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GENERAL SAFETY AND HEALTH PROVISIONS

Safety Summary

Safety is both an individual and organizational commitment to get all co-workers home safely. We value a safety culture of individual ownership, developed through training, intersecting with projects through key processes supported by standards, tools and information.

Site Specific Safety Plan

Site Specific Safety Plans include our project teams Phase Hazard Planning sheets (PHP), trainings, Operational Activity Trainings (OAT's), and Daily Preparation Process (DPP). The PHP sheets are used to identify the possible hazards by activity based on the materials, tools, and equipment being used. Based on the hazards identified in the PHP sheets pertinent OAT's and trainings are collected for each phase of work. Additional safety items are addressed daily during our DPP. Below is a quick summary of how a site-specific safety plan is created starting at the bidding phase with adjustments made through the construction phase to create the best plan possible based on current conditions, phase of work, and ultimately engaging our co-workers in the activities and tasks being performed.

Planning for Safety

Site specific safety is planned for at the bidding phase, planning phase, and construction phase of the project.

Bidding Phase:

During the bidding process we become familiar with the scope of work and begin to align a plan to address safety for this specific project. If the customer has any questions about our Site-Specific Safety Plan, we can sit down and explain our processes.

Planning Phase:

Once a project is secured, we enter the planning phase. This consists of three main processes:

- Turnover Meeting – Project Coordinator shares all information about project and customer learned during the bid phase.
- Planning Meeting – Project Lead lays out detailed plan on how the team intends on building the entire project.
- Customer Plan Presentation (CPP) – The project team meets with customer team to present the overall project plan and make sure our plan aligns with the customers' expectations that have been provided to us to date.

During the planning phase the project team uses the PHP sheets to break down the project by phase. Then after each phase is identified, activities are listed along with what material, tools, and equipment will be used for each activity. After activity, material, tools, and equipment for each phase of work are identified, hazards for each activity are listed.

OAT's and trainings that help educate our co-workers about general hazards for each activity are then listed on the PHP so they can be used once that phase of work begins and as the phase progresses through completion.

PHP Example:

PHASE HAZARD PLANNING				
Job Name: Project XYZ		Job Number: L-0000		
Project Lead: Philip Frost		Customer: AMSCO		
Field Lead: Patrick Power		Phase: Walls		
Purpose of PHP: Used during the planning process to highlight activities being performed during each phase of work. Once activities are identified potential hazards and safe work procedures can be addressed. FL/CTL to address hazards in DPP.				
<u>Project team to expand on items listed below. Additional hazards will exist depending on project specific conditions and crew make-up.</u>				
Activity	Material	Equipment	Hazard to be Addressed by FL in DPP EXPECTATIONS SET BY PL	OATs and other Trainings Required for this Activity
Forming / Prep	Lumber Nails Forms (Gang) Waterstop Form oil Taper ties Snap ties Grease Rebar heal pins Shim packs Chamfer Markers Chalk Line saver Paint	RT Forklift Rigging Hot Saw Eye level Generators Small Tools (hand tools) Air Compressor / Blower Fire Extinguisher Ladders/Scaffolding Burke Bars Sprayer Fall Protection (Harness's, Retracts, Positioning chains)	- Traversing the jobsite - Small tool operation - Moving material - Proper Rigging - Working at heights - Proper Eye / Face Protection - Proper Ladder set-up - Pinch points - Lifting technique - Forklift spotter/signaler - PPE - Controlling Loads (Tag lines, weather conditions, load charts) 100% tie off/ fall protect plan - Electrical hazards - House keeping - Loading and unloading forms	OAT – CIP Walls – Forming OAT – CIP Walls – Forming WAH Forklift Training (required training) Working at Heights L & K(required training) Rigging and Signaling (required training)

PHP Template WIP v.4-2015

During the construction phase, project leadership engages our co-workers about safe work procedures every morning during our DPP. In the DPP, tasks being performed are identified along with who is performing the task and what equipment, tools, and material are needed for the task. Using this information, hazards for the task are identified and safe work procedures are discussed with all co-workers involved. The DPP is also used as an occasion to review OAT's / bulletins that relate to the activity being performed. Any identified trainings to educate our co-workers are scheduled by the Project Lead and given prior to the activity that requires specific trainings (i.e. forklift certification).

DPP Example:

LEAD NAME: Tom Lowe

PHASE: Walls

OPERATIONAL ACTIVITY(IES): Forming **DATE:** 2/17

☐ WHAT ARE THE PRODUCTION GOALS FOR TODAY? Form 39' long by 15' Tall Wall w/ 3 steps - 6m x 8 hours

☐ IDENTIFY KEY ITEMS NEEDED FOR YOUR ACTIVITY(IES)

TASKS OF THE ACTIVITY	REQUIRED TRAINING(S) FOR THE TASK	HAZARDS/ISSUES
<u>Gang Forms</u>	<u>Forklift</u>	<u>Lift Form Material</u>
<u>Build Bulkhead</u>	<u>Rig + Sig</u>	<u>Poorly Graded by hand</u>
<u>Set Forms</u>	<u>Forklift</u>	<u>improper Tech with uncontrolled loads</u>
	<u>Rig + Sig</u>	<u>Poor Housekeeping</u>
<u>Install Scaffolding</u>	<u>Wall Form W/H</u>	
	<u>Forklift</u>	<u>Improper Rigging</u>
	<u>Rig + Sig</u>	<u>Improper Tie off</u>
	<u>Wall Form W/H</u>	<u>Paints</u>

TOOLS/EQUIPMENT

Center Pick/Forklift 3/4" Hex bolts *Line + Grade

Impact Drill + Wrench Grease For Ties *Wall locate

2 Hammer drill bit + mix 2x 3/4" Plywood *Tie Elav

3/8" + 7/16" drill bits 4x 1/2" x 4x 4" *Rebar inspect

3/4" Socket Fiberglass chisels

Pipe Wrench Charger

Crescent Saw 2x 4's

Saw Horse H₂O Stop w/ Primer

Truck Container Deadmen

Blower

Bobcat

☐ DESCRIBE YOUR PLAN TO SAFELY ADDRESS KEY ITEMS FROM THE PREVIOUS PAGE: (SAFETY, QUALITY, CUSTOMER, PRODUCTION, TALENT)

- use equipment or multiple people to lift the large Panels
- Grade out + prepare the area you'll gang forms
- Cut material off Saw Horse + dispose of waste material as you go
- Utilize Truck Containers for waste so we aren't handling material twice
- When moving Forms, Deadmen + Scaffolding material use Taps to control the load
- Keep form material organized as you go + be sure to stage it out of the way of equipment
- Be sure Scaffolding material is not loose when setting our Brackets + isn't set w/ anyone below
- Chamber will be installed @ Top of the wall
- Bulk head Needs to be plumbed w/ vent Keyway
- Verify user have passed Rebar inspection before we began to buckle up the wall

☐ IS THERE ANYONE NEW TO THE TASK OR CREW? IF SO, WHO IS INTRODUCING THEM TO THE TASK?

NAME Bill **MENTOR** Adam

(Teach Bill about Forming Bulkheads)

☐ HAVE ASSIGNED CO-WORKERS RECEIVED LITHKO REQUIRED TRAININGS? YES ☐ NO

☐ WAS THERE AN OAT GIVEN TODAY?

LIST: Forming Walls - W/H



COMPANY POLICIES

Reference Appendix A. for the following company policies:

- Substance Abuse Policy
- EEO Policy
- Anti-Harassment Policy
- Co-Worker Information/Policy Sheet
- Employee Rights and Responsibilities
- Co-Worker Acknowledgement Form
- Co-Worker Safety Agreement Form

INCIDENT PROTOCOL

Reference Appendix B. for Incident Protocol

Reference Appendix C. for Incident Review Protocol

Reference Appendix D. for Equipment Damage Protocol

Reference Appendix E. for Property Damage Protocol

CRISIS MANAGEMENT PLAN

Reference Appendix F. for Crisis Management Protocol

OSHA VISIT PROTOCOL

Reference Appendix G. for OSHA Visit Protocol

Disclaimer

At a minimum Lithko and its employees shall conform to regulations outlined by the applicable standards set forth in 29 CFR 1926 and 29 CFR 1910. This shall extend to include practices currently accepted by OSHA as outlined in standard interpretations of the current standards.



HAZARD COMMUNICATION PROGRAM

Introduction

This written program, along with an inventory of hazardous materials and safety data sheets will be available at the jobsite trailer for review by employees, their representatives, OSHA and contractors or employees of other companies doing work in and around our work area.

Responsibilities

The lead on the project has the responsibility to train employees on the health hazards that may be encountered on the jobsite. All new co-workers go through general awareness training when they are hired. Hazards specific to the job need to be addressed by the leads on site. Safety data sheets must be available for all materials on each jobsite.

Safety Data Sheets

Safety Data Sheets (SDS) for all hazardous materials to which employees may be exposed will be available at each jobsite and/or at the BURG office. The SDS will also be available to subcontractors and employees of other companies doing work in or around our work area.

SDS Information: How to utilize it

The SDS is an information sheet on a material indicating the hazards associated with the material. The SDS is the primary means of providing detailed hazard information. The entire communication program is built around the SDS's for the hazardous materials used in the workplace.

Manufacturers and importers of all hazardous materials must obtain or develop an SDS for each hazardous material. The information must be accurate and reflect the most current available toxicological information. The manufacturer or importer is not required to do scientific studies to obtain new hazard information. However, the SDS must be updated periodically as new hazard data becomes available. Manufacturers and importers must provide distributors and purchasers with copies of SDS's. Distributors must provide copies to their customers.

Terms and Explanations of Sections for a Typical SDS

Section 1 – Identification:

This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier.

Section 2 – Hazard(s) Identification:

This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards.

Section 3 – Composition/Information on Ingredients:

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed.

**Section 4 – First Aid Measures:**

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical.

Section 5 – Fire-Fighting Measures:

This section provides recommendations for fighting a fire caused by the chemical.

Section 6 – Accidental Release Measures:

This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard.

Section 7 – Handling and Storage:

This section provides guidance on the safe handling practices and conditions for safe storage of chemicals.

Section 8 – Exposure Controls/Personal Protection:

This section indicates the exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure.

Section 9 – Physical and Chemical Properties:

This section identifies physical and chemical properties associated with the substance or mixture.

Section 10 – Stability and Reactivity:

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability, and other.

Section 11 – Toxicological Information:

This section identifies toxicological and health effects information or indicates that such data are not available.

Section 12 – Ecological Information (non-mandatory):

This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment.

Section 13 – Disposal Considerations (non-mandatory):

This section provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices. To minimize exposure, this section should also refer the reader to Section 8 (Exposure Controls/Personal Protection) of the SDS.

Section 14 – Transport Information (non-mandatory):

This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea.

Section 15 – Regulatory Information (non-mandatory):

This section identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS.

Section 16 – Other Information:

This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.

Labelling

All hazardous products we use on a jobsite must be labeled. Products we receive and those we send away from a job must also be labeled. It is the responsibilities of all employees to be sure all hazardous products are labeled. All labels must be legible and in English.

The manufacturer, importer or distributor must ensure that each container of hazardous material(s) arriving at the workplace is labeled, tagged or marked with the following information:

- Product identifier
- Signal words
- Hazard Statement
- Pictograms
- Precautionary statements
- Supplier identification
- Supplemental information

The following guidelines must be followed to make sure containers are properly labeled:

- Incoming material must be labeled. If material comes in unlabeled, notify your lead immediately.
- Unless products are remarked, existing labels shall not be removed or defaced.
- If new and significant information regarding the hazards of a product comes to the attention of the manufacturer, importer, distributor or employer, then this information must immediately be communicated to the employee(s) potentially exposed to the material, as well as incorporated onto the existing label, within three months.

Training

All co-workers, including temporary and new co-workers, will be appropriately informed of:

- The overall requirements of the Hazard Communication standard, 1910.1200.



- Any operations in their work area where hazardous materials are present.
- The location and availability of the written Hazard Communication Program, including the required inventory list(s) of hazardous materials and SDS's.

Additionally, each co-worker will be trained in the following:

- Various method and observations that may be used to detect the presence or release of a hazardous material in the work area.
- The physical and health hazards of the materials in the work area.
- Measures the employees can take to protect themselves and their co-workers from these hazards, including special procedures implemented to protect employees from exposure to hazardous materials, such as appropriate work practices and personal protective equipment to be used.
- An explanation of our labeling system and the SDS and how employees can obtain and use the appropriate information (Hazard Communication Program).

Initial training will encompass the standard itself, what it means to each co-worker and how each co-worker can use the information provided to protect himself/herself. Thereafter, daily DPP meetings and OATs, will be used to train employees on the specific hazardous materials that are used on the jobsite.

New co-workers will be trained on the hazards with which they will be working or potentially exposed to, as well as the basics of the standards. Co-workers working with or potentially exposed to any new or changed material hazard, will be trained before working with the new material. The addition of new materials into the workplace will be discussed during the daily DPP meeting or privately with those handling the new material.

Hazardous Non-routine Tasks

When co-workers are required to perform non-routine tasks, each co-worker will be given information by the job lead about the hazards involved with the task. The information will include, but not be limited to, the following:

- Any specific material hazard.
- Any measures the company has taken to lessen the hazard.
- Any protective and/or safety measures required of the co-worker.

It is company policy that no employee will begin work on any non-routine task without first receiving a safety briefing from the lead. Working on unlabeled pipes that could contain hazardous materials, would fall under the non-routine task instructions. Any employee in this situation must contact his supervisor before proceeding.

Pictograms

GHS/HazCom 2012 – Your Right to Know & Understand

Label Elements

Product Identifier – Identifies the chemical identity of the substance. Signal Word – Indicates the relative degree of severity of hazard. "Danger" = more severe hazards "Warning" = less severe hazards Pictograms – Symbols that convey specific information about a substance Hazard Statements – Describe the hazard(s) as determined by the hazard classification Precautionary Statements – Provide measures to prevent adverse effects from physical, health or environmental hazards. Supplier Information – The name, address and phone # of the manufacturer.	 Gasoline, motor fuel CAS # 289-220-8  Danger     Highly flammable liquid and vapor. Keep away from heat/sparks/open flames/hot surfaces. Wear protective gloves and eye and face protection.  Hess Corporation 1 Hess Plaza Woodbridge, NJ. 07095 800.424.9300 <i>See SDS for other details regarding safe use of this product.</i>
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Pictograms

Explosive	Flame	Flame over Circle	Gas Cylinder	Corrosion	Skull	Irritant	Health Hazard	Environment
								
• Unstable • Self-reactive • Organic peroxides	• Self heating, • Flammables • Self-reactive	• Oxidizers	• Gasses under pressure	• Corrosion/ Burns to Skin • Eye damage • Corrosive to metals	• Fatal or toxic	• Skin, eye & respiratory tract irritant.	• Carcinogen • Target Organ Toxicity • Respiratory sensitizer	(Non-Mandatory) • Aquatic Toxicity

As of June 1, 2015 Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s).

Safety Data Sheet (SDS)

Similar to Material Safety Data Sheets (MSDS) but is in a universal format and is the primary source of information regarding a substance/chemical. A Safety Data Sheet (SDS) contains 16 distinct sections.

1. Identification of substance	5. Fire-fighting measures	9. Physical & chemical properties	13. Disposal considerations*
2. Hazard(s) identification	6. Accidental release measures	10. Stability & reactivity.	14. Transport information*
3. Composition/info on ingredients	7. Handling & storage	11. Toxicological information	15. Regulatory information*
4. First-aid measures	8. Exposure controls/PPE	12. Ecological information*	16. Other information

**Other agencies regulate this information, OSHA will not enforce sections 12-15.*

What about DOT? DOT aligned with GHS in 2008 so DOT regulations still apply.
When a DOT pictogram is put on a container, a GHS pictogram should not be used.

