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SAFETY MANUAL

Lauth Construction

REVISED APRIL 8, 2019

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Safety Mission

The Mission of Lauth is to be the construction services provider of choice, carry the highest standard of construction related services, while maximizing the performance of our client's interests. Safety performance, quality work, on-time delivery, and cost effectiveness are all inseparable portions of our company business plan. Lauth will achieve these goals with the full cooperation of every Lauth employee, subcontractor and material supplier. Work will be performed to protect the life, health and property of our employees and clients.

Statement of Safety Policy

Lauth Group, Inc. is committed to the safety of our employees. To this end, we will utilize this safety program in our daily activities.

Accidents interfere with the orderly progress of work and indicate inefficient operations. Therefore, Lauth Group, Inc. will motivate its associates and others to develop the proper attitude and behavior necessary toward health and safety.

Lauth Group, Inc. will comply with all local, state and federal safety standards, codes and regulations. All associates will perform their job in a safe manner and in accordance with the procedures outlined in this safety program and strive for "Zero Accidents or Injuries" and a Lost Time Accident rate less than national averages.

LAUTH CONSTRUCTION, LLC

Matt Childress, Senior VP Operations

Lauth Construction
Corporate Safety Responsibilities

Safety Manager:

- Overall maintenance of the Lauth Safety Manual and its policies and procedures
- Conduct accident investigations, analyze the causes and formulate recommendations for corrective and preventative action
- Coordinate safety training programs
- Maintain records of the following:
    - accidents
    - OSHA 300 Logs
    - weekly toolbox talks
    - self-inspections
    - OSHA inspections and exceptions
- Enforce the Disciplinary Policy
- Conduct periodic safety inspections of projects and all site safety documentation
- Train Lauth employees on the policies contained in the Lauth Safety Manual

Sr. Project Managers/Project Managers/Associate Project Managers:

- Conduct project safety inspections/self inspections while on all projects
- Assist Superintendent by pre-planning for site safety in conjunction with the Lauth Safety Manual prior to work commencing
- Ensure project compliance with OSHA, as well as federal, state, local and Lauth standards
- Apply the specific policies contained in the Lauth Safety Manual
- Ensure all appropriate safety equipment is available and being utilized properly
- Assist Superintendent in providing all information and completed forms necessary for accident investigations
- Complete a minimum OSHA 10-hour course and maintain status

Lauth Construction
Corporate Safety Responsibilities
(Continued)

Superintendent/Assistant Superintendents:

- Conduct self-inspections weekly on project and send to Safety Manager for review
- Conduct Safety Orientations of field personnel
- Conduct toolbox talks
- Utilize Pre-Planning for Site Safety Section in the Lauth Safety Manual prior to work
- Ensure compliance with OSHA, as well as federal, state, local and Lauth standards
- Complete a minimum OSHA 10-hour course and maintain status; preferably 30-hour course
- Apply the specific policies contained in the Lauth Safety Manual
- Ensure appropriate safety equipment is available and being utilized properly
- Provide all information and completed forms necessary for accident investigations
- Enforce the Lauth Disciplinary Policy for safety violations
- Designate local medical facilities for the project site and ensure the name and location is readily available for all personnel on site

All Field Employees:

- Comply with safety rules and regulations
- Report all accidents, incidents and injuries, no matter how slight, immediately
- Utilize the proper tools as well as personal protective equipment necessary for performing your job
- Report all unsafe conditions to your supervisor immediately
- Help to maintain a safe and clean worksite
- Keep waste, debris and rubbish cleaned up. Place all lunch papers, cups, cans and other litter in trash receptacles
- Discard and/or store oily rags, waste and similar combustible materials in metal containers
- Do not engage in any work activity in which they have not been properly trained
- Willful and/or repeated violations of safety rules or safe work practices shall not be tolerated.
- All injuries/incidents, (PERSONAL INJURIES, FIRE, PROPERTY DAMAGE, THEFT, VANDALISM, NEAR MISSES) no matter how slight, must be reported to the Lauth superintendent immediately.
- Submitting false or fraudulent information regarding an accident/injury shall not be permitted.

- Fighting, gambling, horseplay, and other misconduct are not permitted, nor shall threatening another worker be tolerated.
- Keep clear of all equipment. Avoid pinch points and blind areas. Be alert to avoid swinging or suspended loads.
- Be alert for and heed all warning / traffic signs at all times.
- Shirts and long pants are required. T shirts with a minimum of 3-inch sleeves are required.
- Do not use compressed air to "dust off" clothes or hair. Cleaning of concrete or concrete forms with compressed air requires the use of goggles, face shield and protection for surrounding personnel.
- There will be no unauthorized use or possession of tools, equipment, or materials owned by others.
- Do not use makeshift or "jury rigged" tools or equipment to perform your job.
- Unless specifically authorized, firearms and explosives are prohibited within the construction area.
- Only authorized and properly trained personnel are permitted to operate equipment, vehicles, valves, electrical switches and similar machinery.
- Do not transport passengers in the rear of a dump truck, on tractors, forklifts, or similar equipment. Personnel riding in the bed of pick-up trucks must be seated on the floor of the truck with their entire body inside the truck bed.
- Do not smoke in areas marked "No Smoking" or near flammable liquids or gasses, or combustible materials.
- Keep all machinery guards, guardrails and other protective devices in place.
- Be alert to conditions, work processes, other workers and equipment in order to avoid possible dangers.
- Misuse or willful destruction of property and/or equipment shall not be tolerated.

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SECTION 2
SUBCONTRACTOR CONFORMANCE

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926.21 – Subpart C (General Safety and Health). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Purpose

To ensure all subcontractors are made aware of and made responsible for compliance with all local, state, and federal laws, Lauth policies and procedures and Owner requirements.

Definitions

A. Pre-Contract Meeting-Not necessarily a meeting, but the time when Lauth is confirming that the contractor's bid price has included the intended scope of work.
B. Pre-Contract Meeting Agenda-List of safety items that were communicated during the pre-bid process. Allows Lauth to confirm that the previously communicated items were understood by the contractor and that pre-contract meeting requirements were fulfilled. Not intended to be all-inclusive and does not represent all safety practices that the contractor is expected to comply with.

Responsibilities

A. The Lauth Project Superintendent must ensure the contents of this policy are presented to subcontractors at the pre-contract meeting.
B. All Lauth are responsible for notifying and requesting contractor personnel to correct unsafe situation.
C. Contractors are responsible for addressing safety concerns brought to their attention by Lauth.
D. Contractors are ultimately responsible to implement, monitor, and enforce their written safety program among their employees and subcontractors.
E. Subcontractors are required to designate an Onsite Safety Representative/Competent Person.

Procedures

A. Subcontractors, at their own expense, will conform to and comply with all requirements set forth by Lauth and applicable laws established by any governmental authority. The subcontractor will take all necessary precautions to protect against any conditions caused by subcontractor's work or other involvement in any project, which involves any risk of bodily harm to persons or risk of damage to property.

B. Subcontractors will continuously inspect their work, materials and equipment to discover any such conditions and will be solely responsible for discovering and correcting any conditions.

C. Lauth may order the subcontractor to stop any work deemed unsafe until acceptable corrective measures have been implemented. Subcontractors will be responsible for all costs and delays incurred by Lauth as a result of any such stoppage of the work.

D. Lauth employees will confirm verbally or in writing, during the confirmation of scope of work, that the contractor understood the pre-contract safety expectations. The pre-contract safety subjects may include the following:

1. Incident Reporting
2. Contractor Designated Safety Person
3. Disciplinary Policy
4. Fall Protection
5. Fire Protection
6. Ground Fault Circuit Interrupters
7. Housekeeping (Daily Clean-up)
8. Job Site Safety Inspections
9. Ladders
10. Light Duty Work Program
11. Project Specific Hazards
12. Permit System when required
13. Safety Orientation
14. Personal Protective Equipment
15. Scaffolding, and requirements, ladders, guardrails, etc.
16. Substance Abuse Screening Policy
17. Review of OSHA Standards
    a. Hazard Communication
    b. OSHA Poster Requirements
    c. Lighting
    d. Safety/Toolbox Talks

E. Subcontractor Site Safety Communication Meeting
1. Lauth Superintendents are responsible for initiating the meeting and reviewing the project safety requirements. Subcontractors will be responsible for explaining to Superintendents the methods and procedures that the subcontractor will be implementing to comply with safety standards.

F. Subcontractors are required to submit all Safety Data Sheets (SDS's) for each hazardous material brought onsite. A central location will be established to maintain SDS's.

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SUBCONTRACTOR ORIENTATION

The safe and efficient completion of this Project requires a spirit of teamwork and cooperation from all workers. Subcontractors and their employees who fail to comply with the project safety rules shall not be acceptable and shall be removed from the site. Such workers who are removed from the project for noncompliance with the project safety rules shall not be eligible for re-employment on the project. Lauth will provide its subcontractors with a site-specific safety orientation to be shared with all employees on site. Signatures will be gathered and returned to the Lauth Superintendent for recordkeeping purposes. The following items may be addressed in the orientation as necessary.

General Rules

A. Emergency phone numbers are posted at Lauth office trailer.

B. Sexual Harassment shall not be tolerated.

C. Fighting, gambling, horseplay, and other misconduct are not permitted, nor shall threatening another worker be tolerated.

D. This Project prohibits the manufacture, possession, sale or use of illegal substances and alcohol in the workplace.

E. Report all unsafe practices and conditions to your Supervisor at once. ALL site personnel are encouraged to approach other personnel with regard to safety infractions. All Subcontractor employees are encouraged to proactively correct another person upon observing an unsafe act without fear of reprisal.

F. Workers are required to park in designated areas only.

G. Be alert for and heed all warning alarms as well as traffic signs at all times. Do not smoke in areas marked "No Smoking" or near flammable or combustible materials.

H. Be alert to conditions, work processes, other workers and equipment in order to avoid possible dangers.

I. All Contractors are responsible to immediately correct any unsafe condition they create.

J. All workers must be fully trained in the use of tools, devices or machines prior to use.

K. All temporary power circuit will be GFCI protected.

L. All fuel storage and compressed gas cylinder storage areas must be authorized by the Lauth Project Superintendent.

M. Any worker who suspects contact with asbestos or lead shall report the exposure immediately to his/her supervisor and then to the Lauth representative on site.

N. When operating heavy machinery, the use of cell phones and/or headphones, earbuds or the like, shall be prohibited.

Disciplinary Action Policy

A. First offense–Verbal Warning to the worker(s) and to his/her foreman.

B. Second offense–Subcontractor may receive a written Safety Hazard Notification noting the worker's name and undesirable act. The subcontractor's supervisor will be contacted to meet with the Lauth Superintendent and discuss the repeated violation. The worker will be removed from the site for the remainder of the day.

C. Third offense–The worker is removed from site to meet with Lauth superintendent.

D. Disciplinary measures will be at the discretion of the Lauth Superintendent.

E. A Subcontractor employee or foreman can be removed from site at any time if the violation is flagrant or involves a serious offense.

F. Subcontractor's Supervisors who are unable or unwilling to secure personnel performance in compliance with the contractual obligation of safety shall not be acceptable as Supervisors and shall be removed from the project.

Hazard Communication / Safety Data Sheets (SDS)

A. A Chemical Inventory List and Safety Data Sheets are located in the Lauth office trailer.

B. Be sure to review the SDS before using any type of hazardous chemicals.

Injuries/Incidents

A. All incidents and accidents (including serious near misses) shall be immediately reported to the Lauth Superintendent. A written accident report shall be completed within 24 hours of the event.

B. Submitting false or fraudulent information regarding an accident/injury shall not be permitted and will result in removal from site.

C. Any injury resulting in the need for outside medical attention will require a post-accident/incident drug test.

D. Should an injury result in first aid attention needed at the site, site personnel shall follow the Lauth Bloodborne Pathogens procedure for proper clean up and disposal of bodily fluids.

Personal Protective Equipment

A. Approved hard hats (stamped ANSI Z89.1) (no bump caps), and safety glasses with side shields (stamped ANSI Z87.1) must be worn while in the construction area. Appropriate eye protection must be worn as required by site specific requirements. Dark lens safety glasses shall not be worn while working indoors.

B. Metal hard hats are not permitted on Lauth job sites. Over-the-counter sunglasses are not acceptable and shall not be worn on any Lauth Project.

C. At a minimum, sturdy work shoes or boots are required for foot protection.

D. Shirts and long pants are required. T-shirts with a minimum of 3-inch sleeves are required.

E. In addition to safety glasses (or goggles), face shields are required when using grinders, partner saws, steel chop saws or any other type of abrasive-cutting equipment.

F. Hearing protection is required when noise levels exceed OSHA acceptable levels.

G. Personal protective equipment (PPE) shall be worn in all operations where there is an exposure to hazardous conditions or where the use of such equipment will reduce the hazard.

H. Proper burning goggles and welding hoods shall be worn when performing hot work. Dark lens safety glasses are not acceptable for proper eye protection.

Excavations

A. All contractors performing excavation activities shall be responsible for knowing, understanding, and applying appropriate OSHA standards as well as all applicable safety regulations

B. All trenches and excavations will have a barricade installed around the outside of the excavated area.

C. The Subcontractor's Competent Person shall inspect each excavation 4 feet and greater prior to allowing workers to enter or as conditions change throughout the work shift (accumulation of rain, snow, vibration, etc.)

D. A proper ladder or ramp shall be used for access/egress when the depth exceeds four (4) feet and every 25 feet of lateral travel.

E. Trenches/Excavations greater than 4 feet will be properly benched, sloped or protected by a trench box.

F. Spoils will be maintained at least 2 feet from the edge of the excavated area.

Fall Protection

A. Proper fall protection is required for all trades and work processes at and above six (6) feet. This includes, but is not limited to: structural steel erection, decking operation, roofing and work performed from scaffolding.

B. A complete fall arrest system will require the worker to wear a harness with two (2) lanyards. Before the worker can detach one lanyard, the other must be secured to an approved anchorage point (100% Fall Protection).

C. All anchorage points must be capable of supporting 5,000 pounds per person.

D. Harnesses shall be worn with lanyards attached to an approved anchorage point when operating any type of aerial work platform. This includes scissors lifts.

E. Top rail shall be 2" x 4" (or equivalent) and installed at 42" with a mid-rail installed at 21". Wire rope may be used in lieu of lumber. The top rail and mid-rail may be placed raised or lowered 3" when conditions dictate.

F. Toe boards (or equivalent) shall be installed to prevent tools/materials from falling to lower levels.

G. Covers or barricades shall be used to close openings on the walking surface. Covers must be capable of supporting the maximum potential load, secured to prevent displacement and properly marked with "Cover" or "Hole."

H. Fall Protection and Fall Arrest Systems shall be inspected by the Subcontractor's Competent Person on a daily basis or as conditions change.

I. Fall Protection shall be used when erecting or dismantling scaffolds unless the employer determines that it is infeasible or creates a greater hazard.

Scaffolds / Ladders / Aerial Work Platforms

A. Scaffolds

1. All scaffolds shall be inspected and properly tagged by a Competent Person prior to use.
   a. Green Inspection Tag – Meets all OSHA and Project Requirements for a "Complete" Scaffold.
   b. Yellow Inspection Tag – Denotes a scaffold that can be used only when certain conditions are met (i.e., - additional fall protection needed).
   c. Red Inspection Tag – Unsafe - Do Not Use.
2. Damaged components of a scaffold shall not be used.
3. Scaffolds shall not exceed four times the minimum base dimension.
4. Scaffolds will be secured to a structure or building at intervals not to exceed 30 feet horizontally and 26 feet vertically.
5. Guardrails/mid-rails are required when a scaffold meets or exceeds 6 feet. Exception: A four-foot high scaffold having a minimum horizontal dimension of less than 45 inches in either direction shall have standard guardrails installed on all open sides ("baker-type" scaffold).
6. All scaffold platforms ("Scaffold Grade" planking) shall be at least two planks wide (each plank will be at least 2" X 10" or equivalent).
7. Planking material will extend at least 6 inches but not more than 12 inches over the end of the supports.
8. Access ladders shall be provided for each scaffold. climbing off the end frames is prohibited unless its design incorporates an approved ladder.
9. Base plates shall be used to prevent damage to scaffold bucks.
10. Secured mudsills shall be used when erecting scaffolds on any foundation other than concrete or asphalt.
11. Barrels, boxes, kegs, or similar unstable objects shall not be used as work platforms or to support scaffolds.

12. Workers are not permitted to "ride" on manually propelled scaffolds.

B. Ladders

1. Unless infeasible, no work over six feet will be performed from ladders without the use of appropriate fall protection.
2. Straight / extension ladders must extend at least 3 feet above the landing and be secured.
3. Broken or damaged ladders must not be used.
4. Aluminum ladders are only permitted at the discretion of the Lauth Superintendent.
5. Aluminum ladders are not permitted around electrical installations.
6. Straight ladders must be erected with a 4:1 ratio (i.e.,- For every 4 feet of working height, the base must extend 1 foot from a perpendicular line drawn from the top resting point.).
7. Straight ladders should be used for access only.
8. Step ladders should not be used as a straight ladder. Step ladders should be used only when fully opened and the spreaders locked. Personnel are prohibited from standing on/working from the top two steps of a stepladder.

C. Aerial Work Platforms

1. Any worker operating an aerial work platform will be properly trained and shall carry an Operator's card.
2. Harnesses and lanyards are to be used when operating any type of aerial work platform (scissors lifts included).
3. Steps, ladders, boxes, platforms, etc., shall not be placed in the basket to gain additional height.
4. Aerial work platforms shall not be used as a crane to hoist materials.
5. Gates must be closed and chains attached when the lifts are in use.
6. Worker's feet must remain on floor of the basket at all times.

Tools

A. Damaged/defective tools and equipment shall be removed from service and tagged "Unsafe - Do Not Use" or rendered inoperable.

B. There will be no unauthorized use or possession of tools, equipment, or materials owned by others.

C. Do not use makeshift or "jury-rigged" tools or equipment to perform your job.

D. Grinders and other similar tools shall be equipped with functioning protective guards. If a guard is not in place, do not use the tool.

E. Face shields are required (in addition to eye protection) when using grinders, partner saws, steel chop saws or similar equipment.

F. Loose clothing and jewelry should not be worn when using power tools.

G. Leather work gloves may be required to protect hands from hazardous conditions.

Housekeeping

A. Housekeeping is the responsibility of everyone at this site.

B. Floors and stairs will be kept clean and clear of power cords and debris.

C. Tools, equipment and material will be kept clear of all edges and openings.

D. Materials must be kept in neat stockpiles for easy access.

E. Aisles, stairways, fire exits and doorways must be clear of materials, debris and electrical cords.

F. Flammable and/or combustible material will be separated from all oxidizers and sources of ignition.

G. Shafts will be cleared of all debris immediately.

Fire Protection

A. Workers must be advised as to the location of fire extinguishers and their operation and the location of alarm boxes or emergency signaling devices.

B. Only approved containers and portable tanks may be used for the storage and handling of flammable liquids or solid chemicals. Flammable materials shall not be transported in plastic containers.

C. All firefighting equipment must be inspected on a monthly basis.

Electrical / Lockout /Tagout

A. All workers will comply with their company established control of hazardous energy policy for isolating and energizing equipment, lines, circuits, etc.

B. Locks, tags, blanks, blinds etc. used to control the unexpected release of hazardous energy must be clearly identified for use.

C. The name of the individual installing the lockout/tagout device will be clearly identified with the reason for the de-energizing of the system.

D. Unless a group lockout procedure is in place, each craftsperson working on a de-energized system must install their personal lock/tagging device.

