers must practice performing permit space rescues prior to entry and no more than 12 months before an entry
- Reliance upon "self rescue" does not constitute an acceptable rescue program
- Where feasible, use non-entry retrieval systems or methods whenever an authorized entrant enters a permit space, unless it would increase the overall risk to the entrant or would not contribute to the rescue of the entrant
- For a Non-Entry Rescue use a retrieval system that meets the following requirements:
  - Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which you can establish presents a profile small enough for the successful removal of the entrant
  - Wristlets or ankle straps or other equally effective means may be used in lieu of the chest or full body harness if you can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of other methods are the safest and most effective alternative
  - Attach the other end of the retrieval line to a mechanical device or fixed point outside the permit space so that rescue can begin as soon as the attendant becomes aware that rescue is necessary
  - Ensure a mechanical device is available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 m) deep.
- Entry Rescue
  - Where non-entry rescue is not feasible or would increase the overall risk to the entrant, designate a rescue service before employees enter any permit space
  - Ensure the rescue service:

- Can efficiently rescue employees from permit spaces
- Has the appropriate equipment to rescue employees from all permit spaces employees enter
- Inform the rescue service about the hazards they may confront when called to perform rescue
- Provide the rescue service with access to all permit spaces from which rescue may be necessary
- Is aware that they are so designated and agree to it prior to entry
- Capable of performing all required rescue operations
- Knowledgeable in first aid and CPR, and at least one member is certified in first aid and CPR

### **Equipment**

- When employees are required to enter a PRCS the following equipment will be provided as necessary at no cost to the employee:
  - Testing and monitoring equipment
  - Ventilation equipment
  - Communication equipment
  - Lighting equipment
  - Barriers to protect entrants from external hazards
  - Ladders or other means of safe entry
  - Rescue or emergency equipment
  - PPE
- All equipment must be maintained in accordance to the manufacturers recommendations
- All employee must be trained in the use of the equipment
- All equipment will be at no cost to the employees

### **Hot Work**

- Any hot work inside a confined space requires the use of an approved “HOT WORK PERMIT” prior to entry
- All combustible materials shall be protected from ignition at all times, and all flammable atmospheres shall be controlled
- If the hot work produces any toxic gasses, fumes or vapors, ventilation shall be required to extract these contaminants, and/or the use of the proper respiratory protection shall be implemented
- Testing of the atmosphere inside the confined space shall be continuous as long as these conditions exist
- Compressed gas cylinders are not allowed inside any confined space
- They are to be located outside and monitored while in use so that they can be shut down if an emergency arises
- Any time an oxy-acetylene cutting or brazing outfit is not in use, it is to be removed from the confined space and shut down to prevent any accidental release of gases inside the confined space
- Also, any arc welding power must be shut down if an emergency develops

### **Training Program**

- Employee Training:

- All employees who are involved with activities in a PRCS or an AECS, must be trained so they acquire the understanding, knowledge and skills necessary to safely perform their duties, according to their assigned responsibilities
- Training must be provided:
  - For all new employees
  - Before an employee is assigned PRCS duties
  - Before there is a change in their assigned duties
  - When a new hazard is identified
  - When there are changes in the permit program
  - When the permit evaluations indicate a deficiency
  - When there is a deviation from procedures
  - When an employee's knowledge of a procedure is inadequate
- All employee training documents shall be made available for the employees and the their representatives
- Ensure each employee is proficient in their assigned duties

## **2.14 Demolition Safety**

### **Procedures**

- Prior to initiating demolition activities, an engineering survey of the building must be made by a competent person to determine the condition of the structure and identify areas subject to unplanned collapse
- A copy of this inspection must remain on site
- Each contractor will be required to wear durable gloves, eye protection, and long sleeved shirts in addition to their standard Personal Protective Equipment when performing selective demolition operations
- All utilities must be shut off, capped or locked out of service beyond the building line before demolition work is initiated
- Where employees are exposed to fall hazards, guardrail and/or personal fall arrest systems must be used
- Hole covers must be identified and secured against accidental displacement
- Any openings cut in a floor for the disposal of materials can be no larger than 25% of the aggregate of the total floor area, unless the lateral supports of the removed flooring remain in place
- If 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 project openings
- Danger Tape and signs shall be posted at each level, warning of the hazard of falling materials
- Removal of the debris from the lower area shall not be permitted until debris handling from above has ended
- Access to a structure being demolished will be restricted to designated stairways, passageways and ladders
- Other access points will be closed at all times
- All designated access points will be periodically inspected and maintained in a clean, safe condition