ENVIRONMENTAL SPILL CONTROL

Purpose

The use and disposal of hazardous substances has attracted much attention in recent years due to increased awareness of protecting the environment in which we live. Although most of the products we use on construction sites are mild physical or chemical hazards, their release onto the ground or into water systems may have a major environmental impact. Most petroleum-based solvents, cleaners, and oils cannot be disposed in water systems or ordinary landfills. If you have waste oils, solvents, or cleaners on your job site, make sure that you check the SDS for proper disposal methods prior to discarding the material. The purpose of an Environment Spill Control Plan is to ensure appropriate work procedures shall be followed to help prevent the spilling of a hazardous substance, and in the event of a spill the appropriate cleanup measures.

Spill Prevention

The following guidelines shall be followed to provide the best possible way to ensure spills are prevented:

- Always ensure inspections are conducted on vehicles, equipment, and tools before operating. If issues are noted during inspection, do not operate and have the owner/supplier have the item fixed
- Always ensure that proper maintenance is conducted at the appropriate timing interval on vehicles, equipment, and tools
- Do not operate vehicles, equipment, or tools near sensitive environments
- Ensure all hazardous chemicals are stored and protected in appropriate containers. See the Hazard Communication Program for more information.
- Ensure co-workers are trained on the proper, storage, handling, and treatment of all hazardous chemicals located on the jobsite.

Spill Containment

In the event of a spill, the following measure will be followed to ensure containment of the spill:

- Leaks detected from a piece equipment such as, but not limited to, fuel tank/line leaks or hydraulic line leaks, will be contained using a spill pad placed beneath the location of the leak source.
- If the leak was undetected or a result of parked equipment, contaminated soil shall be excavated/removed from the area and disposed of appropriately. Refer to the SDS of the spilled substance for appropriate disposal measures.
- Fuel storage tanks shall be staged inside of an approved secondary containment to ensure any leaks or fuel spilled during fueling is contained within the secondary containment

Project teams will address spill and containment measures in their site-specific safety plans. Coworkers will be trained on how to prevent and contain spills through the daily DPP meetings and through OATs.



BLOODBORNE PATHOGENS

Purpose

The purpose of the Bloodborne Pathogens Program is to protect employees from the potential of occupational exposure to HIV, HBV or any other blood-borne disease. This program was developed to comply with the requirements set forth in OSHA 1910.1030.

This program will be implemented on jobs by a case-by-case basis, if there is a reasonable anticipation of occupational exposure to bloodborne pathogens. The main objective of this program is to protect the victim and employees administering First Aid.

Definitions

Blood – human blood, human blood components, and products made from human blood.

Bloodborne Pathogens – pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV).

Contaminated – the presence or the reasonably anticipated presence of blood or other potentially infectious materials.

De-contamination – the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item, to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use or disposal.

HBV – Hepatitis B. Virus.

HIV – Human Immunodeficiency Virus.

Occupational Exposure – reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood, bodily fluids, or other potentially infectious materials that may result during the performance of an employee's duties.

Other Potentially Infectious Materials – 1) the following body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between bodily fluids; 2) any unfixed tissue or organ (other than intact skin) from a human (living or dead); and 3) HIV-containing cell or tissue cultures, organ cultures, and HIV or HBV- containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parenteral – means piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts, and abrasions.

Regulated Waste means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of



releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Universal Precautions – an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Responsibilities

Safety Team:

The safety team will co-ordinate with a licensed healthcare professional to determine what employees may require the Hepatitis B vaccine. The proper protective equipment will be supplied by the safety team. The program will be reviewed annually and updated as necessary.

Leads:

Leads have the responsibility to designate First Aid responders on the jobsite. Employees that may administer First Aid must be made aware of bloodborne pathogens.

Employee:

Employees must use the proper protective equipment when coming in contact with bloodborne pathogens and ensure that any contaminated material is disposed of properly. Employees exposed to any contaminated material must report the incident to their lead immediately.

Exposure Determination

Employees that have the potential for occupational exposure to bloodborne pathogens could vary for each jobsite. The likelihood of occupational exposure would be focused on employees trained in First Aid and CPR.

Method of Compliance

Universal Precautions will be observed in order to prevent employee contact with blood or other potentially infectious materials. All blood or other potentially infectious material will be considered infectious regardless of the source individual.

Work practice controls will be utilized to eliminate or minimize exposure to employees whenever feasible. Personal protective equipment must be utilized where these controls do not totally eliminate the exposure.

Hand-washing facilities with running water, non-potable water and/or antiseptic hand cleansers, will be available for employees that have been exposed to blood.

Employees shall dispose of the towel used for drying after washing their hands. All procedures will be conducted in a manner that will minimize splashing, spraying, or splattering of blood or other potential infectious materials.

Employees are not permitted to eat, drink, apply cosmetics or lip balm, smoke, or handle contact lenses, where there is a possibility of exposure to blood.

Personal Protective Equipment

All personal protective equipment (PPE) required for this program will be provided to co-workers. It will be chosen based on the anticipated exposure to blood or other potentially infectious materials. The



protective equipment will be considered appropriate only if it does not permit blood or other potentially infectious materials to pass through or reach the employee's clothing, skin, eyes, mouth, or other mucous membranes, under normal conditions of use.

Personal protective equipment will be provided on jobsites based on the likelihood of occupational exposure to bloodborne pathogens. First Aid kits are supplied with gloves. Wear safety glasses to prevent splashing of fluids into the eyes.

The disposal of regulated waste shall be the responsibility of emergency medical personnel.

Hepatitis B Vaccine

All employees who have been identified as having exposure to blood or other potentially infectious materials will be offered the Hepatitis B vaccine, at no cost to the employee. The vaccine will be offered within ten working days of their initial assignment to work involving bloodborne pathogens.

Each project team and the safety team have the responsibility to assure that the vaccine is offered, and waivers are signed if the vaccine is declined. The vaccine will be administered by a medical facility at a reasonable time and place for the employee.

Post-Exposure Evaluation and Follow-Up

When an employee incurs an exposure incident, it should be reported as soon as possible to the project supervision and the safety team.

All employees who incur an exposure incident will be offered a post-exposure evaluation and follow-up. This follow-up will include:

- Documentation of the route of exposure and the circumstances related to the incident.
- Identification of the source individual and the blood of the source individual will be tested (after consent is obtained) for HIV/HBV infectivity.
- The exposed employee will be offered the Hepatitis B vaccine if it was declined prior to the exposure.
- The exposed employee will have the option of having their blood tested for HIV/HBV infectivity.
- Counseling will be given to the exposed employee concerning precautions to take during the period after the exposure incident.

Interaction with Healthcare Professionals

A copy of the regulation will be given to the health care professionals responsible for the vaccinations and all other necessary information for exposure incidents.

A written opinion must be obtained from the health care professional who evaluates employees. A copy of the written opinion will be given to the employee within 15 days of the evaluation. Written opinions will be obtained in the following situations:



- When the employee is sent to obtain the Hepatitis B vaccine.
- Whenever the employee is sent to a health care professional following an exposure incident.

Health care professionals will be instructed to limit their opinions to whether:

- The Hepatitis B vaccine is necessary and if the employee has received the vaccine, or for evaluation following an incident.
- The employee has been informed of the results of the evaluation.
- The employee has been informed of any medical conditions resulting from exposure to bloodborne pathogens.

NOTE: The opinion directed may not reference any personal medical information.

Training

All employees with the potential of occupational exposure will participate in a training program at no cost to employees. Training will be conducted when employees are included in this program and at least annually thereafter. Training will include:

- Labeling requirements and the biohazard sign.
- A general explanation of the standard and its requirements.
- An explanation of the Bloodborne Pathogens Exposure Program.
- Information and an explanation of the personal protective equipment that is required.
- Explanation of the Hepatitis B vaccine.
- Post-exposure evaluation and follow-up procedures.
- Explanation of company policies and procedures.

Recordkeeping

All medical and training records will be maintained by the safety team. Medical records will be made available to employees or their designated representative upon request.



PERSONAL PROTECTIVE EQUIPMENT

Responsibilities

Safety Team:

The safety team will assist the project supervision in selecting the proper protective equipment for different tasks.

Project Supervision:

They must ensure that protective equipment is available on their project and enforce its use when required.

Employee:

Every employee has the responsibility to wear the proper protective equipment when necessary.

Training

It is the company's policy that proper training be given regarding PPE. Training shall include:

- The proper selection, use, care, inspection and disposal of PPE.
- Hard hats, safety glasses, hi-viz clothing, and boots must be worn at all times.
- Review of the correct type of eye protection and face protection to be worn when it is required.
- Hearing protection when required (see Hearing Conservation Program).
- Respirator protection when required (see Crystalline Silica Program.).
- Fall protection equipment when required (see Fall Protection Program).

Hardhats

Co-workers are required to wear hard hats on all projects. Exceptions to this policy:

- Operator only when inside a ROP.
- Lunch breaks or during meetings away from construction activity.
- Inside the offices.
- Or under other types of similar conditions.

All hard hats must be ANSI approved and free of cracks and chips. Hard hats shall be issued prior to a co-worker starting work.

Hearing Protection

Co-workers working near noise levels above permissible exposure limits must wear hearing protection. Hearing protection is available at no cost. Plain cotton is not acceptable as ear protection. The Hearing Conservation Program covers hearing protection in detail.



Eye and Face Protection

It is the policy to provide the correct eye and face protection to all co-workers. Co-workers are required to wear safety glasses while on the job 100% of the time. Proper selection of eye and face protection is mandatory. Safety glasses do not provide eye and face protection for all scopes of work. Goggles, face shields or other special equipment may be required. All eye and face protection equipment must meet ANSI standards.

Respirator Protection

See Crystalline Silica Program

Fall Protection

See Fall Protection Program

Working Over or Near Water

When working over or near water that is deep enough to where the danger of drowning exists, the following are required:

- U.S. Coast Guard approved life jackets must be worn, where the danger of drowning exists
- Life vests must be inspected. Defective life vests shall not be used and discarded immediately.
- A ring buoy with at least 90 feet of line shall be available for rescue operations. Distance between ring buoys shall not be greater than 200 feet.
- A boat shall be available where employees are working over water, where the danger of drowning exists

Hand Protection

Properly selected gloves should be worn when working with chemicals, acids, or other hazardous materials that could irritate the skin. Refer to manufacturer's specifications when choosing the proper glove for working with chemicals.

Foot Protection

All employees that are exposed to construction activities must wear work boots. Sneakers, sandals, street shoes, etc., are not permitted.

Rubber boots shall be worn to keep employees' feet and ankles protected from excess water, concrete or other elements that can cause irritation.

Steel-toed shoes will only be required on projects if required by the owner.

Working Near Traffic

Co-workers that are exposed to vehicular traffic (public or construction) must wear a high visibility safety vest designated ANSI class 2 at a minimum, class 3 for co-workers directly exposed at night. . If required, a Traffic Control Plan will be developed as part of the jobs Site Specific Safety Plan.



HEARING CONSERVATION PROGRAM

Definitions

Audiometric Testing - Audiometric testing is a personal hearing test given to employees to determine if they have any hearing loss in either ear. The results of the testing are referred to as an audiogram.

Decibel (dB) - A unit for measuring sound levels.

Noise Reduction Rating (NRR) - Each type of hearing protection is given a NRR that reduces employee noise exposure. A larger NRR offers an employee more protection when worn properly.

Standard Threshold Shift - A standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10dB or more at 2000, 3000, and 4000 Hz (hertz) in either ear.

Time Weighted Average (TWA) - An employee's TWA is their actual noise exposure calculated over an eight-hour period. The selection of hearing protectors is determined by the time-weighted average.

Noise Exposure Monitoring Procedures

All noise exposure monitoring will be reviewed when the company deems necessary or when there is a change in processes or equipment that may render current controls ineffective. The safety team will conduct area noise surveys at various locations for specific tasks and around different types of equipment. The results of these surveys will be documented by specific job tasks or by identifying specific locations, equipment, etc.

When monitoring results do not adhere to the permissible noise exposures in the table below then feasible engineering and/or administrative controls will be implemented. If engineering and/or administrative controls are not feasible then employees will be provided with the proper hearing protection to reduce their exposure below the levels in the table below:

Table 1. Permissible noise exposure levels

Duration per day, hours	Sound level dBA, slow response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼, or less	115

Co-workers cannot be exposed to noise levels above 115 dBA without hearing protection regardless of the duration. When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each.

$$F(e) = (T(1) \text{ divided by } L(1)) + (T(2) \text{ divided by } L(2)) + \dots + (T(n) \text{ divided by } L(n)) \text{ where:}$$

F(e) = The equivalent noise exposure factor.

T = The period of noise exposure at any essentially constant level.

L = The duration of the permissible noise exposure at the constant level (from Table D-2).

Typical noise levels for construction:

Table 2. Typical noise levels for construction

Equipment	dB	Equipment	dB
Pneumatic chip hammer	103-113	Earth tamper	90-96
Jackhammer	102-111	Crane	90-96
Concrete joint cutter	99-102	Hammer	87-95
Portable saw	88-102	Earthmover	87-94
Stud welder	101	Front-end loader	86-94
Bulldozer	93-96	Backhoe	84-93

Hearing Protection

Hearing protection is available to all co-workers regardless of their noise exposures. Co-workers that are required to wear hearing protection under this program will be issued with earplugs, earmuffs, or the combination of both in order to effectively reduce their noise exposure below 90 dBA. The type of protection that is selected will be based on the time weighted average (TWA), noise reduction rating (NRR) that is necessary, and the co-worker's job tasks. The following equation will be used to select the necessary NRR:

$$\text{Employee noise exposure (TWA)} - [\text{NRR} - 7] = \text{Actual noise exposure}$$

Example:

A labor operates a jackhammer for an 8-hour work shift and the personal monitoring results indicate a TWA=110 dBA. He/she must wear hearing protection with a NRR of 28 or larger.

$$110 \text{ dBA} - [28 - 7] = 89 \text{ dBA}$$

Training

Co-workers will be informed of what types of equipment or tasks require the use of hearing protection through training in the DPP and OATs. The training guidelines will be updated to ensure that they are consistent with the types of hearing protection and changes in work practices or equipment. The following topics will be included in the training:

- The effects that excessive noise has on hearing.
- The purpose of hearing protection and the advantages/disadvantages of various types.
- Instructions on the selection, fit, use, and care of hearing protectors.
- The purpose of audiometric testing and an explanation of the test procedures.



CRYSTALLINE SILICA PROGRAM

Purpose

Silica is one of the most common minerals in the earth's crust. Glass, beach sand, silicone, and granite are all silica materials. There are two forms of silica – crystalline and non-crystalline. Crystalline silica is a bigger worry for the health of our lungs.

The most common form of crystalline silica is quartz, which is found in sand, gravel, clay, granite, diatomaceous earth, and many other forms of rock. Non-crystalline silica is found in glass, silicon carbide, and silicone. These materials are much less hazardous to the lungs.

Activities that can generate airborne crystalline silica dust in concrete construction include grinding, chipping, drilling, cutting, and sanding of concrete, as well as mixing and handling of cement. Other activities where employees may be exposed include abrasive blasting and rock drilling. Inhalation of airborne crystalline silica can lead to silicosis.

Silicosis is a disease of the lungs caused by breathing dusts containing crystalline silica particles. These dusts can cause fibrosis or scar tissue formations in the lungs that reduce the lung's ability to extract oxygen from the air. There is no cure for this disease; thus, prevention is the only answer.

Definitions

Action level – a concentration of airborne respirable crystalline silica of $25 \mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.

Competent person – an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them.

High-efficiency particulate air [HEPA] – a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.

Objective data – information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Permissible Exposure Limit (PEL) – a concentration of airborne respirable crystalline silica of $50 \mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.