E. No one other than the individual installing the lockout/tagout device shall remove the device.

F. Follow all switching and locking procedures to remove a piece of equipment from service.

G. Cords which are frayed, worn, spliced or contain exposed wire will not be used. Damaged cords must be immediately tagged "Do Not Use" and destroyed or removed from site.

Heavy Equipment

A. Heavy equipment such as back hoes and dump trucks will be operated only by authorized personnel.

B. All heavy equipment shall have a functioning back-up alarm.

C. Unauthorized persons are not permitted to ride in the cabs of heavy equipment.

D. Lower any movable buckets when you stop the vehicle.

E. Always block any movable bucket if it is being inspected or having maintenance.

F. Report all operating malfunctions immediately.

G. If the operator's compartment is designated a high noise level area, hearing protection must be worn.

H. Maintenance or repairs must not be done with the engine running.

Print Name: _____ **Signature:** _____

Company: _____ **Date:** _____

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SECTION 3
BLASTING & EXPLOSIVES

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart U (Blasting and the Use of Explosives). Where Lauth, subcontractor, or state/local requirements are more stringent, those requirements shall apply. Any Site-Specific Safety Plans must address municipal and state requirements for blasting and the use of explosives.

Definitions

A. Approved Storage Facility - A facility for the storage of explosive materials conforming to the requirements of this part and covered by a license or permit issued under authority of the Bureau of Alcohol, Tobacco and Firearms. (See 27 CFR part 55.)

B. Blasting Cap - A metallic tube closed at one end, containing a charge of one or more detonating compounds, and designed for and capable of detonation from the sparks or flame from a safety fuse inserted and crimped into the open end.

C. Conveyance - Any unit for transporting explosives or blasting agents, including but not limited to trucks, trailers, rail cars, barges, and vessels.

D. Detonating Cord - A flexible cord containing a center core of high explosives which when detonated will have sufficient strength to detonate other cap-sensitive explosives with which it is in contact.

E. Electric Blasting Circuitry

1. Bus Wire - An expendable wire, used in parallel or series, in parallel circuits, to which are connected the leg wires of electric blasting caps.

2. Connecting Wire - An insulated expendable wire used between electric blasting caps and the leading wires or between the bus wire and the leading wires.

3. Leading Wire - An insulated wire used between the electric power source and the electric blasting cap circuit.

4. Permanent Blasting Wire - permanently mounted insulated wire used between the electric power source and the electric blasting cap circuit.

F. Electric Delay Blasting Caps - Caps designed to detonate at a predetermined period of time after energy is applied to the ignition system.

Explosives

A. Any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion; that is, with substantially instantaneous release of gas and heat, unless such compound, mixture or device is otherwise specifically classified by the U.S. Department of Transportation.

B. All material which is classified as Class A, Class B, and Class C Explosives by the U.S. Department of Transportation.

C. Classification of explosives by the U.S. Department of Transportation is as follows:

D. Magazine - Any building or structure, other than an explosives manufacturing building, used for the storage of explosives.

E. Misfire - An explosive charge which failed to detonate.

F. Primer - A cartridge or container of explosives into which a detonator or detonating cord is inserted or attached.

G. Safety Fuse - A flexible cord containing an internal burning medium by which fire is conveyed at a continuous and uniform rate for the purpose of firing blasting caps.

H. Water Gels, or Slurry Explosives - A wide variety of materials used for blasting. They all contain substantial proportions of water and high proportions of ammonium nitrate, some of which is in solution in the water. Two broad classes of water gels are:

I. Those which are sensitized by a material classed as an explosive, such as TNT or smokeless powder, and

J. Those which contain no ingredient classified as an explosive; these are sensitized with metals such as aluminum or with other fuels. Water gels may be premixed at an explosives plant or mixed at the site immediately before delivery into the bore hole.

K. Semi-Conductive Hose - a hose with an electrical resistance high enough to limit flow of stray electric currents to safe levels, yet not so high as to prevent drainage of static electric charges to ground; hose of not more than 2 megohms resistance over its entire length and of not less than 5,000 ohms per foot meets the requirement.

General Provisions

A. The subcontractor shall permit only authorized and qualified persons to handle and use explosives.

B. Smoking, firearms, matches, open flame lamps, and other fires, flame or heat-producing devices and sparks shall be prohibited in or near explosive magazines or while explosives are being handled, transported or used.

C. No person shall be allowed to handle or use explosives while under the influence of intoxicating liquors, narcotics, or other dangerous drugs.

D. All explosives shall be accounted for at all times. Explosives not being used shall be kept in a locked magazine, unavailable to persons not authorized to handle them. The subcontractor shall maintain an inventory and use record of all explosives. Appropriate authorities shall be notified of any loss, theft, or unauthorized entry into a magazine.

E. No fire shall be fought where the fire is in imminent danger of contact with explosives. All workers shall be removed to a safe area and the fire area guarded against intruders.

F. Original containers, or Class II magazines, shall be used for taking detonators and other explosives from storage magazines to the blasting area.

G. When blasting is to be performed in congested areas or in proximity to a structure, railway, or highway, or any other installation that may be damaged, the blaster shall take special precautions in the loading, delaying, initiation, and confinement of each blast with mats or other methods so as to control the throw of fragments, and thus prevent bodily injury to employees.

H. Workers authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution including, but not limited to, visual and audible warning signals, flags, or barricades, to ensure employee safety.

I. Insofar as possible, blasting operations above ground shall be conducted between sunup and sundown.

J. Due precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by radar, radio transmitters, lightning, adjacent powerlines, dust storms, or other sources of extraneous electricity. These precautions shall include:

K. Detonators shall be short-circuited in holes which have been primed and shunted until wired into the blasting circuit.

L. The suspension of all blasting operations and removal of persons from the blasting area during the approach and progress of an electric storm.

M. The prominent display of adequate signs, warning against the use of mobile radio transmitters, on all roads within 1,000 feet of blasting operations. Whenever adherence to the 1,000-foot distance would create an operational handicap, a competent person shall be consulted to evaluate the

particular situation, and alternative provisions may be made which are adequately designed to prevent any premature firing of electric blasting caps. A description of any such alternatives shall be reduced to writing and shall be certified as meeting the purposes of this subdivision by the competent person consulted. The description shall be maintained at the construction site during the duration of the work, and shall be available for inspection by representatives of the Secretary of Labor.

N. Examples of signs which would meet the requirements of the above paragraph of this section are the following:

About 48" x 48"

About 42" x 36"

O. Ensuring that mobile radio transmitters which are less than 100 feet away from electric blasting caps, in other than original containers, shall be de-energized and effectively locked.

P. Compliance with the recommendations of The Institute of the Makers of Explosives with regard to blasting in the vicinity of radio transmitters as stipulated in Radio Frequency Energy-A Potential Hazard in the Use of Electric Blasting Caps, IME Publication No. 20, March 1971.

Q. Empty boxes and paper and fiber packing materials, which have previously contained high explosives, shall not be used again for any purpose, but shall be destroyed by burning at an approved location.

R. Explosives, blasting agents, and blasting supplies that are obviously deteriorated or damaged shall not be used.

S. Delivery and issue of explosives shall be made only by and to authorized persons and into authorized magazines or approved temporary storage or handling areas.

T. Blasting operations in the proximity of overhead power lines, communication lines, utility services, or other services and structures shall not be carried on until the operators and/or owners have been notified and measures for safe control have been taken.

U. The use of black powder shall be prohibited.

V. All loading and firing shall be directed and supervised by competent persons thoroughly experienced in this field.

W. All blasts shall be fired electrically with an electric blasting machine or properly designed electric power source, except as provided in 1926.906 (a) and (r).

Blaster Qualifications

A. A blaster shall be able to understand and give written and oral orders.

B. A blaster shall be qualified, by reason of training, knowledge, or experience, in the field of transporting, storing, handling, and use of explosives, and have a working knowledge of State and local laws and regulations which pertain to explosives.

C. Blasters shall be required to furnish satisfactory evidence of competency in handling explosives and performing in a safe manner the type of blasting that will be required.

D. The blaster shall be knowledgeable and competent in the use of each type of blasting method used.

Surface Transportation of Explosives

A. Transportation of explosives shall meet the provisions of Department of Transportation regulations contained in 46 CFR Parts 146-149, Water Carriers; 49 CFR Parts 171-179, Highways and Railways; 49 CFR Part 195, Pipelines; and 49 CFR Parts 390-397, Motor Carriers.

B. Motor vehicles or conveyances transporting explosives shall be driven by, and be in the charge of, only a licensed driver who is physically fit. He shall be familiar with the local, State, and Federal regulation governing the transportation of explosives.

C. No person shall smoke, or carry matches or any other flame-producing device, nor shall firearms or loaded cartridges be carried while in or near a motor vehicle or conveyance transporting explosives.

A. Explosives, blasting agents, and blasting supplies shall not be transported with other materials or cargoes. Blasting caps (including electric) shall not be transported in the same vehicle with other explosives.

B. Vehicles used for transporting explosives shall be strong enough to carry the load without difficulty, and shall be in good mechanical condition.

C. When explosives are transported by a vehicle with an open body, a Class II magazine or original manufacturer's container shall be securely mounted on the bed to contain the cargo.

D. Every motor vehicle or conveyance used for transporting explosives shall be marked or placarded on both sides, the front, and the rear with the word "Explosives" in red letters, not less than 4 inches in height, on white background. In addition to such marking or placarding, the motor vehicle or conveyance may display, in such a manner that it will be readily visible from all directions, a red flag 18 inches by 30 inches, with the word "Explosives" painted, stamped, or sewed thereon, in white letters, at least 6 inches in height.

E. Each vehicle used for transportation of explosives shall be equipped with a fully charged fire extinguisher, in good condition. An Underwriters Laboratory-approved extinguisher of not less than 10-ABC rating will meet the minimum requirement. The driver shall be trained in the use of the extinguisher on his vehicle.

F. Motor vehicles or conveyances carrying explosives, blasting agents, or blasting supplies, shall not be taken inside a garage or shop for repairs or servicing.

G. No motor vehicle transporting explosives shall be left unattended.

Underground Transportation of Explosives

A. All explosives or blasting agents in transit underground shall be taken to the place of use or storage without delay.

B. The quantity of explosives or blasting agents taken to an underground loading area shall not exceed the amount estimated to be necessary for the blast.

C. Explosives in transit shall not be left unattended.

D. The hoist operator shall be notified before explosives or blasting agents are transported in a shaft conveyance.

E. The installation of auxiliary lights on truck beds, which are powered by the truck's electrical system, shall be prohibited.

F. Explosives and blasting agents shall be hoisted, lowered, or conveyed in a powder car. No other materials, supplies, or equipment shall be transported in the same conveyance at the same time.

G. No one, except the operator, his helper, and the powder man, shall be permitted to ride on a conveyance transporting explosives and blasting agents.

H. No person shall ride in any shaft conveyance transporting explosives and blasting agents.

I. No explosives or blasting agents shall be transported on a man haul trip.

J. The car or conveyance containing explosives or blasting agents shall be pulled, not pushed, whenever possible.

K. The powder car or conveyance especially built for the purpose of transporting explosives or blasting agents shall bear a reflectorized sign on each side with the word "Explosives" in letters, not less than 4 inches in height; upon a background of sharply contrasting color.

L. Compartments for transporting detonators and explosives in the same car or conveyance shall be physically separated by a distance of 24 inches or by a solid partition at least 6 inches thick conveyance.

M. Detonators and other explosives shall not be transported at the same time in any shaft conveyance.

N. Explosives, blasting agents, or blasting supplies shall not be transported with other materials.

O. Explosives or blasting agents, not in original containers, shall be placed in a suitable container when transported manually.

P. Detonators, primers, and other explosives shall be carried in separate containers when transported manually.

Storage of Explosives and Blasting Agents

A. Explosives and related materials shall be stored in approved facilities required under the applicable provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR part 55.

B. Blasting caps, electric blasting caps, detonating primers, and primed cartridges shall not be stored in the same magazine with other explosives or blasting agents.

C. Smoking and open flames shall not be permitted within 50 feet of explosives and detonator storage magazine.

D. No explosives or blasting agents shall be permanently stored in any underground operation until the operation has been developed to the point where at least two modes of exit have been provided.

E. Permanent underground storage magazines shall be at least 300 feet from any shaft, adit, or active underground working area.

F. Permanent underground magazines containing detonators shall not be located closer than 50 feet to any magazine containing other explosives or blasting agents.

Loading of Explosive or Blasting Agents

A. Procedures that permit safe and efficient loading shall be established before loading is started.

B. All drill holes shall be sufficiently large to admit freely the insertion of the cartridges of explosives.

C. Tamping shall be done only with wood rods or plastic tamping poles without exposed metal parts, but non-sparking metal connectors may be used for jointed poles. Violent tamping shall be avoided. The primer shall never be tamped.

D. No holes shall be loaded except those to be fired in the next round of blasting. After loading, all remaining explosives and detonators shall be immediately returned to an authorized magazine.

E. Drilling shall not be started until all remaining butts of old holes are examined for unexploded charges, and if any are found, they shall be re-fired before work proceeds.

F. No explosives or blasting agents shall be left unattended at the blast site.

G. Machines and all tools not used for loading explosives into bore holes shall be removed from the immediate location of holes before explosives are delivered. Equipment shall not be operated within 50 feet of loaded holes.

H. No activity of any nature other than that which is required for loading holes with explosives shall be permitted in a blast area.

I. Powerlines and portable electric cables for equipment being used shall be kept a safe distance from explosives or blasting agents being loaded into drill holes. Cables in the proximity of the blast area shall be de-energized and locked out by the blaster.

J. Holes shall be checked prior to loading to determine depth and conditions. Where a hole has been loaded with explosives but the explosives have failed to detonate, there shall be no drilling within 50 feet of the hole.

K. When loading a long line of holes with more than one loading crew, the crews shall be separated by practical distance consistent with efficient operation and supervision of crews.

L. No explosive shall be loaded or used underground in the presence of combustible gases or combustible dusts.

M. All blast holes in open work shall be stemmed to the collar or to a point which will confine the charge.

N. Warning signs, indicating a blast area, shall be maintained at all approaches to the blast area. The warning sign lettering shall not be less than 4 inches in height on a contrasting background.

O. A bore hole shall never be sprung when it is adjacent to or near a hole that is loaded. Flashlight batteries shall not be used for springing holes.

P. Drill holes which have been sprung or chambered, and which are not water-filled, shall be allowed to cool before explosives are loaded.

Q. No loaded holes shall be left unattended or unprotected.

R. The blaster shall keep an accurate, up-to-date record of explosives, blasting agents, and blasting supplies used in a blast and shall keep an accurate running inventory of all explosives and blasting agents stored on the operation.

S. When loading blasting agents pneumatically over electric blasting caps, semi-conductive delivery hose shall be used and the equipment shall be bonded and grounded.

Initiation of Explosive Charges – Electric Blasting

A. Electric blasting caps shall not be used where sources of extraneous electricity make the use of electric blasting caps dangerous. Blasting cap leg wires shall be kept short-circuited (shunted) until they are connected into the circuit for firing.

B. Before adopting any system of electrical firing, the blaster shall conduct a thorough survey for extraneous currents, and all dangerous currents shall be eliminated before any holes are loaded.

C. In any single blast using electric blasting caps, all caps shall be of the same style or function, and of the same manufacture.

D. Electric blasting shall be carried out by using blasting circuits or power circuits in accordance with the electric blasting cap manufacturer's recommendations, or an approved contractor or his designated representative.

E. When firing a circuit of electric blasting caps, care must be exercised to ensure that an adequate quantity of delivered current is available, in accordance with the manufacturer's recommendations.

F. Connecting wires and lead wires shall be insulated single solid wires of sufficient current-carrying capacity.

G. Bus wires shall be solid single wires of sufficient current-carrying capacity.

H. When firing electrically, the insulation on all firing lines shall be adequate and in good condition.

I. A power circuit used for firing electric blasting caps shall not be grounded.

J. In underground operations when firing from a power circuit, a safety switch shall be placed in the permanent firing line at intervals. This switch shall be made so it can be locked only in the "Off"

position and shall be provided with a short-circuiting arrangement of the firing lines to the cap circuit.

K. In underground operations there shall be a "lightning" gap of at least 5 feet in the firing system ahead of the main firing switch; that is, between this switch and the source of power. This gap shall be bridged by a flexible jumper cord just before firing the blast.

L. When firing from a power circuit, the firing switch shall be locked in the open or "Off" position at all times, except when firing. It shall be so designed that the firing lines to the cap circuit are automatically short-circuited when the switch is in the "Off" position. Keys to this switch shall be entrusted only to the blaster.

M. Blasting machines shall be in good condition and the efficiency of the machine shall be tested periodically to make certain that it can deliver power at its rated capacity.

N. The number of electric blasting caps connected to a blasting machine shall not be in excess of its rated capacity. Furthermore, in primary blasting, a series circuit shall contain no more caps than the limits recommended by the manufacturer of the electric blasting caps in use.

O. The blaster shall be in charge of the blasting machines, and no other person shall connect the leading wires to the machine.

P. Blasters, when testing circuits to charged holes, shall use only blasting galvanometers or other instruments that are specifically designed for this purpose.

Q. In electrical firing, only the man making leading wire connections shall fire the shot. All connections shall be made from the bore hole back to the source of firing current, and the leading wires shall remain shorted and not be connected to the blasting machine or other source of current until the charge is to be fired.

R. After firing an electric blast from a blasting machine, the leading wires shall be immediately disconnected from the machine and short-circuited.

Use of Safety Fuse

A. Safety fuse shall be used only where sources of extraneous electricity make the use of electric blasting caps dangerous. The use of a fuse that has been hammered or injured in any way shall be forbidden.

B. Before capping safety fuse, a short length shall be cut from the end of the supply reel so as to assure a fresh cut end in each blasting cap.

C. Only a cap crimper of approved design shall be used for attaching blasting caps to safety fuse. Crimpers shall be kept in good repair and accessible for use.

D. No unused cap or short capped fuse shall be placed in any hole to be blasted; such unused detonators shall be removed from the working place and destroyed.

E. No fuse shall be capped, or primers made up, in any magazine or near any possible source of ignition.

F. No one shall be permitted to carry detonators or primers of any kind on his person.

G. The minimum length of safety fuse to be used in blasting shall be as required by State law, but shall not be less than 30 inches.

H. At least two men shall be present when multiple cap and fuse blasting is done by hand lighting methods.

I. Not more than 12 fuses shall be lighted by each blaster when hand lighting devices are used. However, when two or more safety fuses in a group are lighted as one by means of igniter cord, or other similar fuse-lighting devices, they may be considered as one fuse.

J. The so-called "drop fuse" method of dropping or pushing a primer or any explosive with a lighted fuse attached is forbidden.

K. Cap and fuse shall not be used for firing mudcap charges unless charges are separated sufficiently to prevent one charge from dislodging other shots in the blast.

L. When blasting with safety fuses, consideration shall be given to the length and burning rate of the fuse. Sufficient time, with a margin of safety, shall always be provided for the blaster to reach a place of safety.

Use of Detonating Cord

A. Care shall be taken to select a detonating cord consistent with the type and physical condition of the bore hole and stemming and the type of explosives used.

B. Detonating cord shall be handled and used with the same respect and care given other explosives.

C. The line of detonating cord extending out of a bore hole or from a charge shall be cut from the supply spool before loading the remainder of the bore hole or placing additional charges.

D. Detonating cord shall be handled and used with care to avoid damaging or severing the cord during and after loading and hooking-up.

E. Detonating cord connections shall be competent and positive in accordance with approved and recommended methods. Knot-type or other cord-to-cord connections shall be made only with detonating cord in which the explosive core is dry.

F. All detonating cord trunk lines and branch lines shall be free of loops, sharp kinks, or angles that direct the cord back toward the oncoming line of detonation.