### **Chutes**

- No material may be dropped to a point outside the building unless that area is delineated with a protective barricade and the distance to any point does not exceed 20 feet
- All chutes must be entirely enclosed except for openings at or slightly above the floor level for the insertion of materials
- Chutes must be designed and constructed of such strength as to eliminate failure due to the impact of material and debris loaded into them

## **2.15 Concrete Safety**

### **General Requirements**

- Construction Loads
  - No construction loads shall be placed on a concrete structure or portion of a concrete structure unless the employer 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
- Reinforcing Steel
  - All protruding reinforcing steel, onto and into which employees could fall shall be guarded to eliminate the hazard of impalement
- Post-Tensioning Operations
  - No employee (except those essential to the post-tensioning operations) shall be permitted to be behind the jack during tensioning operations
  - Signs, concrete safety and barriers shall be erected to limit employee access to the post-tensioning area during tensioning operations
- Working Under Loads
  - No employee shall be permitted to work under concrete buckets while buckets are being elevated or lowered into position
  - To the extent practical, elevated concrete buckets shall be routed so that no employee, or the fewest number of employees are exposed to the hazards associated with falling concrete buckets
- Personal Protective Equipment
  - Rubber gloves and eye protection shall be worn to protect employee from cement burns
    - Immediately rinse with clean water eyes, skin, or clothing that comes in contact with concrete
    - Employees with a cement burn should immediately seek medical treatment
    - By the time an employee becomes aware of a cement burn, the damage has been done, and the burn can continue to get worse even after the cement has been rinsed off

### **Concrete Pumping**

- Concrete Pump Setup
  - Before using a concrete boom pump, the Skyline superintendent/foreman must determine the size of the outrigger stabilizer pads/cribbing required for the boom pump size, manufacturer and the soil type and conditions onsite

- To determine the size of the stabilizer pads/cribbing, the superintendent/foreman shall use the Concrete Boom Pump Outrigger Stabilizer Pad Decision Matrix at the end of this section
  - Once the pad size has been determine the superintendent/foreman must use that size of pad for all concrete pours
  - If the superintendent/foreman feels the pad size is larger than what is really needed and he wants to reduce the size of the pad. He must get approval from the Safety Manager before he reduces the size
  - If the concrete boom pump is controlled by a subcontractor, the Skyline Superintendent/foreman is still required to determine the size of the outrigger stabilizer pads/cribbing
  - The Stabilizer Decision Matrix calculations shall be performed for each soil type and condition encountered onsite
  - The Stabilizer Pad Decision Matrix calculations shall be performed for each size and manufacturer of boom pump used. (As an example, a Putzmeister 52 meter boom pump has different load specifications (76,875 lbs.) than a Schwing 52 meter boom pump. (60,000 lbs.))
  - When the size and/or manufacturer of the boom pump that shows up onsite is different than the size and/or manufacturer of the boom pump ordered, the Stabilizer Pad Decision Matrix calculations shall be recalculated for the boom pump used
  - In order for the Stabilizer Pad Decision Matrix calculations to be accurate the follow must be in place
    - All outriggers must be fully extended
    - All outriggers must have the proper size stabilizer pads/cribbing
    - Outrigger pads/cribbing must be level and have 100% bearing on the soil. (No voids under the pads/cribbing)
    - Outrigger pads/cribbing must be made of a substantial material
    - Outrigger pads/cribbing must be full and continuous (No spaces between components)
  - In order for the Stabilizer Pad Decision Matrix calculations to be accurate the follow must be known
    - Bearing capacity of the soil type(s) onsite. This can be taken from a soils report generated by a soil engineer or the structural drawings of the blue prints generated by a structural engineer
    - The size and manufacturer of the boom pump used for the pour
    - You must determine the maximum outrigger load for the size and manufacturer of the boom pump used for the pour
    - When the front and back outrigger maximum load pressures are dissimilar in the Stabilizer Pad Decision Matrix you must use the highest load in your calculations
  - Avoid hazardous proximity or contact with electric lines. Position the pump so a minimum safety distance of 20 feet is maintained in all the boom positions needed to do the job
  - Consider the safe approach and departure of the ready-mix trucks
  - Never hang more than one pipe or hose from the boom
  - Maintain a safe distance between the concrete and the edge of a cliff or excavation
  - Have the pump operator test soil bearing capacity by slowly moving empty boom over each outrigger
- Safety Rules for the Placing Crew