Respirable crystalline silica – quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling.

Silicosis – a condition of massive fibrosis of the lungs causing shortness of breath because of prolonged inhalation of silica dusts.

Exposure Control Plan

A site-specific written exposure control plan – Attachment A, has been established and implemented that outlines the following:

- Site designated silica competent person
- A description of the tasks in the workplace that involve exposure to crystalline silica
- A description of engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task.
- A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica
- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.

The written exposure control plan, Attachment A, is readily available for each co-worker to view on each jobsite. The written exposure control plan is reviewed annually by the safety team.

Exposure Control Methods

Each employee engaged in a task identified in Table 1, of OSHA 1926.1153, will follow exposure control methods including engineering controls, safe work practices, and respiratory protection measures as outlined in Attachment A.

Respiratory Protection

When required, as determined by Table 1, of OSHA 1926.1153, employees will be required to wear a NIOSH approved N95 disposable respirator. Respirators will be provided to co-workers at no cost.

Co-workers required to wear a respirator will receive initial and annual training. Co-workers will also receive retraining when conditions warrant. An initial medical evaluation will be conducted by a licensed healthcare professional to ensure the employee is fit to wear the respirator. A follow up medical evaluation will be required every 2 years or if conditions of use or the personal health of the employee change. The employee is responsible for ensuring a proper fit on a daily basis. The safety team will validate this on a yearly basis.

If a co-worker is required to wear a respirator per Table 1, of OSHA 1926.1153, for 30 or more days per year to protect against silica, the employee must complete a silica compliant medical examination. The silica compliant medical examination will be conducted by a licensed healthcare professional and will be provided at no cost to the employee.



Co-worker Information Training

All employees will be trained on crystalline silica as part of the orientation process. Co-workers will receive further training as part of the daily DPP process and through OATs. Co-workers receive safety training and education that includes the following:

- Health hazards associated with exposure to crystalline silica
- Specific tasks in the workplace that could result in exposure to respirable crystalline silica
- Specific measures implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used
- How to properly inspect and fit an N95 filtering facepiece respirator.

NOTE: Reference Appendix H. for the Respiratory Protection Training Program



HAND AND POWER TOOLS

General Requirements

All hand and power tools must be maintained in a safe working condition, per the manufacturer's guidelines. Tools shall be inspected by co-workers prior to use. If a tool is found to be defective, the tool must be removed from service and the lead notified.

If the tool is designed to accommodate a guard or handle, the employee must ensure that the guard or handle is in place while using the tool.

Co-workers using hand and power tools may be subject to falling, flying, abrasive, and splashing objects/debris, or exposed to harmful dusts, fumes, mists, vapors, or gases. The appropriate PPE and training on the use of the PPE, will be provided at no-cost to the employee, to ensure the co-worker is protected. It is the responsibility of the employee to wear the appropriate PPE as instructed by their lead. See section on Personal Protective Equipment for more information.

Any impact tool such as drift pins, wedge pins, and chisels shall be kept free of mushroomed heads. If the head becomes mushroomed the tool shall be removed from service. Hand tools with wooden handles shall be kept free of splinters or cracks and shall be kept tight in the tool. Wrenches with sprung or damaged jaws shall not be used and removed from service.

All co-workers must be trained in the use of all hand and power tools before using. Training will be achieved through daily DPP meetings and through OATs.

Electric Power Tools

All electric power operated tools shall be of either the approved double insulated type, or grounded in accordance with OSHA 1926 Subpart K. All electric power tools, cords, and extension cords shall be inspected before use. Examples of tool/cord removal from service include:

- Cord sheathing is damaged
- Wires are exposed
- Plug prongs are missing/bent/damaged

Repairs that require the opening of the tools body are not permitted and must be completed by a qualified electrician.

All electric power tools and extension cords shall not be used for hoisting or lowering of the tool. Where extension cords are raised up on the ground, this shall be done so using a non-conductive material.

All hammer drills and rotary hammers shall have built in clutch system to ensure that the drill bit will stop rotation when it becomes bound up in the hole.

Pneumatic Power Tools

Each connection on a pneumatic power tool shall be secured by some positive means to prevent accidental disconnection of the tool. When used for cleaning purposes, compressed air may not exceed 30psi, unless used for cleaning concrete formwork. Co-workers operating the compressed air hose must wear the appropriate PPE including face and ear protection. Safe work practices must be addressed in the DPP to ensure other co-workers in proximity of the cleaning area aren't exposed to the hazard. All air hoses with an inside diameter exceeding ½" must have a flow reduction device at the source to reduce pressure in case of hose failure.

Fuel Powered Tools

All fuel powered tools must be stopped and shut off while being refueled, serviced, or maintained. All fuel shall be transported, handled, and maintained in accordance with OSHA 1926 Subpart F. When fuel powered tools/equipment are operated/used in and enclosed structure an evaluation must be made to ensure co-workers aren't exposed to toxic gases above concentrations as outlined in OSHA 1926 Subparts D and E.

Powder Actuated Tools

Only co-workers who have been identified by their lead and successfully completed training in powder actuated tools are permitted to operate a powder operated tool. The tool shall be tested each day to ensure all safety devices are in proper working condition. This inspection and testing shall be in accordance with the manufacturer's recommendations. If during the inspection and testing process, or during use, the tool is found to be defective, the tool shall be removed from service immediately.

The powder actuated tool must not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any employee under any circumstance and hands shall be kept clear of the open barrel end. Loaded tools shall not be left unattended.

Fasteners shall not be driven into very hard or brittle materials, or material that is easily penetrated unless such material is backed by a substance that prevents the fastener from passing through the material creating a flying missile hazard. Fasteners shall also not be driven into spalled area caused by an unsatisfactory fastening. Ensure all cartridges are disposed of properly per the manufacturer's recommendations.

Abrasive Wheels and Tools

The RPM rating on all abrasive wheels and grinding disks must be matched to the RPM rating of the grinding machine. All abrasive wheels and disks must be closely inspected before installation and use to ensure they are free from cracks and defects.

Non-Ionizing Radiation

Only qualified and trained employees shall be assigned to install, adjust, and operate laser equipment. Training for laser equipment will be delivered through daily DPPs and the Laser Equipment OAT. Proof of qualification must be in possession of the operator at all time while operating. Trained employees must install, adjust, and operate laser equipment per the manufacturer's recommendations. Before operating, ensure "CAUTION LASER IN USE" sign is erected to inform others in the area of the potential exposure.



ELECTRICAL

Definitions

Voltage – the pressure of electrical current.

Amperage – the current-carrying capacity of electric wires.

Ground Fault Circuit Interrupter (GFCI) – measures how much current is flowing through the wire in both directions. If too much current is flowing out of the wire (leak), it will shut off the electricity.

Short – electrical current that leaks from an electrical system wiring, hot wires or neutral wires.

Ground – a ground wire will carry away excessive current if there is a short in the system.

Circuit Breaker – there is a difference between a circuit breaker and a GFCI. A circuit breaker detects a short and a GFCI can detect a leak. A circuit breaker or fuse protects the equipment. The GFCI protects the worker.

Electric Current

An electrical current is formed by moving charges. The unit for measuring current is the ampere, or amp. Voltage is the pressure from an electrical circuit's power that pushes charged current through a conducting loop. An amp is the power, and the voltage is the pressure. An example is when water shoots out of a hose, the speed of the water is voltage and the power of the water hitting you is the amps. Most circuits on a construction site are 15 to 20 amps of power. The state of Alabama uses only 7.5 amps when they use their chair for a legal electrocution.

Equipment Requirements

All electric equipment must be used for its intended purpose.

Outdoor receptacles must be sealed and manufactured for outdoor use.

Temporary lighting must have light bulbs in all sockets and bulb protectors to prevent damage to the bulb.

All energized electric panels must be completely covered to prevent contact with inner wires. Cardboard is not acceptable.

Electric breakers must be marked to identify what they feed.

All open breaker slots must be filled.

All outdoor panels must be protected from weather.

Grounding

Electricity always seeks to return to its source and complete a continuous circuit. On the construction site, a neutral wire that returns current to the main service panel provides this return path. From the service panel, current returns along a neutral service wire to a power transformer.

A grounding wire provides an additional return path for electrical current. The grounding wire is a safety feature. It is designed to give an alternative path for the electricity to go back to the panel, a path other than the neutral wire, a condition known as a short circuit.

Generators 24K or bigger are to be grounded prior to use.

A short circuit is a potentially dangerous situation. If an electrical box, tool or appliance becomes short-circuited and is touched by a person, the electrical current may attempt to return to its source through that person's body. However, electrical current always seeks to move along the easiest path. A grounding wire provides a safe, easy path for current to follow back to its source. If a person touches an electrical box, tool or appliance that has a properly installed grounding wire, any chance of receiving a severe electrical shock is greatly reduced.

In addition, wiring systems on a construction site are required to be connected directly to the earth. In the event of a short circuit or overload, any excess electricity will find its way along the grounding wire to the earth. This additional grounding is completed by wiring the electrical system to a metal grounding rod that is buried underground.

Modern cable includes a bare or green insulated copper wire that serves as the grounding path. This grounding wire is connected to all receptacles and metal boxes to provide a continuous pathway for any short-circuited current. A cable with a grounding wire usually is attached to three-slot receptacles. By plugging a three-prong plug into a grounded three-slot receptacle, appliances and tools are better protected by short circuits.

Recognition and Prevention of Hazards

There are two categories of electricity. One is high voltage (600 volts and up) and the other is low voltage (less than 600 volts). Many accidents result from low voltage, due to the close proximity to work areas and the fact that most workers use low voltage on the jobsite. Most electrocutions and electric shocks happen for certain reasons. Here are some of the most common problems that happen on a construction site:

- Exposed wiring.
- No GFCI in the circuit.
- Tools and cords not being grounded.
- Wires and cords not being protected from damage.
- Worn out tools and equipment.
- Not using the proper equipment in wet locations.
- Unqualified workers working with electricity.
- Not testing GFCI to see if working properly.

- Scaffold, JLG's into power lines.
- Not respecting the dangers of electricity.

All extension cords, power tools, pumps, etc. that have the outer insulation missing, exposing the inner electrical wires, must be removed from service or repaired to its original condition before being put back in service. Tape is NOT acceptable for repair.

Extension cords are not to be exposed to vehicle traffic of any kind. This can cause damage to the extension cord's internal wiring causing shorts or loss of the grounding system.

Electric cords that have had the outer insulation pulled away from the male or female plugs, exposing the internal wires, shall be removed from service until repaired.

A ground fault circuit interrupter shall protect all electrical circuits that employees may become part of.

High voltage (600 volts and up) is also a major problem on a construction site. Here are some of the most common problems that happen on a construction site with high voltage:

- Cranes and equipment coming in contact with overhead power lines.
- Not checking for utilities before starting to dig.
- Unloading material under overhead lines.
- Not calling the power company before working near overhead lines.
- Not planning the job prior to starting the work.

Ground Fault Circuit Interrupter (GFCI)

The ground-fault circuit interrupter (GFCI) is a fast-acting circuit breaker that senses small imbalances in the circuit caused by current leakage to ground and, in a fraction of a second, shuts off the electricity. The GFCI continually matches the amount of current going to an electrical device against the amount of current returning from the device along the electrical path. Whenever the amount "going" differs from the amount "returning" by approximately 5 milliamps, the GFCI interrupts the electric power within as little as 1/60th of a second.

If a receptacle or receptacles are installed as part of the permanent wiring of the building or structure, and they are used for temporary electric power, GFCI protection shall be provided.

Receptacles on the ends of extension cords are not part of the permanent wiring and therefore must be protected by GFCI's, whether or not the extension cord is plugged into permanent wiring. These GFCI's monitor the current to the load for leakage to ground. When this leakage exceeds 5 milliamps, the GFCI interrupts the current. They are rated to trip quickly enough to prevent electrocution.



GFCI's can be used successfully to reduce electrical hazards on construction sites. Tripping of GFCI's (interruption of current flow) is sometimes caused by wet connectors and tools. It is good practice to limit exposure of connectors and tools to excessive moisture by using watertight or sealable connectors. Providing more GFCI's or shorter circuits can prevent tripping caused by the cumulative leakage from several tools or by leakages from extremely long circuits.

There are many types and styles of GFCI's that can be used on the jobsite. The three main types are:

- GFCI circuit breaker.
- GFCI receptacle.
- GFCI that is designed to be attached to the end of the extension cord.

All these different styles have some common features, such as a test and reset button. Before using the circuit, you should push the trip button that sends a short through the circuit. If the GFCI is working properly, it should trip out. After the test, use the reset button to turn the circuit back on. If the circuit doesn't trip out, then there is something wrong with the GFCI. Don't use it and bring this to the attention of your supervisor to get it fixed.

Overhead Powerlines

Crane booms shall never be operated within ten (10) feet of overhead electric power lines unless de-energized and visibly grounded.

All overhead power lines shall be marked with proper signs marking the lines. DO NOT operate cranes in the area if the signs are not up.

Lockout/Tagout

Activities involving the lockout/tagout of hazardous energy sources will be performed on a site-specific basis. The work will be performed under a lockout/tagout plan that is specifically developed for that jobsite meeting the requirements of OSHA 1910.147.



EXCAVATIONS

Definitions

Cohesive Soil - clay or soil with high clay content that the particles stick together. Cohesive soil does not crumble or break easily when dry.

Fissured Soil - soil that has open cracks on the surface or the tendency to break or crack.

Plastic - a property of soil that allows it to be deformed or molded without falling apart.

Protective Systems - a method of preventing a cave-in during excavation.

Stable Rock - refers to natural solid mineral matter which can be excavated with vertical sides and remain intact while exposed. Layered or cracked rock is NOT stable rock.

Type A Soil - is cohesive with an unconfined compressive strength of 1.5 tons per square foot (tsf). Type A soils include clay, silty clay, sandy clay, clay loam, caliche, hardpan, and sometimes silty clay loam and sandy clay loam. No soil should be classified as Type A if it is fissured; subject to vibration from traffic, pile driving, or similar effects, previously disturbed, or part of a sloped, layered system where the slope is four horizontal to one vertical or greater.

Type B Soil - is cohesive soil with an unconfined compressive strength greater than .5 tsf but less than 1.5 tsf. Type B soils include granular cohesionless soils like angular gravel, silt, silt loam, sandy loam and sometimes silty clay loam and sandy clay loam; previously disturbed soils that are not Type C, fissured soils and soils subject to vibration that would otherwise be classified as Type A, dry rock that is not stable; and material that is part of a sloped, layered system where the layers dip on a slope less steep than four horizontal to one vertical.

Type C Soil - is cohesive soil with an unconfined compressive strength of .5 tsf or less. Type C soils include granular soils such as gravel, sand, and loamy sand; submerged soil, soil from which water is freely seeping, submerged rock that is not stable or material in a sloped, layered system where the layers dip into the excavation at a slope of four horizontal to one vertical or steeper.

General Requirements

Protective systems must be used when there is a potential for cave-in and in all trenches five feet or deeper.

Ladders must be provided in trenches four feet or deeper:

- Ladders must extend three feet above the surface and be secured top and bottom.
- Employees should not have to travel more than 25 feet to reach the ladder.
- Ramps or runways may be used in place of a ladder.

Ramps or runways that expose employees to a fall six feet or greater must have standard guardrails:

- The ramp or runway must be at least 18 inches wide.
- A competent person qualified in structural design must design structural ramps used for equipment traffic.

All excavated soil must be kept at least two feet from the edge of the excavation.

Employees exposed to vehicle traffic must wear an orange safety vest. Employees are not permitted underneath loads by lifting or digging equipment. Another employee must direct equipment operators that do not have a direct view of the edge or a warning system must be used.