G. All detonating cord connections shall be inspected before firing the blast.

H. When detonating cord millisecond-delay connectors or short-interval-delay electric blasting caps are used with detonating cord, the practice shall conform strictly to the manufacturer's recommendations.

I. When connecting a blasting cap or an electric blasting cap to detonating cord, the cap shall be taped or otherwise attached securely along the side or the end of the detonating cord, with the end of the cap containing the explosive charge pointed in the direction in which the detonation is to proceed.

J. Detonators for firing the trunk line shall not be brought to the loading area nor attached to the detonating cord until everything else is in readiness for the blast.

Firing The Blast

A. A code of blasting signals equivalent to Table U-1 shall be posted on one or more conspicuous places at the operation, and all workers shall be required to familiarize themselves with the code and conform to it. Danger signs shall be placed at suitable locations.

B. Before a blast is fired, a loud warning signal shall be given by the blaster in charge, who has made certain that all surplus explosives are in a safe place and all workers, vehicles, and equipment are at a safe distance, or under sufficient cover.

C. Flagmen shall be safely stationed on highways which pass through the danger zone so as to stop traffic during blasting operations.

D. It shall be the duty of the blaster to fix the time of blasting.

E. Before firing an underground blast, warning shall be given, and all possible entries into the blasting area, and any entrances to any working place where a drift, raise, or other opening is about to hole through, shall be carefully guarded. The blaster shall make sure that all employees are out of the blast area before firing a blast.

Table U-1

WARNING SIGNAL	A 1-minute series of long blasts 5 minutes prior to blast signal.
BLAST SIGNAL	A series of short blasts 1 minute prior to the shot.
ALL CLEAR SIGNAL	A prolonged blast following the inspection of blast area.

Inspection After Blasting

A. Immediately after the blast has been fired, the firing line shall be disconnected from the blasting machine, or where power switches are used, they shall be locked open or in the off position.

B. Sufficient time shall be allowed, not less than 15 minutes in tunnels, for the smoke and fumes to leave the blasted area before returning to the shot. An inspection of the area and the surrounding rubble shall be made by the blaster to determine if all charges have been exploded before employees are allowed to return to the operation, and in tunnels, after the muck pile has been wetted down.

Misfires

A. If a misfire is found, the blaster shall provide proper safeguards for excluding all workers from the danger zone.

B. No other work shall be done except that necessary to remove the hazard of the misfire and only those workers necessary to do the work shall remain in the danger zone.

C. No attempt shall be made to extract explosives from any charged or misfired hole; a new primer shall be put in and the hole re-blasted. If re-firing of the misfired hole presents a hazard, the explosives may be removed by washing out with water or, where the misfire is under water, blown out with air.

D. If there are any misfires while using cap and fuse, all employees shall remain away from the charge for at least 1 hour. Misfires shall be handled under the direction of the person in charge of the blasting. All wires shall be carefully traced and a search made for unexploded charges.

E. No drilling, digging, or picking shall be permitted until all missed holes have been detonated or the authorized representative has approved that work can proceed.

F. A blaster shall conduct all blasting operations, and no shot shall be fired without his approval.

Underwater Blasting

A. A blaster shall conduct all blasting operations, and no shat shall be fired without his approval.

B. Loading tubes and casings of dissimilar metals shall not be used because of possible electric transient currents from galvanic action of the metals and water.

C. Only water-resistant blasting caps and detonating cords shall be used for all marine blasting. Loading shall be done through a non-sparking metal loading tube when tube is necessary.

D. No blast shall be fired while any vessel under way is closer than 1,500 feet to the blasting area. Those on board vessels or craft moored or anchored within 1,500 feet shall be notified before a blast is fired.

E. No blast shall be fired while any swimming or diving operations are in progress in the vicinity of the blasting area. If such operations are in progress, signals and arrangements shall be agreed upon to assure that no blast shall be fired while any person is in the water.

F. Blasting flags shall be displayed.

G. The storage and handling of explosives aboard vessels used in underwater blasting operations shall be according to provisions outlined herein on handling and storing explosives.

H. When more than one charge is placed under water, a float device shall be attached to an element of each charge in such manner that it will be released by the firing. Misfires shall be handled in accordance with the requirements of 1926.911.

Blasting in Excavation Work Under Compressed Air

A. Detonators and explosives shall not be stored or kept in tunnels, shafts, or caissons. Detonators and explosives for each round shall be taken directly from the magazines to the blasting zone and immediately loaded. Detonators and explosives left over after loading a round shall be removed from the working chamber before the connecting wires are connected up.

B. When detonators or explosives are brought into an air lock, no worker except the powder man, blaster, lock tender and the workers necessary for carrying, shall be permitted to enter the air lock. No other material, supplies, or equipment shall be locked through with the explosives.

C. Detonators and explosives shall be taken separately into pressure working chambers.

D. The blaster or powder man shall be responsible for the receipt, unloading, storage, and on-site transportation of explosives and detonators.

E. All metal pipes, rails, air locks, and steel tunnel lining shall be electrically bonded together and grounded at or near the portal or shaft, and such pipes and rails shall be cross-bonded together at not less than 1,000-foot intervals throughout the length of the tunnel. In addition, each low air supply pipe shall be grounded at its delivery end.

F. The explosives suitable for use in wet holes shall be water-resistant and shall be Fume Class 1.

G. When tunnel excavation in rock face is approaching mixed face, and when tunnel excavation is in mixed face, blasting shall be performed with light charges and with light burden on each hole. Advance drilling shall be performed as tunnel excavation in rock face approaches mixed face, to determine the general nature and extent of rock cover and the remaining distance ahead to soft ground as excavation advances.

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SECTION 4
CONCRETE/MASONRY/TILT-UP & CAST-IN-PLACE

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR1926 – Subpart Q (Concrete and Masonry Construction). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

CONCRETE/MASONRY

General Requirements

A. All protruding rebar which employees can fall into/onto shall be guarded to eliminate the hazard of impalement. This includes stubbed up conduit and pins driven into the ground for bracing.

B. Mushroom-style rebar caps do not provide adequate protection and shall not be permitted as protection from impalement. These caps shall only be used for scratch protection only.

C. Workers placing rebar at elevations over six (6) feet above the ground, slab, or other working surface shall be required to use appropriate positioning and fall arrest equipment.

D. Reinforcing steel may not be hoisted by #9 wire; properly rigged chokers must be used. No overhead hoisting with shake-out hooks.

E. The Subcontractor must ensure that each worker is fully trained and fully understands his/her duties.

F. Each Subcontractor shall have available at the job-site, formwork, shoring erection and removal plans as required.

PRE-CAST CONCRETE CONSTRUCTION

1. General Requirements

A. Pre-cast or pre-stressed concrete, columns, beams, floor slabs, wall panels, and tilt-up panels must be properly supported at all times.

B. If delivery schedules are such that storage at the job site is necessary, factory-produced wall panels must be properly stored on edge.

C. Architectural surfaces on precast panels should be protected.

2. *Erecting Precast Concrete Units*

A. An erection plan including the design of any needed bracing must be developed by the designer of the structure or the precast Subcontractor.

B. A copy of the erection plan must be maintained at the site.

C. Special attention should be paid to fall protection during the construction of a precast building.

3. *Lifting Hardware*

A. The lifting inserts embedded or attached to tilt-up concrete members must be capable of supporting at least twice the maximum load on the inserts from the weight of the member during lifting.

B. Lifting inserts embedded or otherwise attached to precast concrete members (other than tilt-up), must be capable of supporting at least four times the maximum expected load.

C. Lifting hardware must be capable of supporting at least five times the maximum expected load permitted by the lifting inserts.

D. No one is permitted under precast concrete members that are being lifted or tilted into position.

4. *Vertical Slip Forming*

A. Hydraulic, pneumatic, and mechanical form lifting devices for vertical slip forming operations should be uniformly spaced and securely anchored.

B. Lifting devices must be provided with automatic holding devices to protect against failure of the power supply or lifting mechanism.

C. Forms should not be removed until the concrete has reached the proper strength.

D. Lifting should proceed steadily and uniformly to avoid overloading any lift point.

E. Forms should be locked into position by a mechanical link or stop, not by the lifting device itself.

F. The Subcontractor must provide workers with adequate fall protection, where necessary.

5. *Post-Tensioned Concrete Construction*

A. The contractor must acknowledge that the concrete has achieved the specified strength.

B. Employees (except those essential to the post-tensioning operations) must not be permitted to be behind the jack during tensioning operations.

C. Signs and barriers must be erected to limit employee access to the post-tensioning area during tensioning operations.

D. Tendons should be stressed in order from the furthest to the closest reachable to ensure that no person is standing in direct line of the jack or previously stressed strands.

E. Contractor is to ensure that the stressing equipment, i.e., jacks and gauges, have appropriate service records and calibration certificates.

6. *Pre-stressing Steel*

A. Pre-stressing steel strands of high-strength, cold-drawn steel wire or bars of high-strength steel must not be kinked or nicked during handling or their strength may be reduced.

B. Due to the amount of energy stored in a stressed strand, it should be treated with great care and respect.

C. Sharp edges, nearby welding operations, or longtime exposure to rain or high humidity can reduce the tensile strength of steel pre-stressing strand.

7. *Strand Cutting*

A. Cut Strands with a portable cutter designed for the purpose.

8. *Stressing Equipment*

A. A common method of stressing is by hydraulic jacking.

B. The Subcontractor's operator must follow the manufacturer's recommendations for use of such jacks.

C. All hose, hose connections, and valves should be checked daily for defects.

D. Stressing levels must meet the specified requirements.

E. The relationship between elongation of the steel and the jack pressure must be within the specified tolerance.

9. *Concrete Masonry Construction*

A. A Limited Access Zone should be established whenever a masonry wall is to be constructed. The limited access zone should:

1. Be equal to the height of the wall to be constructed plus four feet, and run the entire length of the wall
2. Be established on the side of the wall without scaffolding,

3. Be open only to workers actively engaged in construction of the wall, and
4. Should remain in place until the wall is adequately supported.

B. Bracing
   1. All masonry walls over 8 feet in height should be adequately braced unless the wall is supported by other means.
   2. The bracing should remain in place until permanent supporting elements of the structure are in place.

TILT-UP CONCRETE CONSTRUCTION

1. Primary safety concerns include:

A. Panel raising operation is safely conducted.

B. Bracing is properly designed and installed.

C. Crane is of adequate capacity.

D. Structural members are adequately supported during construction.

E. During installation of the roof system, panelized or hand-set, workers are protected from falls.

Due to these and other inherent hazards associated with his type of construction, proper safety planning is essential to a safe operation.

2. ***Panel Erection.*** The Subcontractor is responsible to visually inspect each panels to assure that:

A. The specified cast-in brace anchors have been used.

B. The anchors are properly placed per the engineer's requirements for brace angle and height on panel.

C. That, when required, knee and/or lateral bracing is installed and properly attached and anchored. Note the rebar inspector will check the structural rebar only, not the proper type and placement of lifting or brace inserts.

> Note: The rebar inspector will check the structural rebar only, not the proper type and placement of lifting or brace inserts.

3. Prior to Construction

A. The panel contractor should obtain from the erection Subcontractor documentation attesting to the crane's certification and certification of insurance.

B. The concrete Subcontractor shall provide a panel schedule showing lift points and strong backs required for hoisting. The type and location of these lifting point attachments and other embeds or inserts shall be specified by an engineer.

C. Ensure a proper subbase under the floor slab. This will be the casting area as well as a working surface. The slab is only as good as the subbase upon which it is placed.

D. If the crane will be on the floor slab, check the floor slab for adequate strength to support the crane.

E. Obtain a properly designed and detailed tilt-up package stamped by a registered professional engineer.

F. Panel bracing requirements shall also be designed by a currently registered engineer. Unless noted otherwise in the engineered bracing plan, Red-Head type wedge anchors are not to be used to anchor bracing, either to the panel or slab.

G. Obtain approved shop drawings for each panel showing all pertinent information.

H. The concrete Subcontractor shall also provide a lifting plan detailing where the panels are to be cast and in what sequence they will be lifted. This lifting plan is also to be prepared by a registered engineer.

I. A copy of the lifting plan must be provided to Lauth and maintained on the site.

J. All documents and calculations which are required to be prepared by an engineer must be stamped and signed by that engineer.

K. Likewise, the lifting plan shall describe the rigging configuration for each lift including spreader beams and minimum cable lengths. The beams must be designed or approved by the engineer for the panels and other anticipated loads.

L. The Subcontractor shall determine the local wind load bracing design requirements and then verify that the engineer's bracing plan satisfies those code requirements. In addition, recognized significant wind conditions should be brought to the attention of the bracing engineer when it is apparent that the standard design wind pressure of 10 lb. /ft.2 is not adequate.

M. The concrete Subcontractor must provide ladders or platforms that are of adequate length or height for the work. Walking on top of tilt-up panels or ledger-beams, etc., is not permitted.

N. Tag lines should be used to control swing.

O. The bond breaker shall be tested on the slab prior to casting any panels. Verify that the bondbreaker is compatible with any curing or sealing compounds that may have been used on the floor slab.

P. Inspect the panel formwork for proper placing of reinforcing, inserts, embedded items, and dimensional accuracy.

4. *Prior to Erection*

A. Perform a site inspection with the panel Subcontractor and the erection Subcontractor. Look for any underground hazards, overhead wires, rough terrain, or soft subgrade on which the crane will travel. Make notations of any correction which need to be made or any hazardous areas.

B. Rig the crane prior to the date erection is to start.

C. The panel contractor should verify that the crane is in good working condition and provide valid crane certification as proof.

D. The lifting inserts shall be properly located, strong backs properly installed, and concrete strength required for lifting shall be attained. This information should be noted in the erection manual.

E. Install entrance and exit ramps for the crane to position itself onto the floor slab. Do not allow the crane to exert its weight on the extreme edge of any portion of the slab.

F. Check to make sure all the blockouts are covered. If water gets under the slab, it could weaken the subgrade and the crane may crack the slab.

G. Itemize the equipment required for a proper and safe lift. Ensure that the tools and equipment are well maintained.

H. Identify erection subcontractor's crew. A minimum crew should consist of:

1. the crane operator
2. rigger foreman
3. two journeyman riggers, and
4. welders, if required.

I. Provide a clean working area with all debris and obstacles removed.

J. Locate proper shim points on the footing to prevent overloading the footing prior to grouting under the panels. The engineer of record can help you with these locations.

K. Hold a safety meeting before any lifting starts.

L. The subcontractor must ensure that each member of the crew fully understands his/her duties.

5. *During Panel Erection*

The Subcontractor shall:

A. Provide a clean working area with all debris and obstacles removed.

B. Do not lift panels when wind conditions would produce unsafe conditions during a lift.

C. Personnel not involved with the panel lifting procedure should be clear of the lifting area.

D. If at all possible, fully extend outriggers and use cribbing to spread the outrigger loading. If outriggers cannot be fully extended, then the crane capacities must be reduced.

E. Inspect all rigging gear prior to loading the inserts. Rigging gear must be properly aligned and free of snags.

F. Make certain that the rigging configuration matches that shown in the erection manual.

G. Check to be sure that braces will not be trapped by the rigging once the panel is in its final position.

H. Be alert for panels that may be stuck to the casting surface. Loads to the lifting inserts may be twice that designed for causing possible insert withdrawal.

I. Carefully release the panel using pry bars and wedges.

J. Be alert to all obstacles in the path of the crane and the crew.

K. Take extra precautions when lifting panels with special shapes or special rigging.

L. Not use any damaged or bent braces, lifting hardware or bolts.

M. Make certain that any strong backs shown on the erection details are included on the panels.

6. After Panel Erection

The Subcontractor shall:

A. Be alert when plumbing panels to their final upright position.

B. Make sure that the panel being plumbed does not strike another previously erected panel.

C. Plumb panels as close as possible prior to attaching braces to the floor slab.

D. Never release the crane load if the bracing does not appear adequate.

E. Ensure that all bracing (knee, lateral, end, or cross bracing) is properly installed prior to releasing the crane. If the lateral and end bracing cannot be installed with the panel load still on the crane, then the completion of this bracing must not be further than one panel behind the lifting schedule.

F. All bracing should be installed on all erected panels at the end of the work day.

G. At the beginning and end of the work day, check all brace inserts to ensure that they are tight and have not worked loose throughout the night or day. Check brace inserts daily.

H. Maintain a daily torque log on brace insert tightening.

I. If at all possible, grout under all erected panels prior to the end of the work day.

J. Do not remove any braces until all the structural connections are completed and the lateral resistive system is in place and completed. The structural engineer of record can help you determine if it is safe to remove any or all of the panel braces.

K. Be careful when backfilling the pour strip so that you do not exert excessive pressure on the tilt-up panel.

L. A controlled access zone shall be established on the non scaffold side of all masonry walls. The CAZ shall be the height of the wall plus five feet and shall run the entire length of the wall.

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SECTION 5
CONFINED SPACE ENTRY

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 (Construction Industry Regulations). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply. Each Subcontractor is required to enforce the contents of this section.

The Policy and Procedures for Permit Required Confined Space Entry are mandated for use by all workers. Workers will not be assigned the duties of Confined Space Supervisor, Entrant or Attendant unless they are trained and designated in accordance with the conditions of this program. Violations of this Policy and Procedure may result in immediate termination. Subcontractors who anticipate entering confined spaces must first provide the Lauth Superintendent with a copy of their Company's Confined Space Program in accordance with 29CFR 1926 Construction Standards as well as the name of the Competent Person for permit-required confined Space work.

A. Confined Space - A confined space is a space that is large enough and so configured that an individual can bodily enter and perform assigned work and has limited or restricted means for entry or exit and is not designed for continuous employee/worker occupancy. Example: tanks, vessels, silos, storage bins, hoppers, vaults, pits, tank skirts and excavations are considered confined spaces.

B. Confined Space Entry - Confined space entry means the action by which a person passes through an opening into a confined space. Entry includes ensuing work activities in the space and is considered to have occurred as soon as any part of the entrant's body breaks the surface plane of the opening into the space. Before it begins work at a worksite, each employer must ensure that a competent person identifies all confined spaces in which one or more of the employees it directs may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.

C. Permit-Required Confined Space - A permit-required confined space means a confined space that has one or more of the following characteristics.

1. It contains or has a potential to contain a hazardous atmosphere.

2. It contains a material that has the potential for engulfing an entrant.

3. It has the internal configuration that could trap an entrant or asphyxiate an entrant by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section.

4. It contains any other recognized serious safety or health problem.

D. Permit-Required Confined Space Program - A permit-required confined space program is the company overall program for controlling and protecting employees from permit-required confined space hazards and regulating employee entry into permit required confined spaces.

E. Confined Space Entry Permit – A permit must be completed before workers are permitted to enter a confined space. Ongoing monitoring of the confined space is the responsibility of the employer of the entrants.

1. The specific identification of the permit space to be entered.
2. The purpose for the entry.
3. The date and the authorized duration of the permit.
4. The names of the authorized entrants and a method of tracking the entrants who are in the confined space or have exited the confined space.
5. The name of the individual assigned to attendant duties for the specific confined space.
6. The name of the individual serving as confined space supervisor.
7. The printed name, signature and date of the confined space entry supervisor issuing the permit and authorizing entry.
8. The hazards of the confined space to be entered.
9. The measures used to isolate the confined space and eliminate or control the permit space hazard prior to entry. (i.e., lockout, tagout, purging, ventilating and flushing the confined space.
10. The acceptable entry conditions.
11. The results of initial and periodic atmospheric monitoring tests, accompanied by the name or initials of the tester and the time the tests were performed.
12. Specification of rescue services required including the method and equipment required to summon emergency rescue services.
13. The communication method and/or equipment required to maintain effective communication between authorized attendant(s) and entrant(s).
14. Personal protective equipment required including emergency retrieval devices, atmospheric monitoring equipment, alarm systems, communications devices.