- Assure there is a safety sling from the boom to the first section of pipe
- Do not look into the end of a plugged hose or pipe
- Stay away from the point of discharge when starting or restarting, or when there's air in the pipe
- Never open a pressurized pipeline
- Do not hug the boom hose, hold it with both hands to allow the hose to move freely
- Never hold the hose with your shoulder. Do not walk backwards, stay out of the path of the boom
- Never kink the hose
- Watch out for pinch points
- Never straddle or sit on a pressurized pipeline
- Only one person should signal the pump operator. Before the pour begins, the hose man, the operator and the spotter should agree on hand signals

### **Cast In-Place Concrete**

- General Requirements for Formwork
  - Formwork must be designed, fabricated, erected, supported, braced, and maintained so that it will be capable of supporting without failure all vertical and lateral loads that might be applied to the formwork. Concrete pour rates for wall forms must not be exceeded. Lateral concrete pressure on forms is affected by the following:
    - Height of pour
    - Pour rate
    - Unit weight of concrete
    - Temperature
    - Type of cement
    - Vibration
    - Concrete slump
    - Chemical Additives
- Shoring and Re-shoring
  - All shoring equipment must be inspected prior to erection to determine that the equipment meets requirements specified in the formwork drawings
  - Damaged shoring equipment must not be used for shoring
  - Erected shoring equipment must be inspected immediately prior to, during, and immediately after concrete placement
  - Shoring equipment that is found to be damaged or weakened after erection must be immediately reinforced
- Reinforcing Steel
  - Reinforcing steel for walls, piers, columns, and similar vertical structures must be adequately supported to prevent overturning and collapse
  - Measures must be taken to prevent unrolled wire mesh from recoiling
  - Such measures may include, but are not limited to, securing each end of the roll or turning over the roll
- Removal of Formwork
  - Forms and shores (except those used for slabs on grade and slip forms) must not be removed until it is determined that the concrete has gained sufficient strength to support its weight and superimposed loads
  - Such determination shall be based on compliance with one of the following:

- The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed, or
- The concrete has been properly tested with an appropriate ASTM standard test method designed to indicate the concrete compressive strength, and the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads
- Re-shoring shall not be removed until the concrete being supported has attained adequate strength to support its weight and all loads in place upon it

## 2.16 Masonry Safety

### Limited Access Zone

- A limited access zone shall be established whenever a masonry wall is being constructed
- The limited access zone shall be established prior to the start of construction of the wall
- Non-reinforced Masonry Walls
  - The limited access zone for a masonry wall that is not reinforced and braced in accordance with requirements must run the entire length of the wall, and extend away from the wall a distance equal to the height of the wall plus four feet
  - A limited access zone must be located on the side of the wall not scaffolded
  - The limited access zone shall be restricted to entry by employees actively engaged in constructing the wall
  - No other employees shall be permitted to enter the zone
  - The limited access zone shall remain in place until the wall is adequately supported to prevent overturning and to prevent collapse unless the height of wall is over eight feet, in which case, the limited access zone shall remain in place until the bracing requirements have been met
- Reinforced Masonry Walls
  - A limited access zone must be established when constructing a reinforced wall
  - A limited access zone must be established before construction of the wall begins
  - A limited access zone must run the entire length of the wall, and extend away from the wall a distance equal to the height of the grout pour plus four feet
  - A limited access zone must be located on the side of the wall not scaffolded
  - All activity within the limited access zone is under the direction and control of a competent person
  - Entry into the limited access zone is limited to employees actively engaged in construction of the wall
  - No other employees are allowed to enter the zone without permission from a competent person
  - A competent person is responsible for monitoring wind speed
  - When speeds reach 25mph all braces must be examined and the site made secure
  - When wind speeds reach 35mph, all employees in the limited access zone and in proximity to the wall under construction must move to a safe location
  - The limited access zone must remain in place until any wall over eight feet in height is adequately braced or supported to prevent overturning and to prevent collapse