Excavations where water is present, must be dewatered before work begins and continuously, if necessary, to prevent water accumulation. Where a hazardous atmosphere exists or could reasonably be expected to exist, such as excavations in landfills or where hazardous substances are stored nearby, the air shall be tested before entering the excavation.

Employees entering bell-bottom pier holes or other similar deeper confined footing excavations will wear a lifeline and harness. The line will be separate from any line used to handle materials.

Utilities

All overhead power lines must be marked with signs where excavating equipment and trucks will be operating.

Underground utilities in open excavations must be protected, supported or removed, as necessary, to protect employees.

All underground utility companies must be contacted to locate the exact location of their utilities.

ONECALL Service and Private Locators

Call 48 hours prior to the start of work. The National ONE CALL number is 811. Keep a copy of a call log; use it to show all updates and additional marking requests. According to the code, the accuracy of the markings is within 18 inches either side of the marks, not three feet as is sometimes quoted by the locator. ONE CALL locators do not always mark utilities on private property. Therefore, a private locator must be utilized.

Soil Classification

All soils must be classified in order to select the proper protective system. At least one visual and manual test must be performed.

Visual Test:

Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.

Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.

Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spill off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.

Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures and to identify previous disturbed soil.

Observe the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.

Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.

Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

Manual Test

Plasticity Test:

Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8 inch in diameter. Cohesive soil can be successfully rolled into threads without crumbling. If at least a 2-inch length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.

Dry Strength:

Fissured clay, when dry, falls into clumps that break up into smaller clumps on its own or with some force. These smaller clumps, though, are hard to break up.

Unfissured soil, when dry, can be broken up into clumps that do not break into smaller clumps with pressure. The soil can only be broken with great difficulty. There are also no signs of fissuring on the trench wall or around the area adjacent to the trench.

Granular (silty or sandy) soil, when dry, crumbles on its own or with some force into individual grains or fine soil.

Thumb Penetration:

The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils (ASTM Standard Test D 2488). This test should be conducted on an undisturbed soil sample (such as the trench face or a large clump or soil) as soon as practical after excavating to reduce the chance of air-drying the sample. If later the trench is exposed to moisture the soil classification must also be changed. Type A soils (with a minimum unconfined compressive strength of 1.5 tons per square foot) can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort.

Other Strength Tests:

Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated sheervane.

Protective Systems

Protective systems must be provided for all excavations/trenches five feet or deeper or where there is a potential for cave-ins. A trench box can only be a maximum of two feet off the bottom of the trench. If sloping and/or benching is chosen as the protective system, the OSHA Standard must be followed based on the type of soil.

If aluminum shoring is chosen as the protective system, the OSHA Standard must be followed based on the type of soil. Any timber shoring protective system must be designed by a registered P.E. All excavations over 20 feet deep must be designed by a registered P.E.

Use of any sheet piling, Z piling or H piling used in conjunction with shielding or shoring, must be designed by a P.E. or used in conjunction with tabulated data approved by the manufacturer or a P.E. All modifications or repairs to protective systems must have written approval from the manufacturer or a registered P.E.

Inspections

Prior to the start of each shift, and as needed throughout an excavation activity, the excavation, adjacent area, and protective systems shall be inspected by a competent person. The competent person should be looking for evidence of a situation that could result in possible cave-ins, failure of the protective system, hazardous atmospheres, or other hazardous conditions. Inspection shall be made after every rainstorm or other hazard increasing event if employee exposure is reasonably anticipated.

During inspection, if the competent person finds evidence of a situation that could result in a possible cave-in, failure of the protective system, hazardous atmosphere, or other hazardous condition, all exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

Confined Spaces

Activities involving the entry to both non-permit and permit required confined spaces will be performed on a site-specific basis. The work will be performed under a confined space program that is specifically developed for that jobsite meeting the requirements of OSHA 1910.146.

FALL PROTECTION PROGRAM

Purpose

The purpose of this program is to implement fall protection and fall arrest systems to protect co-workers working six feet or more above lower levels.

Training

All co-workers exposed to fall hazards will be thoroughly trained before commencing work. Training will include, but is not limited to, the following items:

- The nature of the fall hazards in the work area
- The correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems
- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, controlled access zones, and other protection to be used.
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.
- The role of employees in a fall protection plan

Co-workers who have not been trained in the proper use, erection, inspection and procedures for fall protection and fall arrest systems are not permitted to use these systems.

Any changes in the type of fall protection being used, or lack of understanding of the equipment use, will indicate that retraining of co-workers is necessary.

NOTE: Reference Appendix I. for the Working at Heights Training Program

Guardrail Systems

When guardrail systems are used to protect co-workers exposed to a fall greater than six feet or more above lower working surfaces, guardrail systems and their use must comply with the following requirements:

- Top rails shall be 42 inches, plus or minus three inches, above the walking/working surface.
- Mid rails shall be installed midway between the top rail and the walking/working surface, at least 21 inches high
- Screens and mesh when used for falling debris protection shall extend from the top rail to the walking/working level and along the entire opening between top rail supports.

- Top rails shall be capable of withstanding, without failure, a force of at least 200 pounds in any outward or downward direction. When a 200lb load is applied the top edge of the guardrail shall not deflect less than 39 inches above the walking/working level.
- Mid rails shall be capable of withstanding, without failure, a force of at least 150 pounds in an outward and downward direction.
- Guardrail systems must be surfaced to prevent lacerations or punctures and to prevent clothing from snagging. The ends of top rails and mid rails shall not overhang beyond the terminal posts except where such overhang does not constitute a projection hazard.
- If wire cable is used as a top rail, it must be flagged at least every six feet with high visibility materials. Wire rope used as a top rail must be at least one quarter inch. Steel and plastic banding shall not be used as top rails or mid rails.
- When guardrail systems are used at a hoisting area, a chain, gate, or removeable section of guardrail shall be placed across the access opening when hoisting operations are not taking place.
- When guardrail systems are used to protect co-workers from holes in walking/working surfaces they shall be erected on all unprotected sides or edges of the hole. If the hole is used as an access point, the guardrail shall be provided with a gate or offset handrail to prevent co-workers walking directly into the hole.

Protection from Falling Objects

Toe boards must be erected along the edge of overhead walking/working surfaces when co-workers are exposed below to falling objects.

Toe boards must be able to withstand, without failure, a downward or outward force of 50 pounds at any point along the toe boards. Toe boards must be a minimum of 3 ½ inches in vertical height. Toe boards must have no more than ¼ inch clearance above the walking/working surface.

Where tools, equipment or other materials are piled higher than the toe board, paneling or screens must be erected to the top of the mid rail or top rail of the guardrail system, depending on the height of the material being stored.

Personal Fall Arrest Systems

Personal fall arrest systems are designed to catch a co-worker once he/she has fallen. Fall arrest does not prevent the fall, but rather control it by limiting it. Anchorage points are where fall arrest, fall prevention or positioning devices are attached. Fall arrest anchorage points must be able to withstand 5,000 pounds, or as part of a complete fall arrest system designed by a qualified person to meet a safety factor of two times.

A co-worker is not permitted to free-fall more than six feet before a fall arrest system activates or contact a lower level. Therefore, anchorage points should be strategically placed at least at shoulder height to



limit the actual free-fall distance. Personal fall arrest systems and components that have been subjected to impact loading must be immediately tagged out of service.

Personal fall arrest systems must not be attached to guardrail systems or attached to hoist systems, unless they are designed for that purpose.

Connectors must be dropforged, pressed or formed steel or made of equivalent materials. Connectors must be corrosion resistant and all edges shall be smooth. Snap hooks must be compatible with the member to which they are connected. All snap hooks must be of the double locking type.

NOTE: For a list of approved fall protection equipment, reference the latest version of the Buyers Guide. If there is a special request for a model not listed within the current Buyers Guide, contact the safety team for approval before purchasing.

Safety Monitoring System

A safety monitoring system is not acceptable unless there is no method for a guardrail or fall arrest system. It is assumed that there is a method, therefore a safety monitoring system is not permitted.

Controlled Access Zone

Leading Edge Work:

A leading edge is defined as the edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes locations as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Co-workers who are engaged in the construction of a leading edge that is six feet or more above lower levels shall be protected from falling by personal fall arrest systems. Co-workers who are not engaged in the leading-edge work shall be protected from falling by guardrail systems or personal fall arrest systems. When a guardrail is used to provide fall protection to co-workers not engaged in the construction of a leading edge, and a controlled access zone (CAZ) has been established for leading edge work, the control line may be used in lieu of a guardrail along the edge that parallels the leading edge. The control line to restrict access to leading edge work must meet the following requirements:

- The control line must be erected not less than 6 feet nor more than 25 feet from the leading edge
- The control line must extend along the entire length of the leading edge and shall be approximately parallel to the leading edge. The control line must be connected on each side to a guardrail system or wall
- The control line must be a hard barricade that consists of, at a minimum, a top rail 42 inches, plus or minus three inches, above the walking/working surface, supported by stanchions such that the hard barricade can withstand 200lb. No flagging, danger tape, wire, or rope can be used for the control line.
- Appropriate signage informing co-workers that a personal fall arrest system is required beyond the control line to the CAZ

- Access to the leading edge must be protected via a coral or gate system. This must be closed off when leading edge work is not occurring and at the end of each shift.
- Ensure there is a plan in place for co-workers to tie off before entering the CAZ, such as utilizing a rope to retrieve the connector of the self-retracting lifeline. Attaching the connector directly to the hard barricade at the entrance to the CAZ, leaving the self-retracting lifeline extended, is not permitted.

Protection of co-workers from fall hazards involved and not involved in leading edge activities must be addressed daily in the DPP, as conditions within the work area change and the location of the leading-edge moves.

Stripping Operations:

When conducting stripping operations of a recently poured elevated deck, it may be necessary to temporarily remove the perimeter guardrail system to strip, clean, and fly formwork on the floor below the recently poured elevated deck. When dropping the perimeter guardrail system to strip, clean, and fly formwork, a CAZ must be established before any perimeter guardrail is removed. The following requirements must be followed when creating a CAZ to remove perimeter guardrail to allow elevated deck stripping operations. The same requirements shall be followed when utilizing an outrigger to fly material from:

- The control line must be erected not less than 6 feet nor more than 25 feet from the location of the unprotected edge.
- The control line must extend along the entire length of the CAZ. The control line must be connected on each side to a guardrail system or wall.
- The control line must consist of, at a minimum, reinforced danger tape with a minimum breaking strength of 200lb or better and be supported in such a way that at its lowest point is not less than 39 inches, nor more than 45 inches above the walking/working surface.
- Appropriate signage informing co-workers that a personal fall arrest system is required beyond the control line to the CAZ
- Co-workers must utilize their approved personal fall protection equipment attached to an approved anchor point before removing the perimeter guardrail, while conducting the stripping operation with the perimeter guardrail down, and while reinstalling the perimeter guardrail.
- Always double check the perimeter guardrail is installed correctly and meets the required specifications for a guardrail system before removing personal fall arrest equipment and the CAZ.

Protection of co-workers from fall hazards involved and not involved in elevated deck stripping activities must be addressed daily in the DPP, as conditions within the work area change and the location of the unprotected edge changes.

Hole Covers

As defined by OSHA a hole is any gap or void 2 inches or more in its least dimension in a floor, roof, or other walking/working surface. When covers are used for protection of holes in floors, roofs, and other walking/working surfaces the following requirements must be met:

- All covers shall be marked with the word "HOLE" or "COVER" to provide warning of the hazard.
- Covers that are located in roadways or vehicular aisle areas shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross the cover
- All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment and materials that may be imposed on the cover at any one time.
- All covers shall be secured when installed to prevent accidental displacement by the wind, equipment or employees.

Wall Openings

Co-workers working on or near wall openings six feet or more above lower levels where the bottom edge is less than 39 inches above the walking/working surface, must be protected from falling by guardrails or personal fall arrest systems.

Hoist Areas

All co-workers in a hoist area must be protected from falling six feet or more to lower levels by guardrails or personal fall arrest systems.

Ramps, Runways, and Other Walkways

Co-workers on ramps, runways or walkways must be protected from falling six feet or more to lower levels by guardrail systems.

Ramps, runways or walkways over dangerous equipment, regardless of height, must be equipped with a guardrail system or equipment guards.

STAIRWAYS AND LADDERS

General Requirements

A stairway, ladder, or steps must be provided at all personnel points of access where there is a change in elevation of more than 19 inches.

A double cleated ladder or two or more separate ladders shall be provided when ladders are the only means of access or exit from a working area of 25 or more employees, or when a ladder is to serve as simultaneous two-way traffic. 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.

Do not work off a ladder where the midpoint of the body must extend beyond the siderails. Always face the ladder when ascending and descending and have at least three points of contact (i.e., two feet - one hand). Do not carry tools or materials in hands when climbing ladders. Never move or shift a ladder while in use.

Never use metal ladders near electrical sources. All ladders must be kept free of oil, grease or other slipping hazards. All ladders must have slip-resistant feet and rungs. Do not paint or coat ladders with any opaque covering. Ladders used in areas such as passageways, doorways, driveways, etc. must be secured and/or the area barricaded. Warning signs should also be posted or a spotter in the area.

All ladders that are used to access an upper surface must extend at least three feet above the landing and be secured both top and bottom. A corral or gate must be installed at the top of the ladder to ensure no co-worker accidentally walks through the opening. A rope must be located near the ladder to allow for the safe hoisting and lowering of tools.

Job-Built Ladders

All job made ladders shall meet the requirements set forth by ANSI A14.4-2009. In particular construction grade lumber shall be used for all components and the overall length of the ladder should not exceed 24 feet.

Extension Ladders

The ladder's base should be placed $\frac{1}{4}$ the distance away from the top. Come out one foot for every four feet of rise. Do not work off the top three rungs of the ladder.

Extension ladders should not be taken apart and used separately.

Step Ladders

The top or top step of a step ladder must not be used as a step or seat. Step ladders must not be used as a leaning ladder unless it was designed for that purpose. Step ladders must be fully opened, and spreaders locked before use. The rear section of a step ladder cannot be used for climbing or standing unless it was designed for that purpose.

Ladder Inspection

Always inspect ladders before use. Ladders must be inspected by a competent person for structural defects such as broken or missing rungs, broken or split rails, and/or corrosion. Ensure that the ladder has slip resistant feet. Inspect extension locks on extension ladders to ensure they are in good condition.

All damaged ladders must be removed from service immediately and marked "DO NOT USE" or other means to prevent the ladder from being used.

Training

Basic ladder safety training will be accomplished through daily DPP meetings and OATs, but job/task specific training is also required for the following topics:

- The nature of fall hazards in the work area.
- The correct procedures for erecting, maintaining and disassembling fall protection systems, if required.
- The proper construction, use, placement and care in handling ladders.
- The maximum intended capacities of ladders.

Retraining will be provided, as necessary, to ensure that employees understand how to work safely with ladders.

SCAFFOLD SAFETY

Definitions

Scaffold – Any temporary elevated platform and its supporting structure, used for supporting Co-workers, material or both.

Competent Person – One who is capable of identifying existing and predictable hazards in the surroundings, or work conditions that are unsanitary, hazardous, or dangerous to Co-workers and who has authorization to take prompt corrective measures to eliminate them.

Qualified Person – One who, by possession of a recognized degree, certificate or professional standing, or by extensive knowledge, training and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

General

Scaffolds must be erected, moved, dismantled or altered only under the supervision and direction of a “competent person” qualified in scaffold erection, moving, dismantling or alteration. Scaffold and scaffold components must be capable of supporting, without failure, their own weight and at least four times the maximum intended load.

The stall load of any scaffold hoist must not exceed three times its rated load. Scaffolds must be designed by a qualified person and must be constructed and loaded in accordance with that design.

A site-specific fall protection plan will be developed for the use of suspension scaffolds. Work on suspension scaffolds will be carried in accordance with OSHA 1926.451.