15. Additional permits issued to allow other work, such as hot work, cold work, etc., within the confined space.

16. A remarks section to communicate any other necessary information regarding the safety and health of the confined space entrant(s) and attendant(s).

17. Copies of all cancelled and postponed entry permits will be provided to Lauth.

F. Entry Employer - Any employer who decides that an employee it directs will enter a permit space.

G. Host Employer - If the owner of the property on which the construction activity occurs has contracted with an entity for the general management of that property, and has transferred to that entity the information specified in 1926.1203(h)(1), OSHA will treat the contracted management entity as the host employer for as long as that entity manages the property. Otherwise, OSHA will treat the owner of the property as the host employer. In no case will there be more than one host employer.

H. Hazardous Atmosphere - A hazardous atmosphere is defined as an atmosphere that may expose the employee to the risk of death, illness, injury and/or impairment to the individual's ability to self rescue.

I. Oxygen-Deficient Atmosphere - An oxygen deficient atmosphere is an atmosphere containing less than 19.5 % oxygen by volume. For the purpose of this program, entry to confined spaces shall not be performed if the oxygen content is less than 20.8%.

J. Oxygen-Enriched Atmosphere - An oxygen enriched atmosphere is defined as an atmosphere above 23.5% oxygen by volume. For the purpose of this program, confined space entry shall not be performed if the oxygen content is above 23.0% by volume.

K. Entry Supervisor - The person designated by the employer to determine if conditions for entry are acceptable; permit issuance; oversee entry operations and terminate entry if conditions inside or outside the confined space change after permit issuance. The entry supervisor can be changed during the permitted entry period. The change shall be documented on the permit. The entry supervisor may also perform the duties of the attendant OR entrant, but not both.

L. Attendant - The Attendant is a trained, qualified and designated individual stationed outside one or more confined spaces. The attendant monitors the authorized entrants and performs all duties assigned in the Confined Space Entry Procedure.

M. Authorized Entrant - The authorized entrant is an individual who is trained, qualified and authorized, by the employer, to enter a permit-required confined space.

N. Host Employer - For the purpose of this program, the host employer is defined as the facility and equipment owner and/or operator.

O. Preparation of Confined Space Prior to Entry - Prior to any entry into confined spaces, the following steps shall be taken:

1. The confined space must be isolated from all potential sources of hazardous material entry and sources of hazardous energy.
2. All process and utility lines and equipment leading to or from the confined space shall be blanked/blinded; disconnected in a manner which would prevent material from entering the vessel; double blocked, locked out and bled.
3. All sources of hazardous energy and all rotating equipment shall be locked out in accordance with the control of hazardous energy program.
4. The host employer shall clean and purge the confined space of potential hazardous materials.
5. The confined space entrance cover may be removed when all conditions making it unsafe to remove the cover have been eliminated. Once the confined space entrance cover has been removed, the opening shall be immediately guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through or non-permitted entry into the confined space.

P. Acceptable Atmospheric Conditions for Entry - For the purpose of the confined-space entry program and procedure, the following atmospheric conditions shall be met:

1. Flammable gas, vapor or mist shall not exceed 2% of the lower flammable limit (LFL).
2. Airborne combustible dust shall not meet or exceed the LFL. This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.
3. Atmospheric oxygen concentration shall not be below 20.8% or above 23.0%.
4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit (PEL) is published in Subpart G or Subpart Z of 29CFR 1910, which could result in worker exposure in excess of its dose or PEL shall not exist.
5. Any other atmospheric condition that is immediately dangerous to life or health shall be eliminated prior to authorized entry.

Q. Atmospheric Testing - Before any worker enters the confined space, atmospheric testing shall be performed with a calibrated direct reading instrument for the following conditions in the order given:

1. Oxygen Content
2. Flammable Gases and vapors
3. Potential toxic air contaminants
4. Atmospheric testing must be accomplished in a manner that would detect potential stratification of hazardous atmospheres within the confined space.

R. Atmospheric Monitoring - Continual atmospheric monitoring is required during confined space operations. This monitoring is in addition to periodic atmospheric testing required by the Confined Space Entry Permit. CAUTION: Hazardous atmospheres within a confined space can

stratify. The monitoring device must be periodically passed through the confined space from top to bottom to ensure accurate detection.

S. Rescue Services and Retrieval Equipment

1. Rescue Services - The host employer shall identify qualified rescue services to be utilized in the event of an emergency. The name and method of contacting rescue services shall be clearly identified on the confined space entry permit. The rescue services shall be trained in performing confined space rescue and shall have practiced a rescue situation within the last 12 months. Employees will not attempt a rescue by entering the confined space unless specifically trained, designated and authorized in writing by the company president and the host employers designated entry supervisor.

2. The rescue team must meet the following requirements:

   a) Have the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;

   b) Is equipped for, and proficient in, performing the needed rescue services;

   c) Agrees to notify the employer immediately in the event that the rescue service becomes unavailable;

   d) Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and

   e) Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue team or service can develop appropriate rescue plans and practice rescue operations.

3. Retrieval Equipment - To facilitate non-entry rescue, retrieval systems or other methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. The retrieval system shall be in place prior to entry and shall meet the following requirements:

   a) Each authorized entrant shall use a chest or full body harness with a retrieval line attached at the center of the entrant's back near shoulder level, or above the entrant's head.

   b) The other end of the retrieval line shall be attached to a mechanical device or a fixed point outside the permit space in a manner that would allow immediate non-entry rescue to begin as soon as the rescuer becomes aware that a rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit space more than 5 feet deep.

T. Hazardous Material Exposure - Since exposure to hazardous materials inside a confined space is possible, a copy of the Safety Data Sheet for materials contained, previously contained, or used within the confined space shall be posted with a copy of the confined space entry permit and available for rescue personnel immediately outside the access point to the confined space.

U. Ventilation - Continuous forced air ventilation shall be installed prior to beginning confined-space entry in the following manner:

1. An employee may not enter the confined space until the forced air ventilation has eliminated any hazardous atmosphere.

2. The forced air ventilation shall be directed to ventilate the immediate areas where an employee is or shall be present within the confined space and shall remain in effect until all employees have left the space.

3. The air supply for the forced air ventilation shall be from a clean source and may not increase the hazard within the space (i.e., suction source located near diesel exhaust, chemical spills, and atmospheric vented storage drums.)

V. Air Operated Tools and Equipment - All air operated tools and equipment used inside of a confined space shall be connected to a grade D breathing air source.

W. Electrical Tools and Lighting - All electrical tools and lighting used within a confined space shall be connected to a Ground Fault Circuit Interrupter or reduced to 12 volts. All lighting bulbs shall be enclosed in a safety cage.

X. Hot Work - The confined space supervisor shall be familiar with Lauth rules regarding the definition of hot work (i.e., electrical tools). A separate permit may be required for all hot work within confined spaces.

1. Torch units shall be shut down and removed from the space EACH TIME the entrants have departed the confined space. This includes breaks, lunch, etc.

Y. Duties - The following section contains the duties of the Entry Supervisor, Confined Space Entry Attendant and Authorized Entrant. Prior to performing any of the duties associated with these designations, individuals shall be trained, qualified and designated by an authorized representative.

1. Host Employer - Before entry operations begin, the host employer must provide the following information, if it has it, to the controlling contractor:

a) The location of each known permit space;

b) The hazards or potential hazards in each space or the reason it is a permit space;

c) Any precautions that the host employer or any previous controlling contractor or entry employer implemented for the protection of employees in the permit space.

2. Controlling Contractor - Before entry operations begin, the controlling contractor must:

a) Obtain the host employer's information about the permit space hazards and previous entry operations.

b) Provide the following information to each entity entering a permit space and any other entity at the worksite whose activities could foreseeably result in a hazard in the permit space:

i. The information received from the host employer.

ii. Any additional information the controlling contractor has about the hazards, potential hazards and precautions needed.

iii. The precautions that the host employer, controlling contractor, or other entry employers implemented for the protection of employees in the permit spaces.

c) The Controlling Contractor and Entry Employers must coordinate entry operations when more than one entity performs permit space entry at the same time or when permit space entry is performed at the same time that any activities that could foreseeably result in a hazard in the permit space are performed.

3. Entry Employer - Before entry operations begin, each entry employer must:

a) Obtain all of the controlling contractors information regarding permit space hazards and entry operations

b) Inform the controlling contractor of the permit space program that the entry employer will follow, including any hazards likely to be confronted or created in each permit space.

4. Entry Supervisor - Shall know the hazards faced during entry, including information on the mode, signs or symptoms and consequences of exposure.

a) Shall keep an SDS or other similar written material shall be kept at the work site for any material to which the authorized entrant may be exposed.

b) Shall verify that the appropriate entries have been made on the confined space entry permit and all specified tests have been conducted.

c) Verifies, by checking, that all procedures and equipment specified by the permit are in place, before signing the permit and allowing entry.

d) Suspend or cancel the entry permit and fully reassess the space before allowing reentry when a condition that is not allowed under the entry permit arises in or near the permit

space and that condition is temporary in nature and does not change the configuration of the space or create any new hazards within it;

e) Verifies that rescue services are available and that the communication with rescue service is readily available.

f) Removes unauthorized individuals who enter or who attempt to enter the confined space.

g) Reviews the confined space operation at intervals dictated by the hazard and the operation to insure compliance with this policy.

h) Determines when responsibility for a permit space entry operation is transferred.

i) Reviews the permit required confined space work, prior to commencement with the attendant, entrants and designated representative.

j) Designates qualified individuals to act as entrants and attendants.

5. Attendant:

a) The attendant shall know the hazards that may be faced during entry, including information on the mode, signs, symptoms and consequences of exposure.

b) The attendant shall be aware of possible behavioral effects of hazard exposure in authorized entrants.

c) The attendant shall maintain an accurate count of authorized entrants in the permit space and ensure that the entrants are properly identified and authorized on the permit.

d) The attendant shall ensure, by head count, that all authorized entrants have departed the confined space prior to closing out the permit or departing the confined space area.

e) The attendant shall contact emergency responders if the attendant feels the entrants may need assistance to escape from hazards or may have displayed the effects of the hazards of the confined space.

f) The attendant shall prevent unauthorized entry to the confined space.

g) The attendant will not attempt a rescue by entry into the confined space. Non-entry rescue attempt only is allowed.

h) The attendant will not vacate the area, for any reason, or perform any duty which would prevent or inhibit the ability to communicate with the entrants.

i) The attendant will evacuate the confined space if:

i. The attendant detects a condition outside (i.e., an alarm, leak) which may endanger the entrants or any alarm condition on continuous monitoring equipment.

ii. The attendant detects a behavioral or symptomatic change in the entrant(s).

iii. The attendant must leave the site or cannot comply with all duties listed in this section.

iv. The attendant cannot effectively communicate with the entrants.

v. The attendant is advised to vacate the confined space.

vi. The attendant determines that the entrant (s) is (are) not complying with personal protective equipment practices or safe work practices.

6. Authorized Entrant

a) Shall know the hazards that may be faced during entry, including information on the mode, signs or symptoms and consequences of the exposure.

b) Shall properly use protective equipment and monitoring devices as specified.

c) Shall establish and maintain open communication with the attendant.

d) Shall alert the attendant if the entrant detects a prohibited or hazardous condition.

e) Shall alert the attendant and other entrants if the entrant notices any warning sign or change in behavior or symptom of exposure in any other entrant.

f) The entrant will immediately take action to evacuate the confined space if the entrant:

i. Is directed to do so by the attendant, entry supervisor or designated representative.

ii. Detects a failure to comply with personal protective equipment requirements.

iii. Is unable to maintain effective communication with the attendant.

iv. Detects any symptomatic or behavioral changes of other entrants.

v. Detects any alarm on continuous monitoring equipment.

Z. Re-Entry After Evacuation - If a confined space is evacuated for any emergency, the permit shall be terminated and a new permit issued prior to resumption of entry.

ZZ. Training - All Employees and Employees of Subcontractors shall be trained in this program. Each trained individual shall be identified to Lauth in writing.

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SECTION 6
CRANES/DERRICKS/HOISTS ELEVATORS & HELICOPTOR LIFTS

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart N (Cranes, Derricks, Hoists, Elevators, and Conveyors). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Cranes

A. Upon a crane's arrival to the site, the Subcontractor must provide Lauth with a current annual crane certification. Any crane that has an expired certification will not be used until crane meets certification requirements. Cranes will be immediately shut down and not used if the certification expires while on site until a new certification is completed. The Subcontractor shall also submit the name of the "Competent Person" for the inspection of cranes and rigging, to the Lauth Superintendent. This individual shall be responsible for ensuring that all workers and lower tier Subcontractors comply with all applicable standards.

B. The Assembly/Disassembly Director should meet with the Project Superintendent to discuss the OSHA requirements for proper assembly.

C. Ground conditions must be reviewed and documented on the lift plan.

D. Wind and load charts will be available in the cab of all cranes. Instructions and warnings must be visible from the operator's station. All lifting equipment cranes / derricks / hoists / elevators / helicopters and rigging) must be inspected by a competent person before and during each use. All deficiencies must be corrected before use. All slings, chains, ropes, rigging materials shall be inspected prior to and during each use.

E. Only trained and qualified operators shall operate a crane and only for the size trained to operate. Some areas require a crane certification card and should be asked of the operator.

F. Cranes will be operated with fully extended outriggers and tires raised from the ground. If tires are not off the ground, the crane's lifting capacity must be reduced according to load charts as if no outriggers are being used.

G. The area must be surveyed for recent excavations or underground utilities prior to spotting the crane and pads will be used as required.

H. The swing radius of the crane house must be properly barricaded.

I. No one is permitted to ride the load or ball.

J. Equipment shall never be operated closer than 2 feet from the edge of an excavation and must never be parked or operated in an area which could cause the failure of a trench wall due to increase in the surcharge. Cranes will not be left near the edge of excavations or in any area that may become unstable.

K. Before the work begins, the employer must identify the work zone either by:

1. Demarcating boundaries (such as with flags, or a device such as a range limit device or range control warning device) and prohibiting the operator from operating the equipment past those boundaries, or by
2. Defining the work zone as the area 360 degrees around the equipment, up to the equipment's maximum working radius

L. The employer must also determine if any part of the equipment, load line or load if operated up to the equipment's maximum working radius in the work zone, could get closer than 20 feet to a power line. If so, the employer must implement one of these three requirements:

1. De-energize and ground by confirming from the utility owner/operator that the power line has been de-energized and visibly grounded at the worksite.
2. Ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer than 20 feet to the power lines
3. Determine the line's voltage and the minimum approach distance permitted under Table A

M. Loads must not be swung, hoisted or positioned over any occupied floor space, bystanders or workers.

N. Tag lines must be used on all loads and insulated to prevent shock where electrical hazards are present.

O. Only one person will be permitted to give signals to the operator. Signals must be posted on the crane in a conspicuous location.

P. Cranes must not be used for side pulls, unless specifically authorized by a responsible person who can determine that the stability of the crane is not endangered and various parts of the crane will not be overstressed.

Q. No crane shall be loaded beyond its rated load capacity and the weight of all auxiliary handling devices such as hoist blocks, hooks, and slings must be considered to be part of the load rating.

R. Crane lifts that reach 75 percent of the crane's lifting capacity, taking into account the angle of and boom height need a critical lift plan completed and reviewed. A critical lift plan should also be completed if the object being lifted is expensive, a critical piece of equipment or if an object is dropped it would do eruptible damage to the surroundings. (Critical lift check list attached)

S. Loads must be secured and properly balanced in the sling or lifting device before it is lifted more than a few inches.

T. The crane operator must not leave his position at the controls while a load is suspended or tension is on the lift cable.

U. An accessible fire extinguisher of 5BC rating or higher shall be available at all operator stations or cabs of equipment.

V. All windows in cabs shall be of safety glass, or equivalent, that introduces no visible distortion that will interfere with the safe operation of the machine. Broken windows shall be replaced.

W. Loads must not be lowered below the point where less than two full wraps of rope remain on the hoisting drum.

X. When two or more cranes are used to lift a load, one qualified responsible person must be in charge of the operation. Proper instruction must be given to all involved in the operation as to proper positioning, rigging of the load, and all movements to be made.

Y. Wire rope that has deterioration, reduced rope diameter, broken outside wires, worn outside wires, severe kinking, crushing, cutting, or un-stranding should be replaced.

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

AA. Pre-shift and monthly inspections must be documented following the criteria in 1926.1412(d) and 1926.1412(e).

BB. When cranes are used for steel erection, please refer to the Steel Erection section of this manual.

CC. Hand signals for crane use shall be posted. Only trained personnel shall be permitted to signal the crane operator. Subcontractors using cranes shall post standard crane signals at the job site.

DD. Crane operators should sound the crane's horn to warn individuals of the overhead hazard.

TABLE A – MINIMUM CLEARANCE DISTANCES

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

Note: The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.

Crane or Derrick Suspended Personnel Platforms

A. The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating platform, or scaffold, would be more hazardous, or is not possible because of structural design or worksite conditions.

B. Hoisting of the personnel platform shall be completed in a slow, controlled, cautious manner with no sudden movements of the crane, derrick or the platform.

C. Load lines shall be capable of supporting without failure at least seven times the maximum intended load except that where rotation resistant rope is used, the lines shall be capable of supporting without failure at least ten times the maximum intended load.

D. Load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs shall be engaged when the occupied personnel platform is in a stationary position.

E. Cranes and derricks shall be uniformly level within 1 percent of level grade and located on firm footing and the outriggers fully deployed following manufacturer's specifications when hoisting workers.

F. The loaded personnel platform and related rigging shall not exceed 50 percent of the rated capacity for the radius and configuration of the crane or derrick.

G. Machines having live booms (booms in which lowering is controlled by a brake without aid from other devices which slow the lowering speeds) is prohibited.

H. Cranes and derricks with variable angle booms shall be equipped with a boom angle indicator visible to the operator.

I. Cranes with telescoping booms shall be equipped with a device that informs the operator the boom's extended length. An accurate determination of the load radius to be used shall be done prior to hoisting personnel.

J. An active anti-two-blocking device or a system in place that can deactivate the hoisting action before damage occurs.

Platform

A. The platform shall be capable of supporting its own weight and at least five times the maximum intended load. Guardrail systems and personal fall arrest systems are addressed in the Fall Protection section of this manual and should be reviewed.

B. Access gates, if installed, shall not swing outward during hoisting and shall be equipped with a restraining device to prevent accidental opening.

C. Proper head room shall allow for workers to stand up.

D. Overhead protection shall be provided, in addition to hard hats, when workers are exposed to falling objects.

E. Rough or jagged edges exposing workers to contact must be removed or protected.

F. The weight of the platform and its rated load capacity or maximum intended load shall be conspicuously posted.

G. Personnel platforms shall not be used to lift materials or tools when not hoisting personnel.

H. A trial lift, inspection, and proof testing must be done with an unoccupied personnel platform loaded at least to the anticipated lift-weight.

I. Workers must keep all parts of the body inside the platform during raising, lowering, and positioning except the one giving had signals.

J. The crane operator shall remain at the controls at all times when the crane engine is running and the platform is occupied.

K. Hoisting shall be promptly discontinued upon indication of any dangerous weather conditions or other impending danger.

L. Workers occupying the personnel platform shall use a body harness with lanyard attached to the lower load block or overhaul ball or to a structure member that can support a fall impact. When working over water, then requirements of 1926.106 shall apply.