### Bracing for Masonry Walls

- All masonry walls over eight feet in height must be adequately braced to prevent overturning and collapse unless the wall is adequately supported
- Bracing must remain in place until permanent supporting elements of the structure are in place
- The bracing system must be designed by a registered professional engineer, or follow the following requirements
  - During construction of a masonry wall, adequate bracing must be in place to prevent the wall from overturning or collapse
- A bracing plan must be submitted by the sub for review prior to starting the masonry work
- If any of these conditions exist, the bracing is not needed:
  - The wall is eight feet or less in height
  - A qualified person demonstrates that modifications listed below are adequate when addressing these or other inherently more stable conditions:
    - Shafts
    - Infills in existing walls
    - Construction in protected areas
    - Change in wall thickness
    - Masonry pilasters
    - Corner returns, intersecting walls
  - Permanent supporting elements of the structure are in place
- Design bracing systems according to option 1 or option 2 below
- Install them under the direction of a competent person
- A registered professional engineer must design bracing when there is one or more of the following:
  - The wall is more than 24 feet in height
  - The minimum requirements of this section are not met
  - Stack bond
  - Or high wind areas
- A structural masonry wall bracing system must be designed by a qualified person
- The design and installation of the bracing system must comply with the following requirements:
  - Minimum design requirements, including minimum requirements per chapter 26 of the Uniform Building Code, for use in Options 1 or 2: Note: This information may be included in the blueprints
    - F'm 1500psi, concrete block laid in running bond pattern
    - Type S mortar
    - 60ksi rebar, with minimum placement of 2 - #4 horizontally and 1 - #5 vertically at 48" on center
    - 2000psi grout required at reinforced areas
    - Straight coil loop insert with coil bolts (safe working load = 2,250 lb.)
    - Metal concrete tilt braces
    - Wall height not to exceed 24'
  - Minimum field requirements for use in Options 1 or 2:
    - The horizontal spacing distance between two or more braces must not exceed 20'
    - The horizontal bracing distance from an end of wall or control joint must not exceed 10'
    - A qualified person must determine if walls less than 20' in length require two braces

- The connection of the brace to the masonry wall must consist of a minimum  $\frac{3}{4}$ " straight coil loop insert, placed around a structural rebar located at an un-grouted bond beam
- At least one structural rebar must be located between the attached bar and face shell that receives brace (see figure 1)
- The base connection of brace must consist of a minimum  $\frac{3}{4}$ " anchor attached to either a 4" minimum thick slab or deadman
- The brace angle must not be greater than 60 degrees from the horizontal
- The slab or deadman connection must resist a minimum 3400lbs. pullout force
- Option 1 – Low Lift Grout Walls-Bracing structural masonry walls when grout pours are limited to 5'-4" or less in height
  - A maximum of 8' of initial wall height may be laid with minimum reinforcement and then grouted
  - A maximum 5'-4" of additional wall may be laid with reinforcement located to receive straight coil loop inserts at the bond beam location
  - The first brace must be connected to the wall insert and attached to slab or deadman at base of wall
  - The reinforced section must be grouted
  - Additional wall may be construction following the steps above
- Option 2 – High Lift Grout Walls-Bracing structural masonry walls with grout pours up to 8' in height
  - A maximum 8' of the initial wall height may be laid with minimum reinforcement and then grouted
  - A maximum 5'-4" of additional wall may be laid with reinforcement located to receive straight coil loop inserts at a bond beam location
  - Braces must be connected to coil loop inserts in the wall and attached at the base to either a slab or deadman
  - The wall may be laid and reinforced up to the grout pour
  - No more than 4' of un-grouted wall above the brace point is permitted
  - Grouting may be done after each section of wall is adequately braced
  - A maximum of 8' of additional wall height may be constructed and braced following steps above

## 2.17 Electrical and Temporary Power Safety

### Procedures

- Working On or Near Exposed Energized Parts
  - It is Skyline's policy that no one will work on live electrical circuits
  - If a situation arises where it is impossible to perform a task with the circuit de-energized, contact the Skyline prior to performing the work
  - A formal pre-construction meeting shall occur prior to any such work occurring
  - Only qualified persons may work on electric circuit parts that have not been de-energized
  - Such persons must be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials and insulated tools
  - All work must be completed with strict compliance to NFPA 70E requirements and guidelines

- The subcontractor shall provide proof of training for their workers when requested

### **Ground Fault Circuit Interrupters**

- Skyline requires that all projects are 100% GFCI compliant
- An Assured Equipment Grounding Conductor Program may be used in addition to the GFCI program, but it is not recognized as a replacement for the GFCI
- Whenever an extension cord is used for construction work, a GFCI is required between the extension cord and the receptacle