Scaffold Platform Construction

Each platform on all working levels of scaffolds must be fully planked or decked between the front uprights and the guardrail supports. Platforms used solely by co-workers during the erection/dismantling phases do not have to be fully decked, however co-workers must utilize a personal fall arrest system and remain tied off 100% to an approved tie off point when working 6 feet or more above a lower walking/working surface.

Scaffold planks must be installed so that the space between other planks and the uprights is no more than one inch wide. Each scaffold walkway must be at least 18 inches wide. The front edge of all platforms must not be more than 14 inches from the face of the work, unless guardrail systems are erected along the front edge and/or personal fall arrest systems are used.

Scaffold planks must extend over the centerline of its support at least six inches, unless cleated or otherwise restrained by hooks or equivalent means. Each end of a platform (including OSHA planks) ten feet or less in length must not extend over its supports more than 12 inches. Each platform greater than ten feet (including OSHA planks) must not extend over its support more than 18 inches, unless otherwise designated.

On scaffolds where platforms are overlapping to create a long platform, including the overlapping of OSHA planks, the overlap must occur only over supports, and must not be less than 12 inches unless the platforms are nailed together or otherwise restrained to prevent movement.

At all points of a scaffold where the platform changes direction, any platform that rests on a bearer at an angle other than a right angle must be laid first, and platforms which rest at right angles over the same bearer must be laid second. Wood platforms must not be covered with paint.

Scaffold components manufactured by different manufacturers shall not be mixed and used together. Components manufactured by different manufacturers shall not be modified in order to fit with other manufacturers components.

Criteria for Supported Scaffolds

Supported scaffolds with a height to base width ratio of more than four to one (4:1) must be restrained from tipping by guying, tying, bracing or equivalent means.

Guys, ties and braces must be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the four to one height and be repeated vertically at locations of horizontal member every 20 feet or less thereafter for scaffolds three feet wide or less, and every 26 feet or less thereafter for scaffolds greater than three feet wide.

The top guy, tie or brace or completed scaffolds must be placed no further than four to one height from the top. Such guys, ties and braces must be installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet.

Supported scaffold poles, legs, posts, frames and uprights must bear on base plates, mudsills or other adequate firm foundations. Baseplates or casters are required for all scaffolds at all times. Supported scaffold poles, legs, posts, frames and uprights must be plumb and braced to prevent swaying and displacement.

A front-end loaders, forklifts, or similar piece of equipment must never be used to support a scaffold platform.

Access

When scaffold platforms are more than two feet above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers, ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface must be used. Portable, hook-on, and attachable ladders shall meet the following requirements:

- Must be positioned so as not to tip the scaffold.
- Must be positioned so that their bottom rung is not more than 24 inches above the scaffold supporting level.
- When hook-on and attachable ladders are used on a supported scaffold more than 35 feet high, they must have rest platforms at 35-foot maximum vertical intervals.

- Must be specifically designed for use with the type of scaffold used.
- Must have a minimum rung length of 11 ½ inches with a uniform spacing of rungs no greater than 16 ¾ inches apart

Stairway type ladders must meet the following requirements:

- Must be positioned such that their bottom step is not more than 24 inches above the scaffold supporting level.
- A stair rail consisting of a top rail and a mid-rail must be provided on each side of each scaffold stairway.
- The top rail of each stairwell system must also be capable of serving as a handrail, unless a separate handrail is provided.
- Handrails and top rails that serve as handrails, must provide an adequate handhold for co-workers grasping them to avoid falling.
- Stair rail systems and handrails must be surfaced to prevent injury to co-workers from punctures or lacerations and to prevent snagging of clothing.
- The ends of stair rail systems and handrails must be constructed so that they do not constitute a projection hazard.
- Stair rails must not be less than 28 inches nor more than 37 inches from the upper surface of the stair rail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
- A landing platform at least 18 inches wide must be provided at each level.
- Guardrails meeting the standard's requirements must be provided on the open sides and ends of each landing.
- Riser height and tread depth shall be uniform, within 1/4 inch, for each flight of stairs.

Cross bracing must never be used as a means of access to upper levels of scaffolding.

Ramps and walkways six feet or more above lower levels must have a guardrail system that complies with OSHA's Subpart M for fall protection.

If the slope of a ramp or a walkway is steeper than one vertical in eight horizontal, the ramp or walkway must have cleats not more than 14 inches apart that are securely fastened to the planks to provide footing.

Scaffold Use

Scaffolds and scaffold components must not be loaded in excess of their maximum intended loads or rated capacities, whichever is less. The use of shore or lean-to scaffolds is prohibited.

A "competent person" before each work shift and after any occurrence that could affect a scaffold's structural integrity must inspect scaffolds and scaffold components for visible defects. Inspection records shall be maintained on a tag affixed to the base of the scaffold visible to co-workers. Any part of a scaffold damaged or weakened so that its strength is less than that required by this standard must be immediately repaired or replaced, braced to meet those provisions, or removed from service until repaired.

Scaffolds must not be moved horizontally while co-workers are on them, unless they have been designed by a registered professional engineer specifically for such movement.

Scaffolds must be at least 10 feet away from power lines. Additional distance is required for power lines over 50kV. This includes an increase of 0.4 inches for each 1kV over 50kV

Co-workers are prohibited from working on scaffolds with snow, ice or other slippery material present, except as necessary for removal of such materials. Work on scaffolds is prohibited during storms or high winds unless a "competent person" has determined that it is safe for co-workers to be on the scaffold and those co-workers are protected by a personal fall arrest system or wind screens. Windscreens must not be used unless the scaffold is secured against the anticipated wind forces imposed.

Debris must not be allowed to accumulate on platforms. Ladders, boxes, barrels, or other makeshift devices shall not be used on scaffolds to gain height under any circumstance.

Fall Protection

Each co-worker on a scaffold more than six feet above a lower level must be protected from falling to that lower level by use of a guardrail system or personal fall arrest system. The competent person must determine the feasibility and safety of providing fall protection for co-workers erecting or dismantling supported scaffolds.

Guardrails used for fall protection must meet the requirements as outlined in the "Guardrail Systems" section of the Fall Protection Program and shall be installed along all open sides and ends of platforms. Guardrail systems must be installed before the scaffold is released for use for other co-workers other than the erection/dismantling crew.

Cross bracing is acceptable in the place of a mid-rail when the crossing point of the two braces is between 20 inches and 30 inches above the work platform or as a top rail when the crossing point of the two braces is between 38 inches and 48 inches above the work platform. The end points at each upright must be no more than 48 inches apart.

Scaffolds equipped with material access gates must be kept closed at all times unless material is being supplied.

Falling Object Protection

In addition to wearing hard hats, each co-worker on a scaffold must be provided with additional protection from falling hand tools, debris and other small objects through the installation of toe boards, screens, or guardrail systems, or through the erection of debris nets, catch platforms or canopy structures that contain or deflect the falling objects.

Where there is danger of tools, material or equipment falling from scaffold and striking co-workers below, the following provisions apply:

- The area below the scaffold to which objects can fall must be barricaded and co-workers must not be permitted to enter the hazard area.
- A toe board must be erected along the edge of platforms more than six feet above lower levels for a distance sufficient to protect co-workers below.

Where tools, materials or equipment are piled to a height higher than the top edge of the toe board, paneling or screening extended from the toe board or platform for a distance sufficient to protect Co-workers below.

A canopy structure, debris net or catch platform strong enough to withstand impact forces of the potential falling objects must be erected over co-workers below, when necessary.

Mobile Scaffolds

Mobile scaffolds shall be braced by cross, horizontal, or diagonal braces, or a combination, per the manufacturer's recommendations, to prevent the racking or collapse of the scaffold and to secure vertical members together.

Scaffold casters and wheels must be locked with positive wheel and/or wheel swivel locks to prevent the movement of the scaffold while the scaffold is being used in stationary manor. Wheels shall be pinned or otherwise secured to the scaffold's legs. Co-workers are not permitted to be on the scaffold while it is being moved unless specifically allowed by manufacturer or designer.

The height to base width ratio must not exceed 2:1 unless it is braced with outrigger frames on both sides of the scaffold. All mobile scaffolds must be complete with a full guardrail system that meets the standard guardrail requirements.

Training

Co-workers who perform work while on a scaffold will be trained by a qualified person to recognize hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training will include the following as applicable:

- The nature of any electrical hazards, fall hazards and falling object hazards in the work area
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used

- The proper use of the scaffold, and the proper handling of materials on the scaffold
- The maximum intended load and the load-carrying capacities of the scaffolds used
- Any other requirements of the scaffold program

Co-workers who are involved in erecting, disassembling, moving, operating, repairing, inspecting, and maintaining a scaffold system will be trained by a competent person to recognize any hazards associated with the work in question. The training will include the following as applicable:

- The nature of scaffold hazards
- The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question
- The design criteria, maximum intended load-carrying capacity and intended use of the scaffold
- Any other requirements of the scaffold program

General elements of scaffold training will be covered as part of the Working at Heights Training program. Daily DPP meetings and OATs, will be used to further train co-workers who are involved with erecting, disassembling, moving, operating, repairing, inspecting, and maintaining a scaffold system as well as co-workers who are performing work from scaffolds. Training will be done on a case-by-case basis specific to the scaffolding system being used the jobsite.

When it is observed that a co-worker has a lack of skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the co-worker will receive retraining until they can demonstrate proficiency in the subject matter has been achieved.

CONCRETE, FORMS, AND SHORING

General Requirements

Do not place construction loads on a concrete structure or a portion of a concrete structure unless it has been determined that the structure or portion of the structure is capable of supporting the intended loads. The determination must be based on information received from a person who is qualified in structural design.

Reinforcing Steel/Steel Form Pins:

- Guard all protruding reinforcing steel onto and into which co-workers could fall to eliminate the hazard of impalement.
- Unreinforced mushroom style rebar caps cannot be used for protection against impalement. Protective devices capable of withstanding 250 pounds from a height of ten feet should be used (reinforced caps and 2 x 4's).
- Mushroom rebar caps are appropriate to prevent cuts, abrasions or other minor injuries when there is no impalement hazard.

Post-Tension Operations:

- Only co-workers trained in post-tensioning operations shall conduct the stressing operation.
- Only co-workers essential to the post-tensioning operation should be allowed in the stressing area. No co-workers will be allowed behind the jack during tensioning operations.
- Erect signs and barriers to limit access to the post-tensioning area during tensioning operations.

Co-workers are not permitted to ride a concrete bucket. Co-workers are not permitted to work under concrete buckets while buckets are being elevated or lowered into positions.

Co-workers are not permitted to apply a cement, sand and water mixture through a pneumatic hose unless the co-worker is wearing appropriate protective head and face protection.

Equipment and Tools

Concrete mixers must have guards to prevent contact with paddles and all other moving parts.

Manually guided powered and rotating type concrete troweling machines must have a control switch that automatically shuts off the power whenever the operator's hands are removed from the equipment. The trowels must be guarded to prevent contact.

Concrete buggy handles must not extend beyond either side of the buggy's wheels.

Compressed air hoses used on concrete pumping systems must have positive fail-safe joint connectors to prevent separation of sections when pressurized.

Concrete buckets equipped with hydraulic or pneumatic gates must have positive safety latches or similar safety devices installed to prevent premature or accidental dumping.

In addition to the regular couplings or connections, secure tremies and similar concrete conveyances with wire rope or the equivalent materials.

Bull float handles must be constructed of nonconductive material or insulated with a nonconductive sheath whose electrical and mechanical characteristics provide the equivalent protection of a handle constructed of nonconductive material when used where they might come into contact with energized conductors.

Cast-in-Place Concrete

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.

All drawings or plans must be available at the jobsite. This includes revisions for jack layout, formwork (including shoring equipment), working decks and scaffolds.

Shoring and Reshoring:

- Inspect all shoring equipment prior to erection to determine whether the equipment meets the requirements specified in the formwork drawings.
- Do not use shoring equipment that is damaged.
- Inspect erected shoring equipment:
 - Immediately prior to concrete placement
 - During concrete placement
 - Immediately after concrete placement.
- Immediately reinforce shoring equipment that is found to be damaged or weakened after erection.
- Shoring sills must be sound, rigid and capable of carrying the maximum intended load.
- All base plates, shore heads, extension devices and adjustment screws must be in firm contact and secured when necessary with the foundation and the form.
- If single-post shores are used one on top of another, then additional shoring requirements must be met. The shores must be:
 - Designed by a qualified designer and the erected shoring inspected by an engineer qualified in structural design.

- Vertically aligned.
 - Spliced to prevent misalignment.
 - Adequately braced in two mutually perpendicular directions at the splice level. Each tier must also be diagonally braced in the same two directions.
 - Do not adjust the single-post shores to raise formwork after the placement of concrete. Whenever the concrete is required to support loads in excess of its capacity, reshoring must be erected as the original forms and shores are removed.
- Adequately support reinforcing steel walls, piers, columns and similar vertical structures 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.

Prior to placing concrete, a competent person must complete a pre-pour formwork inspection. An inspection by a qualified person is also required for the first pour of a project, unique pours, and intermittently on multiple level structures.

Pre-Cast Concrete

Precast concrete wall units, structural framing and tilt-up wall panels must be adequately supported to prevent overturning and collapse until permanent connections are completed.

Lifting inserts embedded or attached to tilt-up precast concrete members must be capable of supporting two times the maximum intended load applied or transmitted to them.

Other precast concrete members (non tilt-up) must be capable of supporting four times the maximum intended load applied or transmitted to them.

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

Only co-workers required for the erection of the precast concrete members can be in the area of erection or tilt-up.



SAFE OPERATION OF EQUIPMENT

Purpose

The purpose of this policy is to implement effective safety procedures for the operation of vehicles and equipment on projects. OSHA has regulations under 1926, Subparts O and W, outlining requirements for construction sites.

Responsibilities

It is the Leads responsibility for following this policy and correcting all items that are not in compliance with the policy. Co-workers are responsible for the equipment or vehicles they operate. All maintenance that must be performed should be reported to the Lead on the project.

Motor Vehicles

All motor vehicles must be maintained in operable condition. This includes all brakes, lights, back up alarms and horns. Non-operable items are to be corrected before vehicle is put in operation.

Back-Up Alarms

When the operator/driver has an obstructed view to the rear, the equipment or vehicle must have a reverse signal audible alarm that can be heard above the surrounding noise level. If the alarm breaks down, the equipment or vehicle must be taken out of service. This applies to all equipment and vehicles including owned, leased, brokered, etc. It also applies to all earth moving equipment.

Authorized Operators

Only trained co-workers are permitted to operate forklifts and aerial lifts. Co-workers must successfully complete equipment operator training for that piece of equipment. These programs include a theory portion followed by a written exam and hands on training.

Co-workers with medical conditions such as dizziness or seizures shall not operate equipment unless approved by a medical physician.

NOTE: Reference Appendix J. for the Forklift Training Program

NOTE: Reference Appendix K. for the Aerial Lift Training Program

Work Area

Co-workers must always be aware of operating clearances, heights and ground widths. Before operating co-workers should always inspect the travel area for holes, obstacles, and other obstructions.

Operators must maintain a safe distance from electrical power lines. Co-workers are not permitted to operate equipment within ten feet of electrical power lines unless they are de-energized and grounded and adequately protected by the utility owner. The utility owner must verify grounding and de-energizing. Additional requirements for power lines over 50 KV must be followed.

Never operate aerial lifts in thunderstorms or winds that are in excess of the manufacturers recommended operating tolerances.



Ground personnel must keep well clear of equipment while the piece of equipment is operating. Equipment should never operate when there is a chance a co-worker on the ground can get caught between the machine and a stationary object. Operators must also be aware of the direction of travel. When circumstances require, a spotter shall be used to spot and direction the movement of equipment.

Equipment Operations

Before operating equipment, all operators shall ensure all proper PPE and if required, fall protection devices are used inspected, installed and working properly.