M. No lifts shall be made on the crane's other load lines while personnel are suspended on a platform.

N. Pre-lift meetings shall be conducted to review proper lift procedures (especially, workers new to the site)

O. The safety latch on the hook shall be in place and operable so the platform shall not come unattached.

SAFETY DEPARTMENT

CRANE SIGNALS

INTERNATIONAL UNION OF OPERATING ENGINEERS, LOCAL UNION No. 150
WILLIAM E. DUGAN, President - Business Manager

STOP SIGNALS


STOP


EMERGENCY STOP


DOG EVERYTHING

TELESCOPING BOOMS


SHORTEN BOOM


EXTEND BOOM

SLOW SIGNALS


MAKE MOVEMENTS SLOWLY


RAISE LOAD SLOWLY


LOWER LOAD SLOWLY


LOWER BOOM SLOWLY


RAISE BOOM SLOWLY

CLAM BUCKET SIGNALS


OPEN


CLOSE

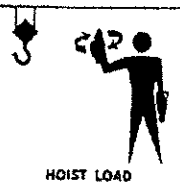
CRAWLER or TRACK SIGNALS

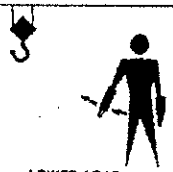
TRAVEL BOTH CRAWLER BELTS IN DIRECTION INDICATED BY REVOLVING FISTS


RIGHT TURN

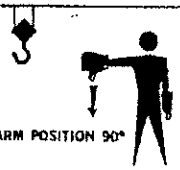
LOCK THE CRAWLER BELT ON THE SIDE INDICATED BY RAISED FIST... TRAVEL OPPOSITE CRAWLER BELT IN DIRECTION INDICATED BY REVOLVING FIST

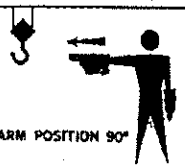

LEFT TURN


HOIST LOAD


LOWER LOAD


ARM POSITION 90°
BOOM UP

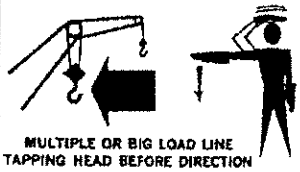

ARM POSITION 90°
BOOM DOWN

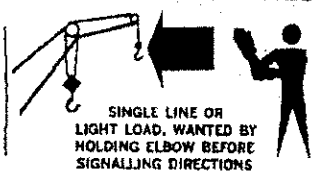

ARM POSITION 90°
SWING

SELECTING SINGLE or MULTIPLE REEVED LINES


LOWER THE BOOM AND RAISE THE LOAD


RAISE THE BOOM AND LOWER THE LOAD


MULTIPLE OR BIG LOAD LINE
TAPPING HEAD BEFORE DIRECTION


SINGLE LINE OR LIGHT LOAD, WANTED BY HOLDING ELBOW BEFORE SIGNALLING DIRECTIONS

INSTRUCTIONS TO SIGNAL MEN

1. Only one person to be signalman
2. Make sure the Operator can see you and acknowledges the signal given
3. Signalman must watch the load - the Operator is watching you
4. Don't swing the load over other workmen, warn them to keep out of the way

WATCH FOR OVERHEAD LINES OR OTHER OBSTRUCTIONS.

Derricks

A. The Requirements for derricks are similar to cranes with the addition of the following information. Derricks must meet the requirements of the American National Standards Institute B30.6-1969, Safety Code for Derricks.

B. When a mobile crane is mounted on a barge, the rated load of the crane shall not exceed the original capacity specified by the manufacturer.

C. Mobile cranes on barges shall be positively secured.

D. When cranes or derricks are being operated and lifting is being done, the wake on the water shall be kept as low as possible to prevent the barge from rocking.

E. A load rating chart with clearly legible letters and figures shall be fixed at a location easily visible to the operator.

F. Floating cranes and derricks in use shall meet applicable requirements for design, construction, installation, testing, maintenance, and operations as prescribed by the manufacture.

G. The Subcontractor shall comply with the applicable requirements for protection of workers working onboard marine vessels specified in OSHA 1926.605.

Hoists/Elevators

A. The Subcontractor shall comply with the manufacturer's specifications and limitations applicable to the operation of all hoists and elevators.

B. Rated load capacities, recommended operating speeds, and special hazard warnings or instructions shall be on cars and platforms.

C. Wire rope shall be removed from service when there is/are six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay, abrasions, scrubbing, flattening, or peening, causing loss of more than one-third of the original diameter of the outside wires, evidence of heat damage, or reduction in the rope's nominal diameter.

D. Operating rules shall be established and posted at the operator's station of the hoist.

E. No person shall ride on material hoists except for the purpose of inspection and maintenance.

F. Entrances shall be protected by substantial gates or bars which shall guard the full width of the landing entrance and shall be painted with diagonal contrasting colors.

G. Gates or bars protecting the entrances to hoist ways shall be equipped with a latching device.

H. Overhead protection shall be provided on the top of every material hoist cage or platform.

I. When a hoist tower is enclosed, it shall be enclosed on all sides for its entire height.

J. When the tower is not enclosed, the hoist platform or car shall be totally enclosed (caged) on all sides for the full height between floor and the overhead protective covering. Six-foot high enclosures shall be provided on the unused sides of the hoist tower at ground level.

K. Car arresting devices shall be installed and work in case of rope failure

L. All material hoist towers shall be designed by a licensed professional engineer.

M. All material hoists shall conform to the requirements of ANSI A10.5-1969 Safety requirements for Material Hoists.

N. Personnel hoist towers outside the structure shall be enclosed for the full height on the side or sides used for entrance and exit to the structure. At the lowest landing, the enclosure on the sides not used for exit or entrance to the structure shall be enclosed to a height of at least 10 feet while other sides of the tower adjacent to floors or scaffold platforms shall be enclosed to a height of 10 feet above the level of such floors or scaffolds.

O. Personnel hoist towers inside structures shall be enclosed on all four sides throughout the full height.

P. Towers shall be anchored to the structure at intervals not exceeding 25 feet. In addition to tie-ins, a series of guys shall be installed.

Q. Hoist way doors and gates shall be not more than 6 feet 6 inches high and shall be provided with mechanical locks which cannot be opened from the landing side, and are accessible only to person on the car.

R. Cars shall be permanently enclosed on all sides and the top except for entrance and exit which have car gates or doors and have a door or gate that will protect the full width and height of the car entrance opening. Overhead protection covering shall also be provided on the top of every personnel hoist.

S. Doors and gates shall be provided with electric contacts which do not allow movement of the hoist when door or gate is open.

T. Car's capacity shall be posted in a conspicuous place on the car or crosshead.

U. Engines that are internal combustion shall not be permitted for direct drive.

V. Normal and final terminal stopping shall be provided.

W. An emergency stop switch shall be provided in the car marked STOP.

X. Hoists and elevators are to be inspected before being used and not less than every three months.

Y. Hoists shall be inspected and maintained on a weekly basis or whenever the hoisting equipment is exposed to winds over 35 miles per hour and put in operable condition before reuse.

Z. Permanent elevators under the care and custody of the employer and used by employees for work shall comply with the requirements of ANSI A17.1-1965 with addenda A17.1a-1967, A17.1b-1968, A17.1c-1969, A17.1d-1970, and inspected in accordance with A17.2-1960 with

addenda A17.2a-1965, A17.2b-1967, [44 FR 8577, Feb. 9, 1979; 44 FR 20940, Apr. 6, 1979, as amended at 52 FR 36382, Sept. 28, 1987.

Base-Mounted Drum Hoists

A. Exposed moving parts that constitute a hazard shall be guarded.

B. All controls used during normal operation shall be located within easy reach of the operator's station.

C. Electric motor operated hoists shall be provided with a device to disconnect all motors from the line upon power failure and not permit any motor to be restarted until the controller handle is brought to the "off" position. Where applicable, an over speed preventive device and a means whereby remotely operated hoists stop when any control is ineffective.

D. Units in use shall meet the applicable requirements for design, construction, installation, testing, inspection, maintenance and operations, as prescribed by the Manufacturer.

Overhead Hoists

A. The safe working load of the hoist as determined by the manufacturer shall be indicated on the hoist and shall not be exceeded.

B. The structure that the hoist is attached to shall have a safe working load equal to that of the hoist.

C. Supports are to be arranged so as to provide for free movement of the hoist and not restrict the hoist from lining itself up with the load.

D. Air hoists are to be connected to an air supply of sufficient capacity and pressure to safely operate the hoist. Hose connections are to be positively connected to prevent their becoming disconnected during use.

E. All overhead hoists shall meet the applicable requirements as prescribed by the manufacturer.

Helicopters

A. Prior to any type of helicopter lifts, the process must be discussed, documented and approved by Lauth Construction Services.

B. It is the responsibility of the Subcontractor to ensure that all FAA and municipal requirements are in compliance.

C. Prior to any helicopter lifts, the Subcontractor will provide Lauth with a proper certificate of insurance.

D. The Subcontractor is required to complete a Helicopter Lift Plan. A copy of the Plan is available from the Lauth Project Superintendent upon request.

E. Buildings/facilities adjacent to the operation may need to be vacated during the procedure. A minimum unoccupied perimeter of 100 feet on each side of the flight path must be established and maintained.

F. The helicopter lift plan will be reviewed with all affected personnel. Attendance sheets and minutes will be kept on file.

G. A Pre-Lift meeting will be conducted on the morning of the lift between the ground crew, placement crew and helicopter pilot.

H. All workers involved in the procedure must be equipped with:

1. Safety headwear with a chin strip
2. Safety goggles and hearing protection
3. No loose fitting clothes

I. Loose gear/materials and other objects within 100 feet of the place of lifting the load, depositing the load or area otherwise affected by the rotor downwash shall be removed or secured.

J. Approach distance: No unauthorized person shall be permitted to approach within 75 feet of the helicopter while the rotor blades are turning.

K. Any worker exposed to a fall of six (6) feet or greater must be protected by guard rails, covers, safety nets or personal fall arrest systems.

The purpose of this plan is to establish minimum safety requirements for the helicopter lifts at Lauth projects. The plan must be specific to the facility and the specific lift. Lifts for any project must be discussed with the Risk Manager/Regional Safety Manager, documented and approved prior to implementation.

Scope of Work: The scope of work for this project includes:

_____

_____

_____

_____

Responsibility

The Project Manager and Project Superintendent will require compliance with procedures and documentation as mandated by this plan. It is the responsibility of _____ to ensure that all FAA and municipal requirements are in compliance. *The safety of the workers, community and property will not be compromised. Unsafe weather conditions, equipment conditions, site conditions and unsafe actions will be cause to immediately abort the lift procedure.*

_____ shall be responsible to ensure that the helicopter, flight plan and use of airspace comply with applicable regulations of the Federal Aviation Administration.

The helicopter operator shall be responsible for size, weight restrictions and manner in which loads are connected to the helicopter and for the overall safety of the lift.

_____ shall be responsible for the safety of the lift and landing zones as well as safety requirements established by this policy, the provision of sufficient qualified and competent personnel required for safe helicopter loading, unloading and operations.

Documents

All insurance requirements established by the subcontract will be on file with the project manager.

A signed and properly executed Lauth subcontract document will be on file with the project manager.

Copies of valid permits, secured by _____will be on file with the project manager.

The Safety Policies of _____ will be on file with the project manager.

This plan and the lift plan of _____ will be reviewed with all affected personnel. Attendance sheets and minutes of this meeting will be on file with the project manager.

A pre-lift briefing will be conducted on the morning of the lift between ground crew and helicopter pilot. This meeting shall include a description of the task, the plan of operation and safety requirements. Documentation of this meeting, including attendance and content shall be provided to the Lauth Project Manager prior to the lift.

Hazard Elimination

A. Rigging

1. All rigging slings, hoists and tag lines will be inspected by a competent person. Documentation of the inspection will be provided to the Lauth Project Superintendent prior to lift.
2. Slings and tag lines shall be properly slung and of a length, which will not permit their being drawn up into rotors. Preset sleeve, swedged eyes, or equivalent means shall be used for all freely suspended loads to prevent hand splices from spinning open or cable clamps from loosening.
3. All the electrically operated cargo hooks shall have the electrical activation device designed and installed to prevent inadvertent operation. Cargo hooks shall be equipped with an emergency mechanical control for releasing the load and shall be tested prior to the lift to determine the proper function of the release, electrically and mechanically.
4. Rigging will be performed by qualified riggers trained with the requirements in 1926.251 and 1926.753.

B. Hooking and Unhooking Loads - Workers required to unhook loads beneath hovering helicopters will be provided a safe route of access and egress. Work other than hooking and unhooking loads will not be performed under hovering craft. Shake-out hooks shall be used for loading/unloading trailers and not used for swinging loads overhead.

C. Static Charges - Static charge on the suspended load will be dissipated by a grounding device before ground personnel touch the suspended load, or workers who contact the load must be protected by appropriate rubber gloves.

D. Housekeeping - The lift/landing zone and roof areas will be inspected prior to lift by representatives of and LAUTH Project Superintendent prior to lift. Loose gear and objects within 100 feet of the place of lifting the load, depositing the load, or area otherwise affected by the rotor downwash shall be removed or secured.

E. Communications - Radio communication between helicopter pilot and ground crew will be checked and adequate prior to lift. The signal person will be clearly identified by use of a traffic vest. Radio communication between helicopter and ground crew will be the primary contact. In the event of communication failure, hand signals shall be used and in compliance with Figure N-1, 29 CFR 1926.551 (attached).

F. Traffic Control

1. Entrance to the lift and landing zone will be hard barricaded to prevent vehicle or personnel entry at access points.
2. Red "Danger" Tape will be installed along the curb line of _____ to prevent accidental pedestrian entry into the area.
3. Vehicular traffic and pedestrian entry to the area will be controlled by hard barricade or a manned "Danger" taped control line.

G. Approach Distance - No unauthorized person shall be allowed to approach within 75 feet of helicopter while rotor blades are turning.

H. Approaching the Helicopter: Approaching or leaving the helicopter when blades are rotating shall be accomplished in a route of travel that will keep the individual in full view of the pilot and in a crouched position.

I. Load Inspection - Load inspection will be the responsibility of _____. All electrical connections or process connections (i.e., drain lines, natural gas connections), ground lines or other anchorage points shall be disconnected prior to lift. The load will be inspected to ensure that no loose material or fittings are stored on the equipment.

J. Visibility - The employer shall take all practical precautions to eliminate the potential for reduced visibility. Employees shall exercise extreme caution to keep clear of main and stabilizing rotors at all times but especially during times of reduced visibility.

K. Fall Protection - Due to the nature of the work, dimension of the roof and work area, a risk analysis was performed. As a result of that analysis, the following will apply:

1. All access to the roof area will be accomplished via the access batch located at grid line 10 (see attached plan). When all personnel have entered the roof area, the hatch will be closed.
2. A clearly identified walkway will be established which will prohibit worker access to areas within 10 feet of unprotected roof edges or sky lights.
3. Two trained and competent persons will be posted in positions which will allow clear visibility of workers.
4. These individuals will act as safety watch with no additionally assigned duties.
5. They will be equipped with air horns which will be sounded in a long blast when any worker approaches ten feet of an unprotected sky light or roof edge.

L. Personnel Protective Equipment - All personnel involved in this procedure will be equipped with the following:

1. Safety Headwear with chin strap.
2. Safety Glasses and Side Shields.
3. Hearing Protection.
4. Loose fitting clothing, likely to flap in the downwash and potentially snag on the hoist line, shall not be worn.

M. Fire Protection - Fire extinguishers will be located in the loading, landing and lift zone.

N. Building Security - For removal and placement of the units located adjacent to occupied space (see attached, grid line 6), the area must be evacuated before lift. If at all possible, the building must be cleared of all occupants before remaining lifts can take place. If this is not possible, a minimum unoccupied perimeter of 100 feet on each side of the flight path must be established and maintained.

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CERTIFICATION OF TRAINING

I hereby certify that I have received training from my employer regarding the safety practices and procedures required by _____ and Lauth Construction, LLC. for this helicopter lift procedure. I further certify that I understood the training material and the material presented. I understand that I am to immediately notify the Lauth Superintendent, if any unsafe condition or action is noticed during this procedure.

Date	Name of Individual	Signature	Employer

NAME OF TRAINER: _____

DATE OF TRAINING: _____

LOCATION OF TRAINING: _____

SIGNATURE OF TRAINER: _____

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CERTIFICATION OF INSPECTION

I certify that I have inspected the following items and found them to be in compliance with the OSHA Standards, Lauth Helicopter Lift Plan, _____Safety Program.

A. Lift zone and landing zone are free of debris, unsecured tools or equipment that could be affected by the rotor downwash or interfere with workers positioning, connecting and disconnecting the load.
B. Traffic and pedestrian control equipment and personnel are in place.
C. Signal Persons are clearly identified.
D. Pre-Lift safety meeting has been completed and documented.
E. Communications devices have been tested and are working.
F. Fire protection equipment is in place.
G. Load is free of utility tie-in and anchorages.
H. Loose equipment has been removed from equipment to be lifted.
I. The building has been evacuated.
J. Rigging has been inspected by a competent person and documentation provided.
K. Fire protection is in place
L. Local Police and Fire Departments have been contacted and notified of lift.

_____

Signature of Designated Representative from Helicopter Lift Company

_____

Signature of Designated Representative from Subcontractor

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CRITICAL LIFT CHECKLIST **COMPANY:** _____

Basis for critical lift:

(a) Load exceeds 80% of load chart
or
(b) Load exceeds 50% of load chart, and failure would endanger existing facility or equipment.

The following information shall be provided to Project Manager 24 hours prior to the lift:
Notification Date: _____ Date of Lift: _____
Contractor: _____
Superintendent: _____
Crane Operator: _____
Location of Lift: _____
Description and Total Weight (in lbs.) of Item to be Lifted: _____

Type and Size of Crane:
Boom Length: _____ feet Boom Angle: _____ degrees

Radius: _____feet Jib Used: Yes ☐ No ☐

Allowable Load (attach copy of crane's load chart) _____ (in lbs.)

Clearance between Boom and Load: _____ feet

Clearance to Surrounding Facilities: _____ feet

Any obstruction in path of load (if Yes – describe) _____

Crane Attachments:	Weight (in lbs.)
Jib	_____
Main Block	_____
Auxiliary Block	_____
Main Hoist Cable	_____
Auxiliary Hoist Cable	_____
Rigging	_____
Miscellaneous	_____
Item to be Lifted	_____
Total Weight of Lift (in lbs.)	_____

Capacity of Chokers: Straight Lift: _____ in lbs.
Angled Lift: _____ degrees _____ in lbs.

Type of Soil Conditions: _____Hard _____ Soft _____ Fill Dirt

Mats or Cribbing Required: Yes ☐ No ☐

Approved by Project Manager: _____
(NAME) _____(DATE)

Left arm extended horizontally, right arm sweeps upward to position over head.

The signal "Hold" is executed by placing arms over head with clenched fists.

Right arm extended horizontally, left arm sweeps upward to position over head.

Right hand behind back; left hand pointing up.

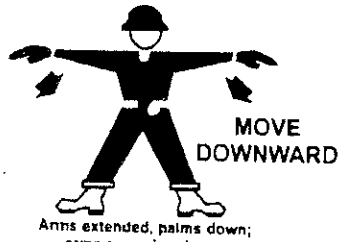
Combination of arm and hand movement in a collecting motion pulling toward body.

Arms crossed in front of body and pointing downward.

Hands above arm, palms out using a noticeable shoving motion.

Arms extended, palms up; arms sweeping up.

Left arm held down away from body. Right arm cuts across left arm in a slashing movement from above.



Arms extended, palms down; arms sweeping down.