### **Extension Cords and Cord Management**

- Only round, heavy-duty 14 gauge and higher (type S, SJO, SJTW, ST, SO, STD) are acceptable for use on a construction site
- Flat cords are not allowed on the jobsite
- Any cord which is damaged or has a grounding pin removed shall be positively removed from service
- Cords that have been spliced must be removed from service
- At no time shall cords be strung across exits or in front of emergency equipment
- Run cords around perimeters, when feasible
- All electrical cords shall be protected from damage by equipment, carts, trucks, and other rolling objects
- Extension cords shall not be fastened with staples, hung from nails, or suspended with non-insulated wire
- Keep extension cords out of wet conditions at all times
- All cords must be inspected before each use

### **Electric Tools**

- All portable electric tools such as saws, hammers, drills, vibrators and float machines, shall bear the label of a Nationally Certified Testing Agency, such as Underwriters Laboratories

### **Temporary Wiring & Lighting**

- All temporary wiring and lighting must meet current NEC codes
- Temporary lighting must never be put on the same circuit as temporary receptacles
- The minimum illumination level shall be 5 foot-candles
- Installation of temporary lighting must be per manufacturer's specifications and in compliance with OSHA, OR-OSHA, DOSH, NFPA, NEC and local codes
- Temporary light strings shall not be fastened with staples, hung from nails, or suspended with non-insulated wire

## **SECTION 3 - OCCUPATIONAL HEALTH**

### **3.01 Bloodborne Pathogen Safety**

#### **Procedures**

- When dealing with blood or other bodily fluids, employees and/or subcontractor employees are required to follow universally accepted precautions
- Accordingly, all human blood and other human body fluids are treated as if known to be infectious for HIV, Hepatitis B, and other blood-borne pathogens
- All jobsite and offices are required to make available to employees who may reasonably anticipate coming in contact with bodily fluids with disposable latex gloves and one-way resuscitation masks
- All certified First Aid providers are required to wear disposable latex gloves and eye protection while performing first aid on an injured individual
- If rescue breathing or CPR is performed, a one-way resuscitation mask shall be provided for the protection of the injured and the provider
- All blood spills shall be immediately contained and cleaned with an anti-viral solution, or by a solution of 5:1 water to bleach
- In the event of a serious accident, Skyline should consider contracting with an outside hazmat firm
- Any material saturated with blood must be considered regulated waste
- This 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; and items that are caked with dried blood or other potentially infectious materials
- Discarded band-aids and gauze containing small amounts of blood products are not considered regulated waste
- Disposal of all regulated waste shall be the responsibility of emergency medical personnel
- At least one Skyline jobsite person shall be trained in First Aid and CPR, and they also shall be trained in the decontamination of blood spills. All individuals are encouraged to attend training in emergency first aid procedures at each jobsite.

### **3.02 Respiratory Safety**

### **3.03 Hearing Safety**

#### **Procedures**

- Protection against the effects of noise exposure must be provided when the noise levels exceed those shown in the table above
- The measurement must be observed on the A-scale of a sound level meter at slow response
- When employees are subjected to noise levels exceeding those shown above, feasible engineering or administrative controls must be utilized
- If such controls fail to reduce sound levels within the levels shown above, personal protective equipment must be provided and used to reduce the noise exposure
- In all cases where the noise levels exceed the values shown in the table above, a continuing, effective hearing conservation program must be administered