Never exceed the rated capacity of the piece of equipment. Under no circumstance shall an aerial lift be used as a rigging and lifting device.

Before operating a piece of equipment, the equipment must be inspected to ensure it is safe to use and functioning properly. If a piece of equipment has been taken out of service and needs repair, it must not be operated under any circumstance.

Shutting Down Equipment

Shut off all controls and remove the key to prevent unauthorized use of the equipment. Dismount the unit on ground level maintaining three points of contact.

Equipment Parking

Park equipment on firm and level surfaces when possible.

Traffic Patterns on Site

Site specific traffic patterns should be reviewed with Co-workers who are driving on site. This might include haul road patterns, right-of-way rules, berms, etc.

Rollover Protection Structure (ROPS)

Equipment that does not have a rollover protection structure should not be operated on slopes.

Seatbelts

Co-workers operating vehicles and equipment that have rollover protection must wear the seatbelt. If the seat belt is broken or does not fit, notify your Lead.

Material Handling

Forklifts must have the rated capacity posted in an area that can be easily seen by the operator. Load charts must be in the operator's cab. Overhead protection must be provided if loads are lifted over the cab.



CRANE SAFETY

Responsibilities

The project team must determine the proper size crane that is needed for the project. They must also make sure the crane is used properly.

The safety team will monitor the use of cranes on projects through site observations.

The crane operator has responsibility to know the safe working loads of the crane. The operator has the final decision to make a pick.

General Requirements

Inspections:

An annual third-party inspection must be completed, and report obtained that confirms the crane meets the manufacturers inspection criteria before any crane is permitted to operate on the jobsite. Thereafter daily inspections are to be completed by a competent person and documented. Any changes to the crane's configuration while on the jobsite, such as but not limited to "jumping" of a tower crane, will require re-inspection by an independent third-party company. Inspections must also include the wire rope, its attachments, fittings, sheaves and safety devices according to the manufacturer's recommendations

Operator Certification:

All operators must be certified by an accredited testing organization. Currently four accredited organizations offer crane operator certifications. These include the National Commission for the Certification of Crane Operators (NCCCO), the Crane Institute of America Certification (CIC); the Operating Engineers Certification Program (OECF); and the National Center for Construction Education and Research (NCCER).

Critical Lift:

Any pick that exceeds 75% of the cranes capacity or pick that requires more than one crane will be defined as a critical lift. When a pick is determined to be a critical lift, a critical lift plan shall be developed as part of the site-specific safety plan and the following shall be addressed before making the critical lift pick:

- Crane configurations and position
- Environmental and ground conditions
- Load radius, size and weight
- Personnel involved and their qualifications/experience
- Plans for hoisting personal and rig
- Communication procedures
- Weather conditions



A critical lift pre-planning meeting shall occur before the critical lift is made in the field to discuss the critical lift plan, a contingency plan if something goes wrong, and the emergency action plan.

Crane Movement:

Movement of a mobile crane while on site shall be in accordance with the manufacturer's recommendations.

Weather Conditions:

When wind speed, either sustained or gusts, exceeds 20mph a competent person must evaluate the task and safe operation of the crane. If the conditions are not safe the lifting operation must not commence, or if the lifting operations have commenced, they must be terminated. A crane shall not operate outside of its manufacturers recommended wind limitation.

Swing Radius:

The swing radius of a crane is considered an extremely dangerous risk to struck by/caught in between injuries to employees. To eliminate the risk of these severe injuries, co-workers will be trained in recognition of swing radius hazards though daily DPP meetings and OATs. Control lines must be erected and maintained to mark the boundaries of the hazardous area created by the swing radius of the cranes counterweight.

Qualified Rigger:

A qualified rigger that has completed the rigging and signaling training program must inspect the rigging prior to each use. Refer to the Rigging Safety section for additional information on safe rigging practices.

Power Lines:

Cranes shall not be installed or operated if any part of the equipment, load line or load (including rigging and accessories), while operating to the cranes maximum working radius, could get closer than 20 feet to a power line. Exceptions to this are if OSHA 1926.1408(a)(2) are followed.

Ground Conditions:

Cranes must not be assembled or operated unless ground conditions are firm, drained, and graded to a sufficient extent such that, in conjunction with supporting materials such as outrigger pads, the equipment manufacturers specifications for adequate support and degree of level of the equipment are met.

Rigging and Signaling Training:

Co-workers must successfully complete the Rigging and Signaling training before engaging in any activities that require the co-worker to rig loads or signal the crane. Documentation is available on site that specifies that type of signaling the qualified rigger and signaler is trained in.

NOTE: Reference Appendix L. for the Rigging and Signaling Training Program



RIGGING SAFETY

Definitions

Birdcaging - When wire rope strands separate away from the wire rope center.

Lay - The length along the rope which one strand uses to make one complete spiral around the rope center.

Strands - The strand is multiple round or shaped wire that are spiral laid around a center in one or more layers.

Responsibilities

Leads have the overall responsibility to ensure that safe rigging practices are followed on their project sites. Leads shall make sure safe rigging is supplied for material handling and that damaged or defective equipment is removed from service immediately.

The safety team will conduct frequent safety observations of the work sites to ensure that safe rigging practices are followed.

General Requirements

Rigging equipment for material handling shall be inspected prior to each use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service immediately.

Rigging equipment shall not be overloaded in excess of the recommended safe working load. Safe working loads can be determined by use of the identification and capacity tag attached to the rigging equipment.

If capacity tags are not legible or not intact, the rigging equipment shall be removed from service immediately.

Special lifting hooks, grabs, clamps and other lifting accessories made for specific units such as gang forms, panels, pre-cast concrete, etc. must be marked to indicate the safe working loads and shall be proof tested prior to use to 125 percent of their rated load.

The policies apply to slings used with other material handling equipment, such as shackles, welding links, pear rings, eyebolts, etc. The types of slings covered are alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope and nylon, polyester and polypropylene synthetic web slings.

All rigging equipment that has been removed from service due to damage, shall be discarded immediately. If possible, cut the rigging into pieces to avoid future problems.

All employees who rig loads must have successfully completed the Rigging and Signaling training. Only trained employees are allowed to rig loads and must inspect all components of the rigging prior to rigging up the load. All loads must be hoisted with taglines attached to allow co-workers to control

swinging loads. Taglines shall be a non-conductive material, must be free of knots and also shall be inspected before each use.

Alloy Steel Chains

Alloy steel chain slings used for lifting must have permanently affixed durable identification tag stating size, grade, rated capacity and sling manufacturer. Hooks, rings, oblong links, pear-shaped links, welded or mechanical coupling links, or other attachments, when used with alloy steel chains, shall have a rated capacity at least equal to that of the chain.

Job made or shop hooks and links or makeshift fasteners formed from rebar, bolts, rods, etc., or other such attachments, shall not be used.

Only Grade 80 or better alloy steel chain shall be used for material handling and lifting. Log chains and tie-down chains shall not be used for material handling and lifting. All chains that have been removed from service due to damage, shall not be used for towing or dragging purposes.

Inspections:

A thorough periodic inspection of alloy steel chain slings in use shall be made on a regular basis to be determined on the basis of:

- Frequency of sling use.
- Severity of service conditions.
- Nature of lifts being made.
- Experience gained on the service life of slings used in similar circumstances.

Such inspections shall in no event be at intervals greater than once every 12 months. Records of the most recent month in which each alloy steel chain sling was thoroughly inspected shall be documented and made available for examination. Lifting chains must be visually inspected prior to each use.

Wire Rope

The manufactures safe working load limits must be followed at all times. If a wire rope sling is missing its identification tag it must be removed from service. Protruding ends of strands in splices on slings and bridles shall be covered or blunted. Wire rope shall not be secured by knots.

The following limitations shall apply to the use of wire rope:

- An eye splice made in any wire rope shall have not less than three full tucks. However, this requirement shall not operate to preclude the use of another form of splice or connection that can be shown to be as efficient and which is not otherwise prohibited.
- Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering or in pulling loads, shall consist of one continuous piece without knot or splice.

- Wire rope clips or knots shall not form eyes in wire rope bridles, slings or bull wires.
- Wire rope shall not be used if, in any length of eight diameters, the total number of visible broken wires exceeds 10% of the total number of wires or if the rope shows other signs of excessive wear, corrosion or defect.

When U-bolt wire rope clips are used to form eyes, Table H-2 of 1926.251 shall be used to determine the number and spacing of clips. When used for eye splices, the U-bolt shall be applied so that the "U" section is in contact with the dead end of the rope. "Never saddle a dead horse".

Slings shall never be shortened with knots or bolts or other makeshift devices. Sling legs shall not be kinked. When slings are used in basket hitch the load should be balanced to prevent slippage. When sharp edges are present, slings shall be protected by use of padding

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

Shock loading is prohibited, and a sling shall not be pulled from under a load when the load is resting on the sling. Fiber core wire rope slings of all grades shall be permanently removed from service if:

- They are exposed to temperatures in excess of 200°F.
- When non-fiber core wire rope slings of any grade are used at temperatures above 400°F or below 60°F, manufacturer's recommendations shall be followed.
- Exposed Slings will show a lack of lubrication as well as discoloration.

Wire rope slings shall be removed from service when rope shows signs of birdcaging, severe kinks, crushing or 10 randomly distributed wires in one rope lay or 5 broken wires in one strand in one rope lay.

Nylon, Polyester, and Polypropylene Synthetic Web

Each synthetic (nylon, polyester and polypropylene) web sling must be marked to show:

- Name or trademark of manufacturer.
- Rated capacities for the type of hitch.
- Type of material.
- Rated capacity must not be exceeded.

Fittings must be of a minimum breaking strength equal to that of the sling and free of all sharp edges that could in any way damage the webbing.

Never custom stitch any slings in the field.

Environmental conditions to consider when using synthetic web slings. The following precautions must be taken

- Nylon web slings must not be used where fumes, vapors, sprays, mists or liquids of acids or phonemics are present.
- Polyester and polypropylene web slings must not be used where fumes, vapors, sprays, mists or liquids of caustics are present.
- Web slings with aluminum fittings must not be used where fumes, vapors, sprays, mists or liquids of caustics are present.

Nylon, polyester or polypropylene web slings must not be exposed to edges that will cut or damage the sling. These slings must be inspected for friction burns and abrasions.

Safe operating temperatures:

- Synthetic web slings of polyester and nylon must not be used at temperatures in excess of 180°F.
- Polypropylene web slings must not be used at temperatures in excess of 200°F.

Synthetic web slings must be immediately removed from service if any of the following conditions are present:

- Acid or caustic burns.
- Melting or charring of any part of the sling surface.
- Snags, punctures, tears or cuts.
- Broken or worn stitches.
- Distortion of fittings.

Internal red or green fibers indicate that damage has occurred to the sling. If the sling has been cut and the fibers are showing, remove the sling from service.

Shackles and Hooks

The manufacturer's recommendations shall be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer's recommendations are available shall be tested to twice the intended safe working load before they are initially put into use. The employer shall maintain a record of the dates and results of such tests.

NOTE: Reference Appendix L. for the Rigging and Signaling Training Program



FIRE PROTECTION AND PREVENTION

Training

Employees shall receive training on fire protection and prevention through daily DPP meetings and OATs. This training includes:

- Proper use of fire extinguishers.
- Fire protection and prevention guidelines
- Precautions when working with and near flammable/combustible liquids.

Specific training for projects requiring fire watch or other specific training will be done on a site-specific basis.

Fire Extinguishers

A fire extinguisher rated not less than 20B shall be located not more than 75 feet, but no less than 25 feet from all fuel storage tanks and where 5 gallons of flammable or combustible liquids are stored.

A fire extinguisher rated not less than 5 lbs. shall be on all large company equipment. Office trailers and storage trailers must have a minimum of one 10 lbs. fire extinguisher in them.

Fire extinguishers shall be inspected monthly for:

- Verification that gauge reads charged.
- Verification that fire extinguisher pin has not been removed.
- Verification that fire extinguisher is in operating condition.
- Tag on extinguisher is to be marked, verifying monthly check occurred.

Fire extinguishers are classified to help select the appropriate fire extinguisher for the source of the fire. The classifications of fire extinguishers are as follows:

- Class A: Ordinary combustibles such as wood, trash, etc.
- Class B: Flammable liquids, grease, oil.
- Class C: Electrical equipment or other sources of electricity.
- Class D: Combustible metals.

Fire Prevention



NO SMOKING signs shall be posted, and smoking prohibited in the areas where fire hazards exist. This includes all fuel storage tank areas.

Weeds and trash are to be cut and cleaned up around storage tanks. Good housekeeping shall be maintained to reduce risk of a fire. Ordinary combustibles shall not be permitted to accumulate on the job.

All doorways, exits, and hallways must be kept clear of material and be unlocked during working hours to allow emergency exit.

Flammable and Combustible Liquids

Approved metal safety cans are to be used for flammable liquids. All cans must be tagged indicating the contents.

Do not store these liquids in exits, stairways or other areas used for the safe passage of people.

No more than 25 gallons of flammable or combustible liquid shall be stored in a room outside of an approved storage cabinet.

Outdoor portable tanks shall be a minimum of 20 feet from the office, storage trailer or other buildings.

When two or more tanks have a combined capacity in excess of 2,200, you must keep them 5 feet apart. Individual tanks exceeding 1,100 gallons, must be kept 5 feet apart.

Fuel tanks are to be diked in case of an accidental spill. Earth dikes are to be lined with plastic to contain the spill.

When dispensing flammable liquids from one container to another, the containers should be electrically interconnected (bonded).

Liquefied Petroleum Gas (Propane)

Never weld on LP-Gas containers.

LP-Gas appliances must be approved for such use.

Storage of LP-Gas containers in buildings must adhere to all applicable OSHA standards and requirements.

Temporary Heating Devices

Under certain conditions, temporary heating devices may be used. All manufacturers' instructions should be followed. Natural or mechanical ventilation shall be used when needed. Portable electric heaters must have safety switches that shut off when knocked over.



COMPRESSED GAS CYLINDERS

General Requirements

Never weld, cut or attempt to repair compressed gas cylinders.

Keep all cylinders away from extreme heat, sparks, open flames, hot metal etc.

Do not use cylinders as rollers or supports under any circumstances.

Always keep fittings, hoses and regulators clean and free of oil and grease. Oil mixed with oxygen creates a violent explosion.

Only the supplier is permitted to mix gases, fill cylinders or perform maintenance on cylinders.

Storage of Compressed Gas Cylinders

All compressed gas cylinders must be stored upright.

All cylinders must be secured to prevent them from falling.

Oxygen cylinders must be stored at least 20 feet from all flammable liquid/gases and combustible materials, especially oil and grease:

- A non-combustible barrier with a fire-resistant rating of at least one hour and at least five feet high can be used to separate oxygen cylinders from other flammable/combustible materials.

Valve protection caps must be on all cylinders in storage.

"NO SMOKING" signs must be posted where flammable gases are stored. Store cylinders in areas that are not subject to vehicle or equipment traffic. Propane cylinders cannot be stored inside buildings or near oxygen

Proper Use of Compressed Gas Cylinders

Cylinders must be upright and secured to prevent them from moving while in use.

Cylinders that are not in use must have the valves closed.

Oxygen and acetylene torches must be equipped with flashback arrestors.

Oxygen and acetylene cylinders must never be taken into confined spaces:

- Torches used inside confined spaces shall be removed from the space as soon as work is complete.

Cylinders must have valve handles or special wrenches on the valves while in use.



Keep the cylinders away from the actual work to prevent sparks, hot metal or flames from contacting the cylinders.

Propane cylinder valves are to be attached directly to the cylinder in order to protect the valve from damage.

Transportation of Compressed Gas Cylinders

Cylinders must be hoisted in a cradle, sling board or other approved method.