FIG. N-1 - HELICOPTER HAND SIGNALS

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SECTON 7
DEMOLITION

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart T (Demolition) and Subpart U (Blasting and the Use of Explosives). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply. Each Subcontractor is required to enforce the contents of this section.

Scope

A. This section covers procedures for demolition of existing structures, including precautions for the safety of workers, the public and protection of adjoining property. When performing minor demolition, such as partitions, many of the requirements of this procedure may be waived.

B. The Subcontractor's foremen are responsible for ensuring that all workers follow these procedures.

C. The Project Manager or Superintendent must obtain all necessary permits (i.e., local, State, Federal.) prior to any demolition operations.

D. An engineering survey shall be made, by a competent person, of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure shall be made prior to permitting employees to start demolition operations. Any adjacent structure where workers may be exposed shall be similarly checked. The employer shall have in writing evidence that such a survey has been performed.

General Requirements

A. When workers are exposed to excessive dust environments, appropriate measures must be taken to minimize exposure. These measures may include:

1. Water trucks and/street sweepers

2. Watering systems (sprinklers, manual spraying), or

3. Broom sweeping, power floor sweepers, or wet mopping procedures

B. Proper shoring or bracing to walls or flooring shall be done to protect personnel assigned to demolition operations inside the structure.

C. Within the structure (or affected area(s) in the event of minor demolition), all utility service lines will be shut off. If it is necessary to maintain any power, water, or other utilities during demolition, such lines will be temporarily relocated and protected.

D. If toxic gases, flammable material, or similar hazardous substances (such as lead, asbestos, PCB's, etc.) are present or have been used in piping, tanks, etc., testing and purging shall be performed and the hazard eliminated before demolition starts. All permits required by the jurisdiction where the project is located will be obtained before work begins.

E. Glass fragmentation hazards will be removed.

F. In demolition areas, wall openings will be protected to a height of 42 inches.

G. When scrap materials are dropped more than 20 feet outside the exterior walls of a building, an enclosed chute shall be used. Trash chute requirements are covered under 29CFR1926.852.

H. When debris is dropped through holes in floors, without the use of chutes, the area below will be completely barricaded not less than 6 feet back from the projected edge of the opening above. Signs warning of falling materials must be posted at each level.

I. Floor openings not used as material drops will be covered with a substantial material and such covers will be properly secured and identified with "Hole" or "Cover – DO NOT REMOVE."

J. Floors and working surfaces will not be overloaded.

K. Frequent inspections must be made as work progresses to detect hazards from weakened floors, walls, or loosened material. Hazards must be corrected for protection of the workers.

L. Fire protection equipment shall be made available and used in the event of a fire during demolition operations.

M. Only those stairs, passageways, and ladders designated as safe means of access and egress to the structure of a building will be used. Other will be closed entirely at all times. Stairwells will be properly illuminated. Stairs, passageways, and ladders will be maintained in a clean, safe manner.

N. When necessary to maintain any power, water or other utilities during demolition, such lines shall be temporary relocated, as necessary, and protected.

O. Worker entrances to multi-story structures being demolished shall be completely protected by sidewalk sheds or canopies or both.

P. Floors weakened or otherwise made unsafe by demolition operations shall be shored to carry safely the intended imposed load from demolition operations.

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

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

S. When mechanical demolition is done, no workers shall be permitted in any area which can be adversely affected by demolition operations, when balling or clamming is being performed.

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SECTION 8
ELECTRICAL/TEMPORARY LIGHTING & POWER

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart K (Electrical). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

This section covers electrical safety requirements necessary for the safeguarding of involved in construction work and governs both temporary and permanent electrical installation on construction projects.

General Requirements

A. All electrical work, installation and wire capacities will be in accordance with the pertinent provisions of the current edition of the National Electrical Code, NFPA, OSHA 29 CFR 1926 Electrical Standards for Construction, Underwriter's Laboratory and local codes if applicable.

B. No worker is permitted to work in any circumstance where an electric power circuit may be contacted in the course of work unless he/she is protected against electric shock by de-energizing the circuit and grounding it or by guarding it by effective insulation or other means.

C. Only trained and qualified personnel with appropriate personal protective equipment shall be permitted to work on electrical/mechanical equipment and installations.

D. Appropriate agencies shall be contacted to locate underground utilities prior to construction activities that could involve their contact. In work areas where the exact location of underground electric power lines is unknown, workers using jackhammers, bars or other had tools that may contact a line will be provided with insulated protective gloves.

E. Before work has begun, the Project Superintendent or his/her designated representative will inquire of the Client and/or the various utility companies whether any part of an electrical power circuit is so located that the performance of the work may bring any person, tool or machine into physical contact with it. Proper warning signs will be posted where such a circuit exists, such as "buried cables."

F. Conductors will be adequately protected from mechanical injury.

G. Cable assemblies, boxes, cabinets and fittings, unless otherwise provided, will be securely fastened in place. Cable assemblies will be mechanically secured to boxes, fittings and other enclosures.

H. Covers or suitable barriers will be installed on all boxes, fittings and enclosures to prevent accidental contact with live parts or mechanical injury to parts or insulation contained therein.

I. Wiring enclosures, such as switch and circuit breaker cases, motor controllers, panelboards, junction boxes, busways, gutters, fittings and similar equipment in locations exposed to rain, oil, excessive moisture, steam, vapors or similar deteriorating agencies will be of a type approved for

the purpose or will be installed in housings, enclosures or guards suitably designed to protect the equipment and conductors. Boxes, fittings and lamp holders installed in damp or wet locations will be weatherproof.

J. Sufficient space will be provided and maintained around electrical equipment to permit ready and safe operation and maintenance of such equipment. Where parts require examination, adjustment or repair, or where live parts are exposed, adequate working space will be provided and maintained to permit this work to be performed safely. See Tables K-1 and K-2.

TABLE K-1
WORKING CLEARANCE

Nominal Voltage to Ground	Minimum Clear Distance for Conditions[1]		
	(a)	(b)	(c)
	Feet[2]	Feet[2]	Feet[2]
1 to 150-kV	3	3	3
151 to 600-kV	3	3 1/2	4

[1] Conditions (a), (b) and (c) are as follows: (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both side effectively guarded by insulating material. Insulated wire or insulated busbars operating at not over 300 volts are not considered live parts. (b) Exposed live parts on one side and grounded parts on the other side. (c) Exposed live parts on both sides of the workspace [not guarded as provided in Condition (a)] with operator between.

[2]NOTE: For International Systems of Unit (SI): one foot = 0.3048 m.

TABLE K-2
MINIMUM DEPTH OF CLEAR WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT

Nominal Voltage to Ground	Conditions[1]		
	(a)	(b)	(c)
	Feet[2]	Feet[2]	Feet[2]
601 to 2,500-kV	3	4	5
2,501 to 9,000-kV	4	5	6
9,001 to 25,000-kV	5	6	9
25,001 to 75-kV	6	8	10
Above 75-Kv	8	10	12

[1] Conditions (a), (b) and (c) are as follows: (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both side effectively guarded by insulating material. Insulated wire or insulated busbars operating at not over 300 volts are not considered live parts. (b) Exposed live parts on one side and grounded parts on the other side. (c) Exposed live parts on both sides of the workspace [not guarded as provided in Condition (a)] with operator between.

[2]NOTE: For International Systems of Unit (SI): one foot = 0.3048 m.

K. Switches, circuit breakers, fuses and other control and protective devices will be so installed that the top of the fuse or the center of the grip of the operating handle of the switch, circuit breaker or other control device, when in its highest position, will not be more than 6 ½ feet above the ground or working platform.

L. All switches, circuit breakers and other control devices will be so located or marked as to clearly indicate the equipment controlled by them and switches (except magnetic switches) will indicate whether they are opened or closed.

1. All breakers and disconnects will be clearly marked with label tape as to what circuits or equipment they control.
2. All disconnects will be marked on the outside of the can as to the voltage.
3. Any receptacle that is not 100 to 120 volt AC will be labeled as to what voltage it carries.

M. When fuses are installed or removed with one or both terminals energized, fuse pullers insulated for the voltage will be used. Only qualified electricians will perform this task.

N. A continuous grounding conductor will run with the circuit conductors throughout the system for equipment grounding purposes.

O. All circuits must be capable of being locked out.

P. When the work requires that any part of a crane or its load or similar equipment comes within 25 feet of an electric power line, the Subcontractor must notify Lauth's Project Superintendent. (Please refer to "Cranes/Derricks/Hoists/Elevators & Helicopter Lifts" section of this manual.)

Q. Where fire or explosion hazards may exist due to flammable gases or vapors, flammable liquid, combustible dust or ignitable fibers or flyings, all electrical equipment and wiring must comply with Articles 500 through 503, Hazardous (Classified) Locations of The National Electrical Code.

Portable Cords and Cables

A. Receptacles for attachment plugs will be of an approved type and will be so designed and constructed so that the plug may be pulled out without leaving any live parts exposed to accidental contact.

B. Where different voltages, frequencies or types of current (AC or DC) are to be supplied by portable cords, receptacles will be of such design that attachment plugs used on these circuits are not interchangeable.

C. Attachment plugs or other connectors supplying equipment at more than 300 volts will be of the skirted type or otherwise so designed that arcs will be confined.

D. Attachment plugs and bodies for use in work areas will be so constructed that there are no exposed metal parts and will endure rough use and be equipped with a suitable cord grip to prevent strain on the terminal screws.

E. Extension cord sets used with portable electric tools and appliances will be three-wire type and will be designed for hard or extra hard usage (examples of these types of extension cords include types S, ST, SO, STD, SJ, SJO, SJT and SJTO). Flexible cords used with temporary and portable lights will be designed for hard or extra hard usage.

F. Flexible cords shall be used only in continuous lengths without splice or tap. Hard service flexible cords No. 12 or larger may be repaired if spliced so that the splice retains the insulation, outer sheath properties, and usage characteristics of the cord being spliced.

G. Portable cords and cables will not be permitted to be placed in such a manner as to be subjected to damage or constitute a tripping hazard. They will be protected against damage which may be caused by traffic, sharp corners, projections or pinch points. They shall be suspended with nonmetallic ties (such as reusable plastic or nylon wire ties) a minimum of 7 feet above the walking/working surface or shall be protected in some other manner to prevent damage.

H. Damaged power cords must be destroyed and removed from the site. Damaged power cords cannot be repaired and put back in service on Lauth construction sites.

Grounding

A. Exposed non-current-carrying metal parts of fixed electrical equipment, including motors, welding machines, generators, frames and tracks of electrically operated cranes, electrically driven machinery, etc., will be grounded.

B. A single electrode consisting of a rod, pipe or plate, which has a resistance to ground greater than 25 ohms, will be augmented by one additional electrode installed no closer than 6 feet to the first electrode.

C. Conductors used for bonding and grounding stationary and movable equipment will be of ample size to carry the anticipated current.

D. When attaching bonding and grounding clamps or clips, a secure and positive metal-to-metal contact will be made. Such attachments will be made before closures are opened and material movements are started and will not be broken until after material movements are stopped and closures are made.

E. Precautions will be taken to make any necessary open wiring inaccessible to unauthorized personnel.

F. Ground fault circuit interrupters (GFCI) will be used on all wiring systems (This includes portable generators and welders).

Temporary Wiring

A. Temporary incandescent lights will be equipped with guards to prevent accidental contact with the bulb, except that guards are not required when the construction of the reflector is such that the bulb is deeply recessed.

B. Fluorescent tubes subject to breakage will be protected by means of a protective guard or will be shatterproof bulbs.

C. Temporary lights will be equipped with hard or extra hard usage electric cords with connections and insulation maintained in safe condition. Temporary lights will not be suspended by their electric cords unless cords and lights are designed for this means of suspension. Splices will have insulation equal to that of the cable.

D. Portable electric lighting used in wet and/or conductive locations (for example, drums, tanks and vessels) will be operated at 12 volts or less. However, 120 volt lights may be used if protected by a ground fault circuit interrupter. Temporary lighting in hazardous environments will also conform to the requirements of OSHA 29 CFR 1926.404 and 1926.407.

E. Temporary power breaker panels must be locked and entry only by qualified personnel.

Transformers, Substations and Control Rooms

A. A transformer and other related equipment over 150 volts to ground will be protected to prevent accidental contact with any person.

B. Substations will be fenced and kept locked at all times.

C. Adequate warning signs will be placed on all high voltage substations.

D. Entrances to rooms and other guarded locations containing exposed live parts will be marked with conspicuous warning signs forbidding unqualified persons to enter.

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SECTION 9
ENVIRONMENTAL ISSUES

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR1926 – Subpart D (Occupational Health and Environmental Controls) and Subpart Z (Toxic and Hazardous Substances). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply. Each Subcontractor is required to enforce the contents of this section.

Asbestos

Lauth Inc. is committed to protecting our employees from harmful exposure to asbestos. It is company policy to implement the requirements and regulations of the U.S. Department of Labor, Occupational Safety and Health Administration, therefore, our program is to be used in conjunction with OSHA's asbestos standard for the construction industry – 29 CFR 1926.1101.

A. General Policy Requirements

1. Lauth will monitor the Subcontractor for compliance with federal, state, local and company requirements. Any deficiencies noted will be brought to the attention of the responsible Subcontractor for immediate corrective measures.
2. The Subcontractor will be responsible for the implementation of the asbestos protection program to be followed throughout all phases of construction and will provide the proper personal protective equipment (PPE) as required.
3. The Subcontractor will regularly inspect all personal protection equipment (i.e., respirators) and maintain the equipment in safe operating condition. Defective equipment will be immediately replaced.
4. Subcontractor workers must be properly trained to be aware of asbestos and will contact their immediate supervisor if work may be required in regulated areas.

Note – In New Jersey and many other states, it is a requirement to have an asbestos work permit and to work along with a licensed asbestos abatement contractor.

B. Scope of Program - The Asbestos Protection Program applies to all construction work in which a worker may be occupationally exposed to an asbestos hazard. Workers must carry out client obligations and notify any affected Subcontractor of possible or known asbestos hazards exist. All work related to construction, alteration, or repair – including painting and decorating – is included. The following is a partial list of activities that fall under our plan.

1. Demolition or salvage of structures.
2. Removal or encapsulation of materials.
3. New construction.
4. Alteration, repair or renovations of structures and substrates.

5. Maintenance operations associated with construction.
6. Installation of products containing asbestos.
7. Emergency clean-up (i.e., spills).
8. Routine clean-up (i.e., sweeping).

C. Definitions

1. Asbestos – included chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.
2. Authorized person – any person authorized by the employer and required by work duties to be present in regulated areas.
3. Clean room – an uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.
4. Competent person - one who is trained and is capable of identifying existing asbestos hazards in the work place and who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32 (f). The duties of the competent person include at least the following:
   a) Establishing the negative-pressure enclosure, ensuring its integrity, and controlling entry to and exit from the enclosure.
   b) Supervising any worker exposure monitoring required by the standard.
   c) Ensuring that all workers working within such an enclosure wear the appropriate personal protective equipment, use appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified in the standard.
   d) Ensuring that engineering controls in use are in proper operating condition and are functioning properly.
5. Demolition – the wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.
6. Worker exposure – exposure to airborne asbestos that would occur if the worker were not using respiratory protective equipment.
7. Fiber – a particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3:1.
8. High-Efficiency Particulate Air (HEPA) Filter – a filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter or larger.
9. Regulated area – a space established by the employer to demarcate areas where airborne concentrations exceed, or can reasonably be expected to exceed, the permissible exposure

limit. The regulated area may take the form of a temporary manner that minimizes the number of workers exposed to asbestos.

10. Removal – taking out or stripping of asbestos or presumed asbestos-containing material (PACM).
11. Renovation – the modifying of any existing structure, or portion thereof, where exposure to airborne asbestos may result.
12. Repair- overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates where asbestos is present.

D. Permissible Exposure Limits (PEL)

1. 29 CFR 1926.1101 – Asbestos contains worker protection requirements for construction. The company completely endorses this OSHA standard.
2. Time-Weighted Average (TWA) - The Subcontractor will ensure that no worker is exposed to an airborne concentration of asbestos in excess of 0.1 f/cc of air as averaged over an 8-hour day.
3. Excursion Limit - . The Subcontractor will ensure that no worker is exposed to airborne concentrations or asbestos in excess of 1.0 f/cc of air as averaged over a sampling period of 30 minutes.

E. Regulated Areas - The Subcontractor will establish a regulated area in work areas where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the TWA and/or excursion limit. The regulated area will be demarcated in any manner that minimizes the number of persons within the area. It will also protect persons outside the area from exposure to airborne concentration of asbestos in excess of the TWA and/or excursion limit. Access to regulated areas will be limited to authorized persons. All people must wear appropriate respirators in regulated areas.

F. Exposure Monitoring - The Subcontractor will employ monitoring to accurately determine the airborne concentrations of asbestos to which workers may be exposed. Determinations of worker exposure will be made from breathing zone air samples.

G. Methods of Compliance - Engineering Controls and Work Practices Covered by OSHA's Asbestos Standard.

1. The Subcontractor must use one of the following control methods to achieve compliance with the TWA and/or excursion limit:
   a) Local exhaust ventilation equipped with HEPA filter dust collection system.
   b) General ventilation systems.
   c) Vacuum cleaners equipped with HEPA filters.
   d) Enclosure or isolation of processes producing asbestos dust.

e) Use of wet methods, wetting agents, or removal encapsulates to control worker exposure during asbestos handling, mixing, removal, cutting, application and cleanup.

f) Prompt disposal of wastes contaminated with asbestos in leak-tight 6 mil double bags with appropriate markings.

g) Use of work practices or other adequate engineering controls.

2. Prohibition includes high-speed abrasive disc saws that are not equipped with appropriate engineering controls.

3. The Subcontractor must not use worker rotation as a means of compliance with the TWA and/or excursion limit.

H. Respiratory Protection - The Subcontractor must provide respirators and fit testing and ensure that they are used in the following circumstances:

1. During the interval necessary to install or implement feasible engineering and work practice controls.

2. In work operation such as maintenance and repair activities, or other activities for which engineering and work practice controls are not feasible.

3. In work situations where feasible engineering and work practice controls are not yet sufficient to reduce exposure to or below TWA and/or excursion limit.

I. Procedures, Facilities, Communications and Other Practices

1. The Subcontractor must provide respiratory training, 40 hours of training, a medical physical and require the use of protective clothing, such as coveralls or similar whole-body clothing, head covers, and foot coverings, for any worker exposed to airborne concentrations of asbestos that exceed the TWA and/or excursion limit.

2. The Subcontractor must provide clean change areas for employees required to work in regulated areas.

3. The Subcontractor must communicate hazards to his/her workers.

4. Warning signs will be posted that bear the following information:

a) Danger

b) Asbestos

c) Cancer and lung disease hazard

d) Authorized personnel only

e) Respirators and protective clothing are required in this area

5. Labels will be used in accordance with the requirements of 29 CFR 1910.1200 (f) of OSHA's Hazard Communications standard and will contain the following information:

a) Danger

b) Contains asbestos fibers

c) Avoid creating dust

d) Cancer and lung disease

6. Workers must be informed and trained.
7. Workers must have ready access to training material.
8. The Subcontractor will maintain housekeeping, including vacuuming and waste disposal. Only HEPA filtered vacuuming equipment will be used. Asbestos waste will be collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers.
9. The Subcontractor must institute a medical surveillance program for all workers engaged in work involving levels or asbestos at or above the action level and/or excursion limit for 30 or more days per year, or who are required to wear negative pressure respirators.
10. The Subcontractor must keep accurate records of all measurements taken to monitor worker exposure to asbestos.