### **3.04 Infection Control Protocol**

### **3.05 Lead Exposure Prevention**

#### **General Requirements**

- Prior to the renovation or demolition of any building, a lead paint survey from a certified technician must be provided
  - Buildings built after 1980 are assumed to be free from lead containing or lead based paint, and do not require a survey
  - Only the areas of the building that are being renovated or demolished need to be surveyed
  - The results of this survey must be kept on the jobsite for the duration of the renovation or demolition
- If lead containing or lead based paint is discovered by the certified technician, the following procedures must be followed
  - Develop a lead compliance plan:
    - Plan must be project specific
    - Plan must be kept on site
  - Have an on-site lead competent person:
    - Person will be the jobsite superintendent
    - Person must have received lead competence training
  - All employees working on the project will be required to have lead awareness training
  - Employees working on tasks that disturb the lead must be respirator trained
  - Provide a hepa-filtered vacuum at the jobsite
  - Provide hand washing facilities at the jobsite
  - Sign the project as required in the lead compliance program
  - Set up containment for the work area (if needed)
  - Perform a Negative Exposure Assessment for each different task that will impact the lead containing or based paint
  - During the Negative Exposure Assessment all employees working on the tasks shall be provided with and required to wear:
    - Tyvek suits
    - Respirators
  - If the Negative Exposure Assessment indicates there is no exposure above the permissible exposure limit for an 8 hour TWA, then the use of the Tyvek suits and respirators becomes optional
  - If above the permissible exposure level, modify the task or the procedures for the task and retest
  - Never work on a task that is above the permissible exposure level
  - Record the tasks and results in the written lead compliance plan
  - Dispose of debris that contains lead based paint only in approved landfill
  - It is intended that the written lead compliance program shall be used by subcontractors as well
  - Subcontractors will follow the written lead compliance program
  - Air monitoring will be required for each of their tasks that disturb the lead containing or lead based paint
- Work to minimize the exposure of adjacent facilities to debris that contains lead containing or lead based paint
  - Consider utilizing temporary barriers to protect adjacent people and spaces
  - Consider utilizing air moving equipment to exhaust air from the contaminated area
- Free-Air (whole building) demolitions done entirely from the exterior with a back-hoe or similar equipment will not require to develop a lead compliance plan but will be required to follow

approved lead demolition procedures (as an example hosing down the building at the location the backhoe is working)

### 3.06 Silica Exposure Prevention

#### Procedures

- In order to determine whether a product contains silica, the Safety Data Sheet must be obtained and evaluated
- In the event silica is present in products on-site, the following safe working procedures shall be followed to eliminate or control silica dust exposure:
  - The Project Safety Orientation should include information on potential areas for exposure and the hazards of silica exposure
  - Engineering controls must be considered as a primary means to eliminate the hazard, whenever feasible
  - Industrial hygiene exposure monitoring must be conducted in order to confirm that the engineering and administrative controls in place are effective and whether personal protective equipment (PPE) is or is not required
  - If PPE is required, refer to the Respiratory Protection Program for specific guidelines
  - After working with products that contain silica, each individual will be required to thoroughly wash their hands before eating, drinking or smoking. Eating, drinking or smoking near silica or in silica-regulated areas is strictly prohibited
  - Always wet dry materials and surfaces before cutting, chipping, grinding, sanding, sweeping or cleaning
  - This engineering control shall be used to the greatest extent feasible, so that airborne concentrations of silica are minimized
  - Use power tools with built-in high-efficient particulate air (HEPA) dust extraction units to capture the dust before it is released into the exhausted air
  - Skyline will not allow the use of any compound used for abrasive cleaning that contains more than 1% silica
  - Employee sampling must be conducted to verify that concentrations released from the media being finished does not exceed allowable OSHA PEL's
  - For abrasive blasting, replace silica sand with less toxic materials
  - The National Institute for Occupational Safety and Health highly discourages the use of sand or any abrasive with more than 1% crystalline silica in it
  - As an alternative, garnet, slag and steel grit and shot may be suitable substitutes
  - All subcontractors are to supply any exposure monitoring, testing, or engineering information regarding silica exposure in their operations prior to beginning work
  - An example may be the masonry contractor using brick/block saws and associated experience data that the subcontractor has obtained

### 3.07 Chemical Management Protocol

#### Safety Data Sheet (SDS) And Container Labeling

- All hazardous chemicals brought onto the job site must have an SDS on file at the job site
- All hazardous chemicals delivered to site must have label from manufacture on container that meets the GHS

- All hazardous chemicals that are put into a secondary container must be properly labeled per GHS guidelines or per client mandate

### **Chemical Handling Procedure**

- Do not dump or drain any chemicals (this includes oils) into a process sewer, storm drain, sanitary sewer, sump, pond, stream, on the ground, or into any scrap or waste dumpster
- Secure chemical container lids and caps at all times except when adding, withdrawing, or using chemical
- Chemical containers shall be stored so as to prevent rainwater from entering container either by covering container or tipping container to allow water to run off
- Have spill control materials available ie: Spill kit(s), kitty litter, sawdust, absorbent pads, brooms, drain covers, etc.