Never hoist cylinders by the valve protection cap, magnets or choker slings.

Cylinders transported by powered vehicles must be upright and secured.

All cylinders that are transported must have the regulators removed and valve protection caps secured, except:

- Cylinders that are transported or moved in a special carrier (torch cart) can be done with the regulators attached, but bottles and carrier must be secured.



SIGNS, SIGNALS, BARRICADES

Responsibilities

Safety Team:

The safety team will assist jobsites in determining where signs and barricades are required and proper selection. These guidelines will be reviewed and updated as necessary.

Project Supervision:

Supervisory co-workers have the responsibility to ensure that signs and barricades are used when required. They must ensure that co-workers are aware of the purpose of the signs.

Employee:

Co-workers must adhere to the conditions that apply to each sign or barricade.

Selection of Signs and Barricades

Signs should be selected by performing an assessment of the jobsite, to determine what hazards exist or may develop. The severity of the hazard is the key factor in determining the type of warning that must be provided. A situation that presents a significant or immediate hazard may require the use of signs and barricades. Plan the proper type of sign or barricade into each job and ensure that the warning sign is put in place.

Proper Use of Plastic Ribbon

The following guidelines must be strictly adhered to, so co-workers know exactly why a particular type of ribbon was posted.

- Plain orange ribbon should be used for non-hazardous areas.
- Yellow "CAUTION" ribbon should be used to warn co-workers that they need to be cautious when entering this area. They need to be aware that some hazard exists in the area.
- Red "DANGER" ribbon must be used only when there is an immediate hazard in the area. No co-workers are permitted to cross danger ribbon unless they are involved in the work inside the danger ribbon or the person posting the danger ribbon authorized them.

Proper Use of Signs and Barricades

Signs and barricades must be in place before work begins that could present a hazard. They must be removed or covered when the hazard is eliminated. Do not post signs where there is not a hazard present. This could mislead co-workers or decrease the effectiveness of properly posted signs in other areas.

- "CAUTION" signs shall only be used to warn co-workers against potential hazards.
- "DANGER" signs shall only be used where an immediate hazard exists.

All signs and barricades used for traffic control must conform to applicable local, state and federal regulations (i.e., ODOT, Federal Highway Administration). If any questions arise or there is uncertainty as to which sign(s) or ribbon to use, please contact the safety team.

Specific Signs

"No Smoking" signs are required in the following areas:

- Oxygen/acetylene/propane storage.
- Fuel tanks.
- Flammable/combustible can storage.
- Conex boxes when flammables/combustibles are stored inside.
- Flammable/combustible storage cabinets.

"Overhead Power Lines" signs are required in the following area:

- In eyes view where overhead power lines are within the area of work.

At Lithko certain tasks require our co-workers to operate aerial lifts. This program has been developed to provide a safe working environment for our co-workers and to meet OSHA training requirements for operating aerial lifts. Lithko will ensure that each operator is competent to operate aerial lifts safely, as demonstrated by the successful completion of the training and performance evaluation included in this program. Operators are responsible to familiarize themselves with operations and controls of various types of manufacturer models of equipment they operate. This training is required prior to a co-worker operating an aerial lift.

AERIAL LIFT TRAINING CURRICULUM:

1. Training will consist of a combination of formal instruction, practical training, and performance evaluation which will be completed at same time during the training session.
2. Training Items Required: Laptop or DVD player, Classroom/Job Trailer, DVD, Appendix A Written Test with Answer Key, Appendix B Performance Evaluation, and Equipment.
3. Copies of Written Test and Performance Evaluations will be kept in co-worker file and stored in Quickbase.
 - a. **Formal Instruction** will consist of a video followed by a written quiz covering the following topics:
 - Operating Instructions, warnings, and precautions listed in the owner's manual for the types of equipment
 - Differences between equipment and automobile
 - Steering and maneuvering
 - Visibility
 - Equipment stability
 - Equipment inspection and maintenance that the operator will be required to perform
 - Operating limitations
 - Surface Conditions
 - Pedestrian traffic in areas the equipment will be operated
 - Narrow aisles and other restricted places where the equipment will be operated
 - Ramps and other sloped surface where the equipment will be operated
 - Basket Capacity
 - Fall Protection
 - b. **Practical Training** will consist of a discussion and demonstration of the following topics as required by the performance evaluation:
 - Equipment controls and instrumentation: where they are located, what they do, and how they work
 - Engine or motor operation
 - c. **Performance Evaluation** will consist of the operator safely demonstrating the following competencies:
 - Completes and processes a pre-operation/delivery inspection
 - Describes the process for reporting defective equipment
 - Demonstrates and describes the proper operation of all controls
 - Demonstrates confidence and prudence while operating the equipment

Aerial Lift Training Program

- Demonstrates proper use of harness and tie-off
- Demonstrates that when lowering the platform, hands and arms are inside the rails
- Demonstrates ability to maintain a safe travel

Key Processes

1. Area Leads and TSLs will determine qualified aerial lift SMEs based on OSHA requirements to train trainers and evaluate their competence.
2. During the Project Planning Process, the Project Team will identify the conditions and tasks that will require aerial lift operation so that co-workers can be identified and training can be verified and executed.
3. The Operation Tier will confirm and validate that the Project Team has identified and properly addressed all the conditions and tasks that require the use of aerial lifts throughout the Planning Process.
4. It is the Project Lead's responsibility to determine equipment used and that qualified operators exist.
5. It is the Field Lead's responsibility during the Daily Preparation Process to ensure that qualified co-workers are assigned to operate aerial lifts and have been trained.
6. The TSL will distribute quickbase reports for the OM/OL to identify and address any gaps in trainings and flag any trainings that are approaching expiration.
7. The Area Leads will work through TSLs to determine feedback loops and confirm that the Operation Tier and the Project Tier have the appropriate level of understanding of the requirements of this program. Where gaps in understanding are identified, the Area Lead will seek clarity by requiring additional training or other communication methods to improve the level of understanding in the BURG.

At Lithko certain tasks require our co-workers to operate forklifts. This program has been developed to provide a safe working environment for our co-workers and to meet OSHA training requirements for operating forklifts. Lithko will ensure that each operator is competent to operate forklifts safely, as demonstrated by the successful completion of the training and performance evaluation included in this program. Operators are responsible to familiarize themselves with operations and controls of various types of manufacturer models of equipment they operate. This training is required anytime a co-worker is operating a forklift.

FORKLIFT TRAINING CURRICULUM:

1. Training will consist of a combination of Formal Instruction, Practical Training, and Performance Evaluation which will be completed at the same time during the training session.
2. Training Items Required: Laptop or DVD player, Classroom/Job Trailer, DVD, Appendix A Written Tests and Answer Key, Appendix B Performance Evaluation, Appendix C Load Chart, and Equipment.
3. Copies of Written Test and Performance Evaluations will be kept in co-worker file and stored in Quickbase.
 - a. **Formal Instruction** will consist of a video followed by a written quiz covering the following topics:
 - Operating Instructions, warnings, and precautions listed in the owner's manual for the types of equipment will be authorized to operate.
 - Differences between equipment and automobile
 - Steering and maneuvering
 - Visibility (including restrictions due to loading)
 - Fork and attachment adaptation, operation, and use limitations
 - Equipment capacity
 - Equipment stability
 - Equipment inspection and maintenance that the operator will be required to perform
 - Operating limitations
 - Surface Conditions
 - Composition of loads to be carried and load stability
 - Load manipulation, stacking, and unstacking
 - Pedestrian traffic in areas the equipment will be operated
 - Narrow aisles and other restricted places where the equipment will be operated
 - Ramps and other sloped surface where the equipment will be operated
 - Closed environments and other areas where insufficient ventilation could cause buildup of carbon monoxide or diesel exhaust
 - Load Capacity Chart
 - b. **Practical Training** will consist of a discussion and demonstration of the following topics as required by the performance evaluation:
 - Equipment controls and instrumentation: where they are located, what they do, and how they work

Forklift Training Program

- Engine or motor operation
- c. **Performance Evaluation** will consist of the operator safely demonstrating the following competencies:
 - Completes and processes a pre-operation inspection
 - Describes the process for reporting defective equipment
 - Displays 3 point mounting and dismounting
 - Demonstrates and describes the proper operation of all controls
 - Demonstrates proper pick-up and travel of pallets on forks
 - Demonstrates proper pick-up and travel of material suspended under the forks with use of proper attachment and connection
 - Demonstrates the ability to negotiate turns with pallets on forks
 - Demonstrates proper use of horn/alarm throughout test
 - Demonstrates confidence and prudence while operating the equipment
- d. **Forklift Refresher Evaluation** shall be provided to the operator:
 - Once every 3 years and the co-worker only has to complete Appendix B Performance Evaluation
 - Been observed to operate the equipment in an unsafe manner
 - Been involved in an accident or near-miss incident

Key Processes

1. Area Leads and TSLs will determine SMEs based on OSHA requirements to train trainers and evaluate their competence.
2. During the Project Planning Process, the Project Team will identify the conditions and tasks that will require forklift operation so that co-workers can be identified and training can be verified and executed.
3. The Operation Tier will confirm and validate that the Project Team has identified and properly addressed all the conditions and tasks that require the use of forklifts throughout the Planning Process.
4. It is the Project Lead's responsibility to determine equipment used and that qualified operators exist.
5. It is the Field Lead's and Crew Task Leads responsibility during the Daily Preparation Process to ensure that qualified co-workers are assigned to the operate forklifts and have been trained.
6. The TSL will distribute quickbase reports for the OM/OL to identify and address any gaps in trainings and flag any trainings that are approaching expiration.
7. The Area Leads will work through TSLs to determine feedback loops and confirm that the Operation Tier and the Project Tier have the appropriate level of understanding of the requirements of this program. Where gaps in understanding are identified, the Area Lead will seek clarity by requiring additional training or other communication methods to improve the level of understanding in the BURG.



Working at Heights Program

At Lithko certain conditions have been identified that may create an exposure to falls from heights which may require our co-workers to be tied-off. This program has been developed to provide a safe working environment for our co-workers and to meet OSHA requirements for work performed at heights 6' or more above lower level. Fall protection will be required anytime the following conditions exist or a fall hazard is present:

- a. *Unprotected Sides and Edges:* Walking/Working surface (horizontal and vertical) with an unprotected side or edge which is 6' or more above lower level.
- b. *Leading Edges:* Constructing a leading edge 6' or more above lower level.
- c. *Holes:* Walking/Working surface shall be protected from falling through holes more than 6' above lower levels.
- d. *Formwork and Reinforcing Steel:* Working on the face of formwork or reinforcing steel shall be protected from falling 6' or more to lower levels
- e. *Excavations:* Working at edge of excavation 6' or more in depth.
- f. *Aerial Lift Operation:* Working in or operating a scissor lift, boom lift, or other aerial lift equipment.

Elements of the Program:

Lithko will take all practical measures possible to prevent our coworkers from being injured by falls. Lithko will take necessary steps to eliminate, prevent, engineer out, and control fall hazards. Our first priority is the elimination of the fall hazard. If a fall hazard cannot be eliminated, effective fall protection will be planned, implemented, and monitored to control the risks of injury due to falling.

Appendix A - Working at Heights Lead and Key Training – To be given to all Field Lead level co-workers and above.

Appendix A.1 – Group Exercise – Includes Trainer Guide and class material

Appendix B - Working at Heights Orientation Training – To be given to all co-workers at the time of hire.

Appendix B.1 – Working at Heights Orientation Quiz – To be given after Orientation Training and stored with all hiring documents.

Appendix B.2 – Working at Heights Orientation Quiz Answer Key

Appendix C – Handrail Construction – Covers proper construction of temporary handrail

Appendix D – Working at Heights Standards for Walls, Columns, Elevated Decks

Appendix E – Miller Edge Machine - Instruction guide, review prior to use

Appendix F – Lithko Horizontal Lifeline Manual

Equipment – Section below details Lithko’s approved equipment selections

FALL PROTECTION EQUIPMENT:

Lithko employees shall not be issued any fall protection equipment unless they have been through the WAH orientation training and applicable OAT’s. Below are a few suggested harnesses. If a Lithko co-worker purchases a harness that is not listed below, the harness should be a Class 3 and meet ANSI/ASSE Z359.11-2014 standards. No equipment shall be utilized unless it has been issued by Lithko – ANY DEVIATIONS FROM THIS APPROVED LIST OF EQUIPMENT OTHER THAN HARNESSSES SHOULD BE DISCUSSED WITH YOUR BURG TSL.

Harness

Option 1

Lithko will use a Miller Contractor Non-Stretch Harness with D-ring pad, side D rings, and shoulder pads. Model # 650CN-BP/UGN

Option 2

Lithko will use Guardian Cyclone Harness with back and D-ring padding from shoulder to legs. Model # 21031 or Model 21030

Positioning and Restraint Assemblies

Option 1

Lithko will use Rebar Chain Assembly Miller Model # 6756 RS-Z7

Option 2

Lithko will use Guardian positioning device 24" Rebar Chain Assembly w/ Swivel Rebar Hook Model # 01600

Single Self- Retracting Lifelines

Option 1

Lithko will use a Falcon Self-Retracting Lifeline Model # MP30G-Z7 - Lengths will verify depending on the tasks.

Option 2

Lithko will use Guardian Edge Series SRL 3/16" Galvanized Cable w/ Carabiner, Swivel Top, Snap Hook & Tag Line 20’ – 30’ Models. Model # 10910, 10912, 10915

Dual Self – Retracting Lifelines

Option 1

Lithko will use Guardian 6' Diablo Double SRL Kit w/ Steel Rebar Hooks. Model # 11054

Option 2

Lithko will use Miller Twin Turbo Self-Retracting Lanyards with locking swivel rebar hooks. Model # MFLC 4-Z7

Horizontal Lifeline(HLL) system

The HLL manufacture's guide shall be referenced to ensure safe working height requirements for each individual system.

Option 1

Lithko will use Guardian Kernmantle Horizontal Lifeline System with Tensioner, 2 O-rings, Slings, 01813-S, 60'-100' systems. Model # 04639, 04640.

Option 2

Lithko will use Miller 60-ft. (18 m) Rope Temporary HLL System for two workers. Model # HLLR2/60FT

KEY PROCESSES:

1. Area Leads and TSLs will determine qualified working at heights SMEs based on OSHA requirements to give the lead and key training.
2. During the Pre-Construction and Project Planning Process, the Project Team will identify the conditions and tasks that will require Fall Protection so that the PHP's can be completed and the WAH OAT's can be identified. The Project Team will also identify the specific Engineering Controls to be used so that the proper tools and equipment can be procured prior to beginning any of the tasks identified above.
3. The Operation Tier will confirm and validate that the Project Team has identified and properly addressed all the conditions and tasks that require working at heights throughout the Planning Process.
4. It is the Field Lead's responsibility to ensure the tasks that require working at heights are identified in the Daily Preparation Process, so that the appropriate co-workers are given the related OAT and assigned to the task and the required tools and equipment to utilize the Engineering Controls are available and in good operating condition.
5. The Project Leads and Field Leads will engage the co-worker assigned to these tasks in the DPP by asking them to identify, locate and inspect the tools and equipment needed to complete the task in compliance with the project plan. The co-workers will also be asked to engage and provide feedback through the DPP.

6. It is the co-worker's responsibility to utilize appropriate engineered controls and wear provided personal fall protection equipment.
7. The Operation Lead will periodically observe the tasks identified above and review the DPP Workbooks to identify any gaps in understanding or implementation of this program. It is the OM/OL's responsibility to provide feedback and to seek clarity with the Project Team to close any identified gaps.