Blood-Borne Pathogens

This section is a continuation of the ongoing commitment to ultimate job site and office safety. As the very nature of our industry presents many hazards, it is apparent that some injuries can occur. Any first-aid administration could result in possible contact with bodily fluids, including blood, thus all such fluids should always be handled as possible-blood borne pathogens, such as HBV or HIV. The nature of such infections requires the acknowledgement of universal precautions as outlined below.

A. Protective Equipment - The following protective equipment will be supplied, maintained and disposed of at job sites, office settings, and included as part of all first-aid kits. Once used, all materials will be considered contaminated.

1. Disposable latex medical gloves.
2. Simple medical masks or face shields.
3. Protective eye wear.
4. Disposable gowns.
5. Disposable hand wipes and/or permanent hand washing facilities.
6. Biohazard Red Bags disposal for infectious waste items

B. Definitions

1. Biohazard Red Bag – a fluorescent orange/red bag with lettering and symbols of a contrasting color, used for disposing of infectious waste.

2. Blood-borne 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).
3. Contaminated – the presence or the reasonably anticipated presence of blood or other potential infectious materials on an item or surface.
4. Contaminated sharps – any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes and exposed ends of dental wires.
5. Hand-washing facilities – a facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines.
6. HBV – Hepatitis "B" Virus.
7. HIV – Human Immunodeficiency Virus.
8. Personal protective equipment – specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

C. Policies

1. Training - Training will address the following universal precaution areas and subjects:
   a.) Use of all supplied personal protective equipment and devices.
   b.) Understanding of blood-borne diseases including, but not limited to, HBV and HIV, and the means of transmission.
   c.) Personal hygiene and housekeeping incident areas, including exposed clothing and contaminated containers.
   d.) Disposal procedures of Biohazard Red Bags.
2. Job Site - Employees will ensure that the job site is maintained to sufficient sanitary conditions. This includes cleaning, regulating and disposing of all contaminated materials in work area.
3. Disposal - Contaminated materials including, but not limited to, personal protective equipment and contaminated sharps, must be placed in a closeable, leak-proof, puncture-resistant and labeled container. All contaminated materials will be disposed of properly. Disposal should take place immediately after the incident, after the work is complete, or as soon as feasible.
4. Notification - Notification of pertinent information must be supplied to the employer and/or employees immediately. Such information includes:
   a.) Employee literature and/or counseling regarding blood-borne pathogens.

b.) Changes in the safety manual and its procedures.

c.) Work site incidents including, but not limited to, spills, contaminations and disposals/transfers of contaminated materials. As exposure to bodily fluids and/or blood at work and away from work can present risk, it is common sense awareness that can make a critical difference.

5. Recordkeeping - All recordkeeping shall be in accordance with OSHA 1910.1030 including:

   a) Name and social security number of the employee

   b) A copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination as required.

   c) A copy of all results of examinations, medical testing, and follow-up procedures as required

   d) The employer's copy of the healthcare professional's written opinion as required

   e) A copy of the information provided to the healthcare professional

   f) The employer shall ensure that employee medical records are kept confidential and not disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by this section or as may be required by law.

   g) The employer shall maintain the records required by paragraph (h) for at least the duration of employment plus 30 years in accordance with 29 CFR 1910.1020.

6. Post-exposure Evaluation and Follow-up - Following a report of an exposure incident, the employer shall make immediately available to the exposed employee a confidential medical evaluation and follow-up, including at least the following elements:

   a) Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred.

   b) Identification and documentation of the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law.

   c) The source individual's blood shall be tested as soon as feasible and after consent is obtained in order to determine HBV and HIV infectivity. If consent is not obtained, the employer shall establish that legally required consent cannot be obtained. When the source individual's consent is not required by law, the source individual's blood, if available, shall be tested and the results documented.

   d) When the source individual is already known to be infected with HBV or HIV, testing for the source individual's known HBV or HIV status need not be repeated.

e) Results of the source individual's testing shall be made available to the exposed employee, and the employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.
f) Collection and testing of blood for HBV and HIV serological status;
g) The exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained.
h) If the employee consents to baseline blood collection, but does not give consent at that time for HIV serologic testing, the sample shall be preserved for at least 90 days. If, within 90 days of the exposure incident, the employee elects to have the baseline sample tested, such testing shall be done as soon as feasible.
i) Post-exposure prophylaxis, when medically indicated, as recommended by the U.S. Public Health Service;
j) Counseling; and evaluation of reported illnesses.

Lead

Lauth aims to minimize lead exposure to workers, including metallic lead, all inorganic lead components, and organic lead soaps. The following is an overview of our Lead Standard Program, which reflects conditions that workers experience in their normal workday. It is company policy to implement the requirements and regulations of the U.S. Department of Labor, Occupational Safety and Health Administration; therefore, our program is to be used in conjunction with OSHA's lead standard for the construction industry – 29 CFR 1926.62 Subpart "D". For the purpose of our program, the permissible exposure limit (PEL) as and 8-hour weighted average (TWA) is 50 ug/m3.

A. Scope and Application -The company's lead in construction program applies to all construction work where any worker may be occupationally exposed to lead. All work related to construction and alteration (including painting and decorating) is included. Under our plan, construction includes, but is not limited to, the following:

   1. Demolition or salvage of structures where lead or materials containing lead are present.
   2. Removal or encapsulation of materials containing lead.
   3. New construction, alteration, repair or renovation of structures, substances, substrates or portions containing lead or materials containing lead.
   4. Installation of products containing lead.
   5. Lead contamination from emergency cleanup.
   6. Transportation, disposal, storage or containment of lead or materials containing lead on the site or location at which construction activities are performed.
   7. Maintenance activities.

B. Limits - This program establishes maximum limits of exposure to lead for all workers covered, including a permissible exposure limit and action level. The permissible exposure limit, or PEL, sets the maximum worker exposure to lead. For example, no worker may be exposed to lead at

airborne concentrations greater than 50 ug/m3 averaged over an 8-hour period. If workers are exposed to lead for more than 8 hours in any work day, the following formula must be used to reduce exposure as a TWA: Worker exposure (in ug/m3)= 400 divided by hours worked in the day.

C. Action Level - Action level is the level at which the company will begin compliance activities. The action level, regardless of respirator use, for the lead in the company's program is an airborne concentration of 30 ug/m3 calculated as an 8-hour TWA.

D. Assessing Exposures - Where initial worker exposure is at or above the action level, the company will collect samples representative of a full work shift, including at least one sample for each shift or the shift with the highest exposure level for each job classification in each work area. These samples represent the monitored worker's regular and daily exposure to lead. Measurements made within the previous 12 months also may be used to determine how far above the action level worker exposure may be. An initial determination of whether workers are exposed to lead at or above the action level and the results of that determination will be made available based on the following:

1. Any information, observation or calculation that indicates worker exposure to lead.
2. Any previous measurements of airborne lead.
3. Any worker complaints of symptoms attributed to lead exposure.
4. Objective data regarding materials, processes or operations.

The Subcontractor may discontinue required monitoring when at least two consecutive measurements taken at least 7 days apart are below the action level.

Monitoring for initial determination when workers are exposed at or above the action level may be limited to a representative sample of those workers exposed to the greatest concentrations of airborne lead. Measurements made within the preceding 12 months, which were performed by the same employer and applicable to the same worker tasks, may be used.

The Subcontractor will establish and maintain an accurate record documenting the nature and relevancy of previous exposure data, and may rely on objective data that demonstrate that a particular lead-contaminating material product does not result in worker exposure at or above the action level when processing, using or handling.

Until the Subcontractor performs an exposure assessment and documents that workers are not exposed above the PEL, the company will treat workers performing certain operations as if they were exposed above the PEL, providing respiratory protection, protective work clothing and equipment, changing areas, hand washing facilities, biological monitoring and training for the following tasks:

1. Manual demolition of structures (e.g., dry wall), manual scraping, manual sanding and use of heat gun where lead containing coatings or paints are present.
2. Abrasive blasting enclosure movement and removal.

3. Power Tool cleaning.
4. Lead burning.
5. Use of lead-containing mortar or spray-paint with lead-containing paint.
6. Abrasive blasting, rivet busting, welding, cutting or burning on any structure where lead-containing coatings or paint are present.
7. Cleanup activities where dry expendable abrasives are used.
8. Any other task the employer believes may cause exposure in excess of the PEL.

E. Information & Training - The Subcontractor must inform his/her workers about lead hazards according to the requirement of OSHA's Hazard Communication standard for the construction industry, 29 CFR 1926.59 including, but not limited to, the requirements for warning signs and labels, Safety Data Sheets (SDS's) and worker information and training. The following warning signs will be posted in each area where worker exposure to lead is above the PEL:

1. Warning
2. Lead work area
3. Poison
4. No smoking or eating

The Subcontractor must institute a training program and ensure participation by all workers subject to exposure to lead or lead compounds at or above the action level on any day. Training will be repeated annually and will include the following:

1. The content of the standard and its appendices.
2. The specific nature of operations that could lead to lead exposure above the action level.
3. The purpose, proper selection, fit use and limitations of respirators.
4. The purpose and description of the Medical Surveillance Program and the Medical Removal Protection Program.
5. The engineering and work practice controls associated with workers' job assignments.
6. The contents of the compliance plan effect.
7. Instructions to workers that chelating agents must not be used routinely to remove lead from their bodies and, when necessary, only under medical supervision. (Chelation – the use of certain drugs to reduce the amount of lead absorbed in body tissues.)
8. The right to access records to the training program and a copy of the standard must be made readily available to his/her workers. Also, the Subcontractor must establish a comprehensive system to regulate and protect workers from hazards in lead exposure. All work areas must be posted or otherwise identified to inform workers of the danger.

F. Engineering, Work Practice and Administrative Control

1. Respirators - When all feasible controls have been instituted but are not sufficient to reduce worker exposure to or below the PEL, the Subcontractor must use respirators to reduce exposures to the lowest feasible level.
2. Engineering Control - Mechanical ventilation may be used to control lead exposure.
3. Work Practice Controls - Safe work practices require maintenance of separate hygiene facilities (change rooms, showers, hand-wash facilities and lunch area) and require proper housekeeping practices.
4. Housekeeping - All surfaces will be maintained as free as possible of accumulations of lead.
5. Administration controls – Administration Controls will be used to reduce the worker's exposure by removing the worker from the hazard (i.e., job rotation).
6. Safety Equipment - Workers must use OSHA-required protective equipment such as respirators.
7. Respirators - The Subcontractor must will provide respiratory protection to the worker and ensure its use when:
   a) Worker exposure to lead exceeds the PEL.
   b) Engineering and work practice controls are not sufficient to reduce exposure levels to below the PEL.
   c) The worker requests a respirator.
8. Protective clothing and equipment - The Subcontractor must provide and ensure the proper use of personal protective equipment when the worker is exposed to lead above the PEL.
9. Record keeping - The Subcontractor will establish and maintain an accurate record of all monitoring and other data used to conduct worker exposure assessments.
10. Effective management of worker safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illness and their related costs. Lauth is committed to this process.

Sanitation

A. Potable Water

1. An adequate supply of potable water shall be provided in all places of employment.
2. Portable containers used to dispense drinking water shall be capable of being tightly closed and equipped with a tap. Water shall not be dipped from containers.
3. Any container used to distribute drinking water shall be clearly marked as to the nature of its contents and not used for any other purpose.
4. The common drinking cup is prohibited.
5. Where single service cups (to be used but once) are supplied, both sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided.

B. Non-potable Water

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

C. Toilets at Construction Jobsites.

1. Toilets shall be provided for employees according to the following table:

Number of Employees	Minimum number of facilities
20 or less	1
20 or more	1 toilet seat and 1 urinal per 40 workers
200 or more	1 toilet seat and 1 urinal per 50 workers

2. Under temporary field conditions, provisions shall be made to assure not less than one toilet facility is available.
3. Job sites, not provided with a sanitary sewer, shall be provided with one of the following toilet facilities unless prohibited by local codes:

   a.) Privies (where their use will not contaminate ground or surface water)

   b.) Chemical toilets

   c.) Recirculating toilets

   d.) Combustion toilets

4. The requirements of this paragraph (c) for sanitation facilities shall not apply to mobile crews having transportation readily available to nearby toilet facilities.

D. Washing Facilities - The Subcontractor must provide adequate washing facilities for his/her employees engaged in the application of paints, coating, herbicides or insecticides, or in other operations where contaminants may be harmful to his/her employees.

1. Washing facilities shall be maintained in a sanitary condition.

2. Lavatories:

a.) Lavatories shall be made available in all places of employment. The requirements of this subdivision do not apply to mobile crews or to normally unattended work locations if workers working at these locations have transportation readily available to nearby washing facilities which meet the other requirements of this paragraph.

b.) Each lavatory shall be provided with hot and cold running water, or tepid running water.

c.) Hand soap or similar cleansing agents shall be provided.

d.) Individual hand towels or sections thereof, of cloth or paper.

E. Eating and Drinking Areas - No worker shall be allowed to consume food or beverages in a toilet room nor in any area exposed to a toxic material.

F. Vermin Control - Every enclosed workplace shall be so constructed, equipped and maintained, so far as reasonably practicable, as to prevent the entrance or harborage of rodents, insects and other vermin. A continuing and effective extermination program shall be instituted where their presence is detected.

G. Change Rooms - Whenever workers are required by a particular standard to wear protective clothing because of the possibility of contamination with toxic materials, change rooms equipped with storage facilities for street clothes and separate storage facilities for the protective clothing shall be provided.

Silica

A. Definition of Silica - Silica is the dioxide of silicon, SiO_2, occurring in crystalline, amorphous and impure forms as in quartz, opal and sand. The fine dust of silica has been determined to be a health hazard to workers of various degrees, depending on the amount and duration of exposures, by the American Conference of Governmental Industrial Hygienists, NIOSH and other regulatory agencies.

B. Methods of Compliance Regarding Silica - If silica levels exceed the permissible exposure limits (PEL), OSHA requires that engineering and work practice controls be applied first to reduce contamination to below the PEL. If exposures cannot be brought down to below the PEL, respiratory protection can then be used to reduce exposure. In the event that respirators are required, the contractor must have a respiratory protection program in place. The company may determine that air sampling shall be implemented.

C. Engineering Controls - The use of properly designed engineering controls is the best approach for controlling dust from crystalline silica-containing materials. The Subcontractor should review the project to determine which, if any, engineering controls are feasible on this particular project.

1. It is highly recommended that non-silica-containing abrasives be used for abrasive blasting. The use of non-silica-containing materials can also create a dust hazard. Most substitute materials have a PEL of 5 mg/m3 for respirable dusts or 15 mg/m3 for total dusts. Below are some additional engineering controls.

   a) Wet sawing or drilling. If wet suppression systems are used, spray nozzles and associated piping should be maintained to assure that adequate wetting agent is applied.

   b) Enclosed workstations, such as control booths and equipment cabs, should be under positive pressure and provided with clean make-up air.

   c) Engineering design of equipment should include, where feasible, provisions to reduce exposure of workers to respirable crystalline silica dust to below the PEL. This may include HEPA filtered local exhaust power tools.

D. Administrative Controls - Administrative Controls can be used in conjunction with engineering controls to further reduce the likelihood of worker exposure.

1. Subcontractors who anticipate doing silica dust creating work should notify all other on-site contractors as far in advance as possible as to: location, date start time and duration.

2. Lauth will, to the extent feasible, limit silica generating work to off-hours or coordinate times when other contractors can vacate the immediate area.

3. Lauth will, to the extent feasible, leave the immediate work area while other contractors are conducting silica generating operations.

4. On all projects with silica-generating activities, Lauth will notify their workers of the potential for silica exposure by:

   a) Posting silica warning signs where other worker notices are posted.

   b) Having the area flagged off, if necessary and feasible, to prevent unauthorized workers from entering during silica generating operations.

E. Personal Protective Equipment - Lauth shall determine that should engineering controls and administrative controls not adequately protect the workers, personal protective equipment may be used. The need for all the following PPE should be evaluated for each project, as all this equipment may not necessarily be needed on every project.

1. Basic PPE

   a) Eye protection.

   b) Face protection (face shield).

   c) Hearing protection (ear plugs or muffs).

d) Coveralls (either disposable or reusable).

e) Foot protection (sturdy work shoe required, safety shoes recommended).

f) Respiratory protection- In many cases with engineering and administrative controls in place, respirator use can be avoided entirely or at least limited.

F. Worker Training Requirements - All workers must be trained to at least OSHA's Hazard Communication Standards (1926.21) level of awareness of silica, which consists of:

1. Adverse health effects of silica.
2. Jobs that generate silica.
3. Procedures and equipment used to minimize silica dust exposures.
4. Availability of medical records and air monitoring results.
5. If respirators are required, full compliance with the OSHA respirator standard.

To ensure that everyone understands fully the hazards of silica and the procedures for working with silica-containing materials, the training should be more comprehensive than what is required by the hazard communication standard. This training shall be given to all personnel on the site, not just those who might be exposed to silica dust. The following is an outline of the training that should be provided:

1. The specific nature of operations which could result in exposure to respirable crystalline silica dusts above the PEL.
2. An explanation of engineering, work practice, hygiene, administrative and personal protective equipment controls used in each of the above operations to eliminate or reduce silica exposures.
3. The purpose and description of the medical surveillance program and the medical protection program, including information concerning:

   a) The purpose of silicosis diagnostic exam elements such as work histories, chest x-rays, lung function tests and tuberculosis screening.

   b) The adverse health effects associated with excessive exposures to respirable silica dusts, including silicosis, tuberculosis and the association with lung cancer.

Mold Inspection Requirements and Associated Documentation Requirements

This document is provided as a guide to assist the project team in inspections during the Pre-construction, Construction and Post-Construction phases. Document all inspections, meetings, including invitation list and meeting minute/notes.

A. Pre-Construction Phase

1. Review of the Contract Documents (including details) and specifications with specific attention to ensuring a weatherproof exterior wall and provide any concerns to the Architect in writing. Provide documented closure to any concerns noted.
   a.) Intersection of curtain wall/windows with the work of other trades.
   b.) Intersection of curtain wall/windows with balcony and deck intersections.
   c.) Review of all complex intersection conditions and advise on proper methods of detailing in accordance with applicable industry standards.
   d.) Adequate structural support conditions for tie-in of curtain wall/window system.
   e.) Proper size and support for sealing of curtain wall/window perimeter conditions to the structure.
   f.) Document recommended changes to the Architect carefully. On standard Owner-Architect-Contractor project delivery methods, the Architect's approval must be obtained. In the event the recommendation is rejected, reiterate the recommendation in writing copying the Owner, and file it.
2. Develop a project schedule with envelope construction completion as a predecessor to installation of finishes, if possible. If not, have a detailed weather protection plan for all areas of exposure and establish a sufficient budget to implement the plan.
3. Pre-qualify potential Subcontractors (bidders) and ensure that they have adequate experience in the specific application being bid.
4. Consult Subcontractor and suppliers for technical requirements of the systems being considered. Include metal, glass and sealant suppliers as well as any specialty trades that may be required.
5. Determine and establish and inspections schedule for construction phase.
   a.) Examples: foundation or basement walls, mechanical chase, window wall system, metal panel system, roofing, roof flashing, parapet cap, dissimilar materials on exterior façade, etc.
   b.) Outline attendance required for inspections.
6. Determine if Mock-Ups will be required.
7. Consider time of year (heavy rain, snow or high humidity). The type of weather that is anticipated during construction should be considered in deciding how to protect the building as it is being enclosed.
8. Consider susceptibility of the building system to water damage and absorption of moisture. If materials or equipment cannot be stored in a location that is dry or finishes and equipment are exposed to the elements, then a plan needs to be developed to protect them from anticipated weather conditions.