### **Special Procedures**

- Empty Chemical Containers
  - Never dump or drain chemicals to empty containers. Use the chemical up
  - Reusable containers should be returned to the supplier
  - All non-reusable containers are to be completely emptied before disposal
  - Containers in poor condition are to be emptied, crushed and placed in a dumpster
- Paints, Thinners, and Solvents
  - Open paint, thinner, or solvent cans only as needed
  - Use proper secondary label and also label as “Hazardous Waste”, unless chemical is not listed and does not meet any Hazardous Waste characteristics. Do not date the container!
  - All chlorinated solvents must be approved for use by Skyline, and also per client mandate
  - Dispose of per client contact or Skyline
- Other Special Chemicals
  - If project requires work with other special chemicals, check with the Skyline for special handling requirements

### **Purchasing Hazardous Materials**

- Purchase only the amount of material necessary to complete the project at hand
  - If less than 55 Gallons of product is needed, purchase only 5 Gallon cans
  - If less than 110 Gallons of product is needed, purchase one 55 Gallon Drum and the remainder in 5 Gallon cans etc.
- Many clients require advanced SDS review/approval prior to delivery of hazardous materials to the project
  - Check with the project manager prior to purchasing hazardous materials
  - Leave ample time for client review
- Substitutions can often be made with materials that do not create hazardous waste
  - Many clients require that alternative materials be used whenever possible

### **Containment And Clean-Up Of A Sudden Or Accidental Release**

- Notification
  - If anyone is injured, seek medical help

- Inform foreman immediately of any spill or release
- As soon as possible notify the Skyline or project superintendent
- Any spill with potential to affect human health or the environment (except when occurring in secondary containment) must be reported to local authorities in accordance with the local emergency plan
  - Also contact client site safety representative
- Protection
  - Get personal protective equipment as required by HMIS label or SDS
- Liquid Spills
  - Immediately confine liquid spills to the smallest possible area using dams, dikes, and/or absorbent
  - In case of a large liquid spill, contact client site safety representative for instructions for disposal. Contain spill as above where possible
- Gaseous Release
  - Evacuate area in case of a gaseous release. Contact superintendent and Skyline immediately
- Disposal
  - Consult warning labels on container and/or SDS's for procedures and precautions necessary for safe and proper disposal of the hazardous waste
  - Use Personal Protective Equipment (PPE) as required
  - Dispose of small quantities of oil soaked absorbent material as solid waste
  - Place contaminated materials inside an approved container, dispose of in accordance with all Federal, State and Local Regulations

### 3.08 Asbestos Exposure Prevention

#### General Requirements

- Prior to the renovation or demolition of any building, an asbestos survey from a certified asbestos technician must be provided. The result of this survey must be kept on the jobsite for the duration of the renovation or demolition
  - Only the areas of the building that are being renovated or demolished need to be surveyed
- If asbestos is discovered by the certified asbestos technician, it must be abated by a licensed abatement contractor
  - Employees should never attempt to remove dispose of, or disturb asbestos containing materials
  - Subcontractors are not permitted to abate asbestos, regardless of whether they are properly licensed or not
  - If the asbestos containing material is in an area where it will not be disturbed, it does not need to be abated
    - Do not disturb asbestos containing materials
    - Make sure all asbestos containing material are properly labeled
- If materials are discovered that could be asbestos containing, stop the work activity and bring this occurrence to the immediate attention of the project superintendent or the project manager
- Do not remove or disturb these materials until they have been tested and proven to be non-asbestos containing

- The following items are commonly asbestos containing materials. If you discover these items, and they do not appear on the building survey, notify your project superintendent or project manager and do not disturb them:
  - VCT Flooring, Floor Base and Mastic (Commonly 9" x 9")
  - Black VCT Mastic (even if used with 12" x 12" tiles)
  - Roofing Material
  - Plaster
  - Mortar
  - Vermiculite use as insulation of CMU walls
  - Ceiling Tile and Mastic
  - Pipe Lagging
  - HVAC Duct Tape/Lagging
  - Insulation
  - Window putty
  - Exterior caulking
- Do not allow subcontractors to remove, disturb, or dispose of materials that are suspected of being asbestos containing

#### **Procedures When Working in an Area That Contains Asbestos**

- All employees must receive Asbestos Hazard Awareness Training prior to beginning work in areas that have materials containing asbestos
- All employees must take steps not to disturb any Asbestos containing materials
- If an Asbestos containing material is disturbed:
  - Immediately stop work activity
  - Barricade the area to prevent other trades from entering
  - Notify Superintendent immediately
- Superintendent will make provisions to have a clean up