Site Specific Safety Plan

Job Name: Project Quantum Rise DC	Job Number: 23477
Lead: David Flores	Customer: Yates

INTRODUCTION

Lithko Contracting, LLC, is committed to providing a safe and healthful work environment for all individuals on our job sites together with those in the general public. This commitment is shown through the active prevention of accidents and near misses. Established company safety policies and safety training, together with continuous review and inspection of job sites enables us to stay ahead of the curve in the area of prevention. We strongly believe in the value of preplanning in order to anticipate rather than being forced to react to hazards. We shall never accept the notion, "accidents happen".

At Lithko, "Safety" does not come "from the top down" or "from the bottom up" it is everyone's responsibility every instant of every day. Preplanning, accountability, communication and commitment are the linchpins of our success. Lithko demands co-workers to return home each day, in at least as good, if not better, a condition as when they arrived at work.

Finally, it is our intent to fulfill the proactive principle of not acknowledging, accepting, or being forced to recognize, that "accidents happen." It must be clear that aggressively maintaining a safe work environment, at all times, is not a choice, it is our culture. Management promotes safety. At Lithko the collective mindset is, "we make it safe to be safe."

SCOPE

Lithko's job scope will consist of the following:

- Piers
- Pile Caps
- Pedestals
- Gradebeams
- Walls
- Elevated Slab
- Trenches
- Site Work

- SOG
- Site Paving
- Footings

DISCIPLINE

- Depending on the severity of the infraction, Lithko's discipline policy may include progressive amounts of discipline (i.e. first warning, final warning, etc.) or it may by-pass some steps and move to more severe steps such as suspension or termination.
 - The first time a worker has a safety violation, a first warning may be sufficient to get the matter corrected. It does, however, still have to be documented.
 - A second offense results in a Final Warning, provided in writing, to the coworker.
 - The Third offense results in the coworker receiving time off work and/or termination of employment if an investigation determines it is warranted.
- As a coworker at Lithko, it is your responsibility to ensure compliance with all company policies as well as set the example for other coworkers. Lithko has zero tolerance for non-compliance with the following safety rules and regulations, and it should be noted that this policy may apply to the coworker(s) observed to be out of compliance, to his/her foreman, or to both.
 - Fall Protection
 - Confined Space
 - Lock Out Tag Out
 - Excavation and Trenching
 - Lithko Crane Policy
 - Working Around Power Lines

SUBCONTRACTOR EH&S REQUIREMENTS

- As a condition of doing business with Lithko all subcontractors and sub-subcontractors ("Subcontractors") must adhere to this safety program at a minimum and at no additional cost to Lithko, as well as any projector client specific safety requirements that Lithko is required to follow. In addition, Subcontractors must also adhere to all applicable local, state and federal regulations.
 - Subcontractors are responsible for maintaining a written Environmental Health & Safety ("EH&S") program.

- A copy of the Subcontractor written EH&S program must be submitted to Lithko's Territory Safety Lead prior to commencement of work.
- The Subcontractor must have a written substance abuse policy. The use or possession of illegal drugs, alcohol or paraphernalia while performing work on any Lithko site is strictly prohibited and will lead to immediate removal from the project.
- The Subcontractor must have an emergency action plan on file which properly addresses all potential emergencies including but not limited to first aid, CPR, chemical spills, and evacuations.
- All Subcontractors must have a written disciplinary program and must properly enforce that program.

WEEKLY OAT's- TOOL BOX TALKs

- Supervisors are to gather their crews at least once a week and discuss safety.
- The important emphasis of each Tool Box Talk should be the hazards of that particular worksite. Recent accidents should be described along with what is being done to prevent reoccurrence. The hazards of upcoming work and new information from the printed material should be shared as well.
- Each Lithko coworker on-site is required to attend the Tool Box Talks. All topics discussed are to be documented on the sign-in sheet and those who attend must sign the sheet. A copy of the sign-in sheet shall be maintained on-site.
- Where subcontractors are working on our projects, we must insist that they too conduct their talks and request copies of their sign-in sheets.

CLOTHING REGULATIONS

- Shirts shall be worn at all times. Sleeveless shirts and tank tops are not permitted.
- Long pants are required.
- Hard sole work shoes shall be worn at all times. Steel toed work boots are recommended. When working in fresh concrete, protective rubber boots must be worn over work boots. Metatarsal protection shall be worn when using jack hammers or jumping jack compactors. Ensure that potential injuries associated with shoe punctures shall be considered during hazard analysis.
- Loose fitting clothes & jewelry will not be worn near machinery & grinding operations.
- All Lithko coworkers will be required to wear high visibility attire. Meeting this requirement can be achieved by wearing any of the following garments or a combination thereof: vests, t-shirts, long sleeve shirts, sweatshirts or jackets.

PERSONAL PROTECTIVE EQUIPMENT:

- Hard hats shall meet specifications contained in ANSI, Z89.1-1997 and shall be worn at all times.
- Safety glasses with side shields are to be worn in all construction areas 100% of the time. Prescription glasses must have approved safety lens and safety frames. Side shields must be worn with prescription glasses. Z87.1 safety glasses are required.
- Goggles, welding shields, and face shields shall be required at all times when engaged in operations such as welding, burning, grinding, chipping, handling chemicals, corrosive liquids, or molten materials, and drilling. Full face shields, in addition to safety glasses, will be worn when using a cut off saw, grinder, and while placing concrete.
- OSHA approved hearing and respiratory equipment will be worn when required.
- All employees will wear safety harnesses when working six (6) feet or more above the ground when no other type of fall protection is provided. The lanyard shall be securely attached to the employee 100% of the time and shall allow a maximum fall distance of 6 feet. Safety harnesses will also be worn when working out of extendible and articulating boom platforms or suspended scaffolding.
- All employees operating any motor vehicle and any equipment with rollover protection structures while on the project will wear seat belts.

DAILY PREPARATION PLANS (DPPs)

- Daily Preparation Plan (DPP) is a daily procedure that is followed by all Lithko coworkers in order to plan with a high level of safety, quality, and productivity in mind at all times. However, at no time should the safety of coworkers be jeopardized for quality or production issues. It involves the foremen having a dialogue with their work crew to discuss their daily work to identify any potential hazards associated with the task that they are about to perform.
- Based on hazards identified, control measures shall be determined on the "Daily Preparation Plan" (DPP) form. The DPP form serves as a reminder of required items such as personal protective equipment, safety devices and special permits. The forms are filled out for each job task and may require multiple forms for one shift.

RIGGING EQUIPMENT

- Rigging equipment shall be inspected prior to initial use as well as monthly.
- Damaged rigging equipment will be tagged “defective” and removed from service.
- Tag lines will be used on suspended loads.
- Only qualified riggers shall be used during hoisting activities, whenever co-workers are within the fall zone and hooking, unhooking, guiding a load, or doing the initial connection of a load to a component or structure.

HAND AND POWER TOOLS

- All hand and power tools, whether furnished by Lithko Contracting or by the employee, will be maintained in a safe condition, and shall be inspected before use.
- Electric power tools will either be double insulated or grounded. Portable electric generators of 5 kW or less do not have to be grounded to earth with a grounding rod. All temporary or permanent electric power provided by the owner or others will require the use of portable GFCI protection. If, however, the circuit is tested and found to have GFCI protection built in and it's working, the portable unit need not be used.
- Pneumatic power tools will be secured to the hose or whip by some positive means. Tie wire through the safety lock holes at the connectors is acceptable. A safety surge valve must be used at the air source.
- All grinding machines will conform to all OSHA and ANSI requirements. Guards may not be removed from grinders. Tools shall only be used for their designed purpose.

COMPRESSED GAS CYLINDERS

- Compressed gas cylinders will be secured in an upright position at all times.
- When transporting, moving, and storing cylinders, valve protection caps will be in place and secured.
- Magnets or choker slings will not hoist cylinders. Valve protection caps will not be used for hoisting cylinders.
- Cylinders will be kept away or protected from sparks, hot slag, and flames.
- Cylinders will be labeled as to the nature of their contents.
- Oxygen cylinders in storage will be separated from fuel gas cylinders or combustible materials a minimum of 20 feet or by a noncombustible barrier at least five (5) feet high having a fire resistant rating of at least one-half hour. Empty cylinders will be segregated from full cylinders.
- "No Smoking" signs will be posted at storage areas.

SCAFFOLDS

- Footings or anchorage for any scaffold must be sound, rigid and capable of carrying the maximum intended load without settling or displacement.
- Unstable objects like concrete blocks, will not be used to support scaffolds or planks.
- Any part of a scaffold weakened or damaged will be repaired or replaced immediately.
- All scaffold planking must be free of knots and cracks.
- Scaffold planks will be laid tight, cleated at both ends or overlapped a minimum of 12 inches, and nailed or bolted to prevent movement. Overlaps to occur directly above scaffold supports. Competent persons are responsible for setup and teardown.
- Safe access must be provided to the scaffold platform.
- Scaffolds must be equipped with a top rail made of lumber not less than 2 x 4 inches (or equivalent strength), 42 inches high; a 21 inch high midrail, made of lumber not less than 1 x 6 inches (or equivalent strength); toeboards will be installed on all open sides and ends of scaffold platforms 6 or more feet above the ground or floor. Scaffold supplier may supply prefabricated handrail/toeplate in lieu of above.

EQUIPMENT AND MOTOR VEHICLES

- All equipment must be inspected daily before use by the operator.
- Defective equipment must be repaired or tagged and removed from service ASAP.
- A qualified person must train all operators of construction equipment in the use, safety and proper operation of the equipment.
- All equipment with an obstructed view to the rear must have a reverse signal alarm audible above the surrounding noise level or must have flagman.
- All powered equipment must have at least a 5 pound fire extinguisher.

ELECTRICAL

- All portable generators must use ground fault circuit interrupters.
- Do not use romex wire for extension cords. Never install extension cord plug ends on romex wire. Assume all electrical wiring is energized.
- Protect cords from being run over.
- Damaged electrical cords need to be tagged and removed from service.

LADDERS

- The use of ladders with broken or missing rungs or steps, broken or split rails or other defective construction is prohibited.
- Ladders will extend no less than 36 inches above landing or else shall be secured.
- Wooden ladders shall not be painted.
- Job built ladders will be constructed to comply with OSHA standards.
- Ladders must be rated for heavy duty or commercial use.
- Keep areas at top and bottom of ladder clear.
- Ladders are to be placed on a sound rigid base.
- Extension ladders shall not be separated.

FLOOR AND WALL OPENINGS, AND STAIRWAY

- Floor and wall openings will be guarded by a standard guardrail and toeboard, or adequately covered with a secured cover that is also marked to indicate the hazard.
- Guardrails will be sufficient strength to support 200 pounds of pressure when applied at midspan of the guardrail parallel with the floor, and perpendicular to the guardrail.
- Covers will be adequately secured over floor openings to prevent displacement and have a sign attached identifying the hazard.
- Every flight of stairs having four or more risers will be equipped with standard stair railings. Stairs are not to be used until risers and railings are securely installed. Treads will be poured as soon as possible where poured treads apply. Pan steps will not be used until pans are properly filled.

EXCAVATIONS

- Excavations and trenches will be inspected by a competent person daily and after every hazardous occurrence such as a rainfall to determine if they are safe.
- All banks five (5) feet high or more must be sloped or shall be adequately shored or benched as permitted by the type of soil in the area concerned.
- Ladders or steps will be provided in all trenches four (4) feet or more in depth. Ladders or steps shall be located so as to require no more than twenty-five (25) feet of lateral travel having access or egress. (Spacing not to exceed 50 feet.)
- Material excavated will be stored at least two feet from the edge of the excavation.
- All trenches and excavations not easily seen must be properly barricaded to prevent persons from walking into them.

- All walkways or ramps crossing over excavations will be securely fastened and equipped with standard guardrails.

HOUSEKEEPING

- During the course of construction, all debris and scrap material will be removed from the work area. Housekeeping is everyone's duty.
- Garbage and other waste will be disposed of at frequent and regular intervals.
- Flammable and/or combustible material shall be separated from sources of ignition.

FIRST AID AND MEDICAL PROCEDURES

- Each incident, injury, and near miss will be reported immediately to the Territory Safety Lead (Joe Bayona) 469-346-1769. All incidents will also be reported immediately to Vaughn Construction.
- A Lithko supervisor is required to transport the injured co-worker to the medical facility. The supervisor is responsible for requesting a substance abuse screening, as well as explaining to the treating physician about Lithko's light duty program.
- First Aid Kits will be available at all worksites.

FIRE PROTECTION

- DO NOT SMOKE around flammables or when refueling. Fuel storage areas and vehicles that carry fuel are to be posted with signs (No smoking, sparks or flames)
- Check extinguishers regularly (monthly), initial and date the tag and replace when discharged. The plastic tie seal must be maintained on the extinguisher and the tag must be legible.
- Keep combustible scraps and trash picked up and hauled away. It is especially important to keep weeds and other combustibles away from fuel storage areas.
- Maintain extinguishers near heaters, cutting and welding sites, and fuel storage areas. Keep tarps and other flammable materials away from heaters.
- Flammable storage areas must be posted with warning signs: "DANGER: NO SMOKING, SPARK, OR OPEN FLAMES".
- All Lithko employees will observe fire safety and fire emergency rules established on the project.

FALL PREVENTION AND FALL PROTECTION EQUIPMENT

- Workers exposed to a potential fall hazard of 6 feet or more must have some type of fall protection (i.e. guardrails) or use personal protective fall equipment.
- A fall arrest system consisting of a full body harness and shock-absorbing SRL's will be used. This system will be attached to an adequate tie off point or to a robe grab or other suitable equipment

SITE SPECIFIC FALL PROTECTION REQUIREMENTS

- Pier Installation- All co-workers shall be tied off to a deadmen if within the barricaded radius of any open pier.
- Deep excavations will be clearly marked and have ladder access and egress.
- Excavations shall be benched or sloped per OSHA requirements depending on soil classification.
- All co-workers shall be tied off to approved anchor points if working from mobile elevated work platforms.

HAZARD COMMUNICATIONS

- All Co-workers are responsible for receiving training in Hazard Communications.
- SDS' are to be located in the general contractor's office or with the superintendent.
- SDS' clearly spell out the hazards of chemicals in the work place. These sheets are always available for review by any co-workers or their agent.

CRANES AND DERRICKS

- All cranes should be rented or leased with an operator.
- All cranes and derricks shall be certified as being in safe operating condition by their owner prior to using the crane or derrick on site. This certification shall be maintained by the equipment owner and made available to Lithko upon request. The operator will conduct a daily operator checklist before the first lift of each day.
- A competent person who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are hazardous or dangerous to employees and have authorization to take prompt corrective measures to eliminate them should certify all crane operators. Certification records should be maintained on site and made available

upon request. The owner of the equipment will supply a certified operator and maintain all records.

- The swing radius of the crane will be barricaded.
- Hand signals prescribed by ANSI will be posted at the operator's stations.
- Manufacturer's specifications must be observed.
- Equipment must not be operated where any of the equipment or load will come within 10 feet of electrical distribution or transmission lines. All power lines will be located and marked or de-energized.
- No person may ride the headache ball, hook or load handled by the crane.
- Equipment must not be lubricated while in use.
- Rated load capacities, recommended operating speeds, hazard warnings, hand signal diagram, and special instructions will be visible to the operator at the control station.
- Employees must not be allowed to work under the load of cranes.
- Cranes and derricks will be inspected prior to use and at monthly intervals. Owner will maintain records on site of these inspections and the owner upon request shall make copies available to Lithko. Crane owner will record inspections.
- Outriggers will always be in place when lifting.

COMPETENT PERSON(S):

- Jesus Koehn
- Jose Escobar
- David Flores
- Steve Lares
- Hunter Bjorkquist
- David Castillo
- Jalen Blanton
- Martin Rizo
- Santos Reyes
- Ervin Flores
- Juan Salazar

For further questions related to this site-specific safety program, please contact Heath Farmer, Territory Safety Lead.

This plan has been approved by:

David Flores

Project Lead/Competent Person

817-819-6055

Phone Number