9. Consider winter construction and the use of temporary heat. There need to be enough air exchanges to allow for the proper humidity and carbon dioxide levels in the building and still provide enough heat.
10. Consider drainage around the building. Draining is critical in keeping water and moisture from getting into the building through the foundation wall and slab assembly.

B. Construction Phase

1. Include the Architect, Waterproofing Engineer, Mechanical Engineer, manufacturer's representative to inspect for mold-related exposures.
2. Follow the plan outlined in the Pre-Construction phase.
3. Document all incidents. Include follow ups and testing to ensure that repairs have been properly completed.
4. Prepare a program for water testing of the curtain wall/window system by an independent testing agency.
5. Review complex intersections and conditions that are potential leak locations.
   a.) Intersection of curtain wall/windows with the work of other trades.
   b.) Intersection of curtain wall/windows with balcony and deck intersections.
   c.) Adequate structural support conditions for tie-in of curtain wall/window system.
   d.) Have curtain wall consultants perform site visits when work is initially started and at 25%, 75% and 100% completed. Adjust as required for the size and complexity of project.
   e.) Have curtain wall consultants document critical installations and prepare a written report with notes and photographs.
   f.) Conduct field water testing of the curtain wall/window system using a curtain wall consultant or independent testing agency. Prepare a written report of the testing with notes and photographs.
   g.) Proper size and support for sealing of curtain wall/window perimeter and conditions to the structure.
6. Soil and landscaping around the foundation must be sloped away from the building to allow for proper drainage or subsoil drains need to be considered in low areas.
7. Consider using mold resistant material in lieu of common drywall in moisture-susceptible areas.
8. Methods for reducing the amount of wind-blown rain and standing water.
9. Inspect drywall at point of onsite delivery for wet and/or mold-contaminated sheets.

C. Post-Construction Phase

1. Provide a maintenance manual for the exterior curtain wall.
2. Inspect the exterior curtain wall after one year and immediately prior to the end of the warranty period, if other than one year, to determine the existence of any potential deficiencies. Do a visual interior inspection at the same time to look for any signs of leakage.
3. Schedule a final project closeout meeting of all parties involved with pre-construction meeting to ensure that all objectives were met or exceeded.

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PRE-CONSTRUCTION CHECKLIST

For prevention of mold consider the following items.

	Complete	Comments
A. Contract Documents		
1. Intersection of curtain walls	☐	_____
2. Intersection of curtain walls with other trades	☐	_____
3. Review intersection of all exterior systems	☐	_____
4. Adequate support of exterior systems	☐	_____
5. Vapor barrier requirements and termination	☐	_____
6. Foundation walls	☐	_____
7. Roofing assemble	☐	_____
8. Review soils report	☐	_____
B. Develop inspection schedule	☐	_____
C. Mock-ups required	☐	_____
D. Project team experienced and or trained in methods of preventing mold growth	☐	_____
E. Pre-qualify potential Subcontractors	☐	_____
F. Qualify systems design have positive track record	☐	_____
G. Existing conditions that have the potential of mold	☐	_____
H. Consider winter building conditions	☐	_____
I. Prepare Project-Specific Action Plan	☐	_____

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CONSTRUCTION CHECKLIST

For prevention of mold inspect the following locations

	Complete	Comments
A. Interior Finishes		
• Mechanical or Electrical Chase	☐	_____
• Overall Project Cleanness	☐	_____
• Document each step of construction with photos	☐	_____
• Stored material dry and protected	☐	_____
• Material supplier inspect installation for manufacturer compliance	☐	_____
• Windows, doorways, closets and cabinets	☐	_____
• Sheetrock / gypsum walls and ceilings	☐	_____
• Drop in ceiling tiles	☐	_____
• Masonry or concrete walls	☐	_____
• All painted surfaces and wall coverings	☐	_____
• Registers	☐	_____
• Carpets / Flooring	☐	_____
B. Mechanical Systems		
• Condensation pans / Drip pans	☐	_____
• Temporary Ventilation	☐	_____
• Duct Work	☐	_____
• Water Lines	☐	_____
• Insulation	☐	_____
• Cooling Towers	☐	_____
• Exhaust Fans	☐	_____
• Air Conditioning Units	☐	_____
• Humidifiers	☐	_____
C. Exterior Finishes		
• Temporary Drainage System	☐	_____
• Roofing, Gutters and Drainage	☐	_____
• Termination of Vapor Barrier	☐	_____
• Skylights and Greenhouses	☐	_____
• Plaster or Stucco Surfaces (EIFS)	☐	_____
• Caulk Joints	☐	_____
• Deck, walkway membranes, patios and balconies	☐	_____
• Concrete or precast	☐	_____
• Wood / Metal siding and trim	☐	_____
• Windows and doorways	☐	_____

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POST-CONSTRUCTION CHECKLIST

For prevention of mold inspect the following locations for evidence of Spots, Stains, Discolorations, Bumps, Brittleness, Odor, Peeling or Condensation:

	Satisfactory	Comments
A. Interior Finishes		
• Tub and Tile areas (include shower doors)	☐	_____
• Plumbing fixtures (toilets, sinks and tubs)	☐	_____
• Windows, doorways closets and cabinets	☐	_____
• Sheetrock / gypsum walls and ceilings	☐	_____
• Drop in ceiling tiles	☐	_____
• Masonry or concrete walls	☐	_____
• All painted surfaces and wall coverings	☐	_____
• Registers	☐	_____
• Carpets / Flooring	☐	_____
• Appliances	☐	_____
• Furniture / Wall Coverings	☐	_____
• Fish Tanks / Aquariums	☐	_____
B. Mechanical Systems and Appliances		
• Condensation pans / Drip pans	☐	_____
• HVAC filters per manufacturers specifications	☐	_____
• Interior side of all roof penetrations (if visible)	☐	_____
• Water lines	☐	_____
• Drain locations	☐	_____
• Cooling Towers	☐	_____
• Exhaust Fans	☐	_____
• Room Air Conditioners	☐	_____
• Humidifiers	☐	_____

Note: All refrigeration and cooling units would fall under this category.

C. Exterior Finishes		
• Roofing, Gutters and drainage systems	☐	_____
• Skylights and Greenhouses	☐	_____
• Plaster or Stucco Surfaces (EIFS)	☐	_____
• Caulk Joints	☐	_____
• Deck, walkway membranes, patios & balconies	☐	_____
• Concrete or precast	☐	_____
• Wood / Metal siding and trim	☐	_____
• Windows and doorways	☐	_____
• Pool or pond locations	☐	_____
• Sauna and/or Hot Tubs	☐	_____

D. Project Specific Action Plan

1. Each Lauth project will prepare a Project-Specific Mold Action Plan. This plan will include such elements as:

   a) Inventory of forms for the documentation of inspections, response actions, etc.

   b) List of equipment and material required for the Project Specific Mold Action Plan and information on whether the equipment and materials are Lauth owner, rental, etc. Included should be sources (company names, addresses and phone numbers) for any anticipated equipment or materials which we anticipate renting or purchasing at the time of a water-intrusion event.

   c) A complete copy of the Lauth Mold Action Plan.

   d) Records of any checklists and inspections conducted during the project relative to the Lauth Mold Action Plan including observations, recommendations and/or directives issued and a record of their final resolution.

   e) Photographs or disks containing photographs from inspections and response actions relative to the Lauth Mold Action Plan on the project.

   f) A listing of at least three (3) local remediation contractors (company names, addresses and phone numbers).

   g) A listing of at least two (2) local industrial hygienists (names, addresses and phone numbers).

   h) Documentation and photographs prepared during response(s) to water-intrusion events and subsequent clean-up activities.

   i) Final Clearance Reports provided by hygienists when prepared in connection with qualifying water-intrusion events and subsequent clean-up activities.

   j) A complete copy of Mold Remediation in Schools and Commercial Buildings[1] which is recognized as one of the more comprehensive and accepted documents detailing recommendations for the remediation of mold.

2. The project-specific plan should be kept in a dedicated file or binder on the project site.

3. The project-specific plan should be kept with the associated project record files upon completion of the project in accordance with the Lauth record retention policy (reference Lauth Operations Manual).

4. From time to time, the Lauth Regional Safety and Loss/Prevention Manager will review this project-specific plan at the site for completeness and conformance with the company policy and report his or her findings in the Job Safety Audit Report for the site visit.

5. All Lauth project staff should be trained prior to beginning their work on the project in the fundamentals of prevention of mold on construction projects and should be thoroughly familiar with the Lauth Mold Action Plan.

6. On renovation or expansion projects, carefully survey the existing building before construction begins. Look for discoloration in finished surfaces or a musty smell. IF evidence of a mold problem exists, enlist an expert to verify the extent and carefully document and photograph the existing conditions and communicate these to the Owner prior to construction. Pre-existing mold problems can become our mold problem once construction begins.
7. Discuss and identify any portions of the schedule or anticipated sequencing of the construction work which may create unusual exposures to the possibility of the formation of mold and plan ways to prevent this exposure. Consider the time of year and anticipated seasonal weather and discuss how to protect the building from exposure to the formation of mold while it is being enclosed.
8. Confirm with each Subcontractor as they mobilize on site (trade kickoff meetings) that their responsible person on site (supervisor or superintendent on site) understands their company's obligations with respect to mold prevention, response, reporting, notification and remediation.

[1] United States Environmental Protection Agency Office of Air and Radiation, Indoor Environments Division **Mold Remediation in Schools and Commercial Building**, June, 2001

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Materials and Equipment Required for Project's Mold Prevention Plan

		Quick Rental or Purchase Source (Two to Four Hours)		
Material or Equipment	Lauth Owned On-Site	Company Name	Address	Phone Number
Moisture Meter				
PPE				
Blowers				
Pumps				
Dehumidifiers				
Fans				
Wet Dry Vacuums				

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List of Remediation Contractors and Hygienists Available For This Project (Local)

Local Company Names

Remediation Contractors	Hygienists	Address	Phone Number

Response Plan

Introduction to Response Plans

There are two distinct situations where a response plan is required. The situations are:

- During Construction
- Post-Construction

Given the unique conditions existing in each situation, we have produced two distinct response plans. The response plan during construction is much more general beyond the point of cleaning up the excess moisture and documentation. In this plan, we have stayed away from specific recommendations for every conceivable scenario and suggested "guiding principles."

In the post-construction situation, our response plan is more specific and driven by the degree of water/mold intrusion. We have utilized a flow chart with references to documents and links that cite specific government guidelines.

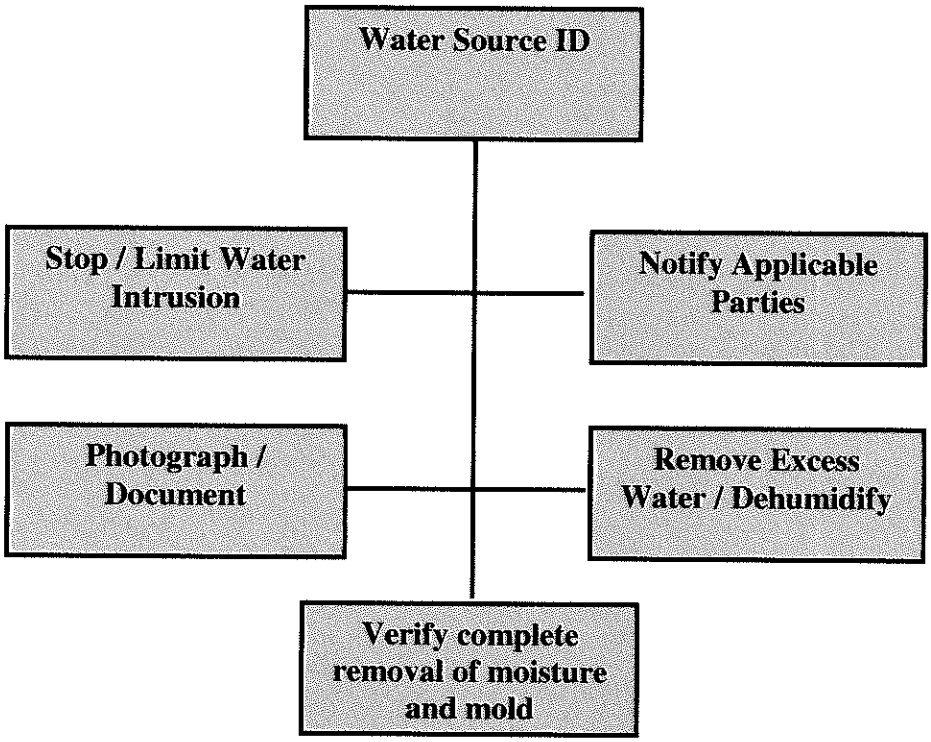
A. Pre-Event Preparation

1. By definition, water intrusion events need to be addressed as quickly as possible to minimize damage and possible mold growth. Preparation may include project specific identification of potential resources (as noted in the Project Specific Action Plan Section), i.e. water clean-up/restoration specialists, certified industrial hygienists, mold remediation specialists, etc. that may be called upon to assist in all aspects of a response plan. These resources may be able to assist in all phases of the plan from the initial water intrusion to the final report.

B. Response During Construction and Post-Construction

1. Notification to one or more of the following parties should be seriously considered:
   a) Insurer
   b) Attorney
   c) All parties affected by the water intrusion
2. During Construction
   a) The flow chart below shows suggested steps for responding to a water intrusion event that takes place during construction

Figure 1: Water Intrusion Response Plan Flow Chart – During Construction



b) Guiding principles

i. If large-scale water intrusion occurs, it may be beneficial to hire an outside Restoration Contractor to assist in the drying and clean-up if Lauth does not have the necessary resources. Emphasis should be to dry salvageable materials and remove other materials immediately after water intrusion, prior to any potential mold growth. Refer to Table 1 of EPA Guidelines for reference (attached).

ii. After drying, clean-up and repair of that leak, affected areas should be periodically checked for moisture or mold to ensure problem does not reappear.

3. Post-Construction - The response plan for a finished structure (post-construction) has three governing parameters, listed below:
   a) How long since the water intrusion occurred?
   b) Has visible mold growth occurred?
   c) Size of the water damage or mold growth?
   d) The attached flow chart addresses these issues. While the flow chart is a basic blueprint for managing a response plan, judgment will be required for some decisions, such as whether to obtain a Hygienist or Remediation Contractor for relatively minor damage.

Figure 2: Water Intrusion Response Plan Flow Chart –Post Construction

* Requirement for Remediation Contractor varies by case and by LAUTH' capabilities. N.Y. Protocols recommend areas of 30+ s.f. mold damage to be handled by Remediation Contractors. For early water damage, outside specialists may be necessary for larger events, where LAUTH may not have resources to completely dry the building materials quickly.
** Requirement varies by size and occupancy. N.Y. Protocols recommend hygienists are areas greater than 30 s.f., but in occupied buildings should be considered at 10 s.f. or smaller, depending on sensitivity of locations and occupants.

Reference Links

EPA: Mold Remediation in Schools and Commercial Building (EPA 402-K-01-001, March 20001):
PDF Format: http://www.epa.gov/iaq/molds/images/moldremediation.pdf
HTML: **http://www.epa.gov/iaq/molds/mold_remediation.html**
New York City Department of Health and Mental Hygiene: Guidelines on Assessment and Remediation of Fungi in Indoor Environments:
http://nyc.gov/html/doh/html/epi/moldrpt1.html Reference Documents

Checklist for Mold Remediation, from EPA 402-K-01-001: Remediation in Schools and Commercial Buildings:

Checklist for Mold Remediation*

a. Investigate and Evaluate Moisture and Mold Problems
   - ☐ Assess size of moldy area (square feet).
   - ☐ Consider the possibility of hidden mold.
   - ☐ Clean up small mold problems and fix moisture problems before they become large problems.
   - ☐ Select remediation manager for medium or large size mold problem.
   - ☐ Investigate areas associated with occupant complaints.
   - ☐ Identify source(s) or cause of water or moisture problem(s).
   - ☐ Note type of water-damaged materials (wallboard, carpet, etc.).
   - ☐ Check inside air ducts and air handling unit.
   - ☐ Throughout process, consult qualified professional if necessary or desired.

b. Communicate with Building Occupants at All Stages of Process, as Appropriate
   Designate contact person for questions and comments about medium or large-scale remediation as needed.

c. Plan Remediation
   - ☐ Adapt or modify remediation guidelines to fit your situation; use professional judgment.
   - ☐ Plan to dry wet, non-moldy materials within 48 hours to prevent mold growth (see Table 1 and text).
   - ☐ Select cleanup methods for moldy items (see Table 2 and text).
   - ☐ Select Personal Protection Equipment – protect remediators (see Table 2 and text).
   - ☐ Select Containment Equipment – protect building occupants (see Table and text).
   - ☐ Select remediation personnel who have the experience and training needed to implement the remediation plan and use Personal Protection Equipment and containment as appropriate.

d. Remediate Moisture and Mold Problems
   - ☐ Fix moisture problem, implement repair plan and/or maintenance plan.
   - ☐ Dry wet, non-moldy materials within 48 hours to prevent mold growth.
   - ☐ Clean and dry moldy materials (see Table 2 and text).
   - ☐ Discard moldy porous items that can't be cleaned (see Table 2 and text).

* For details, see main text of this publication. Please note that this checklist was designed to highlight key parts of a school or commercial building remediation and does not list all potential steps or problems.

Table 1: Water Damage – Cleanup and Mold Prevention

Table 1 presents strategies to respond to water damage with 24 – 48 hours. These guidelines are designed to help avoid the need for remediation of mold growth by taking quick action before growth starts. If mold growth is found on the materials listed in Table 1, refer to Table 2 for guidance on remediation. Depending on the size of the area involved and the resources available, professional assistance may be needed to dry an area quickly and thoroughly.

Table 1: Water Damage – Cleanup and Mold Prevention	
Guidelines for Response to Clean Water Damage within 24 – 48 Hours to Prevent Mold Growth*	
Water-Damaged Material†	**Actions**
Books and papers	• For non-valuable items, discard books and papers. • Photocopy valuable / important items, discard originals. • Freeze (in frost-free freezer or meat locker) or freeze-dry.
Carpet and backing – Dry within 24-48 hours	• Remove water with water-extraction vacuum. • Reduce ambient humidity levels with dehumidifier. • Accelerate drying process with fans.
Ceiling tiles	• Discard and replace.
Cellulose insulation	• Discard and replace
Concrete or cinder block surfaces	• Remove water with water-extraction vacuum. • Accelerate drying process with dehumidifiers, fans and/or heaters.
Fiberglass insulation	• Discard and replace
Hard surface, porous flooring§ (Linoleum, ceramic tile, vinyl)	• Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary. • Check to make sure under flooring is dry; dry under flooring if necessary.
Non-porous, hard surfaces (Plastics, metals)	• Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary.
Upholstered furniture	• Remove water with water-extraction vacuum. • Accelerate drying process with dehumidifiers, fans, and/or heaters. • May be difficult to completely dry within 48 hours. If the piece is valuable, you may wish to consult a restoration / water damage professional that specializes in furniture.

Table 1: Water Damage – Cleanup and Mold Prevention

Guidelines for Response to Clean Water Damage within 24 – 48 Hours to Prevent Mold Growth*

Water-Damaged Material†	Actions
Wallboard (Drywall and gypsum board)	• May be dried in place if there is no obvious swelling and the seams are intact. If not, remove, discard and replace. • Ventilate the wall cavity, if possible.
Window drapes	• Follow laundering or cleaning instructions recommended by the manufacturer.
Wood surfaces	• Remove moisture immediately and use dehumidifiers, gentle heat and fans for drying. (Use caution when applying heat to hardwood floors.) • Treated or finished wood surfaces may be cleaned with mild detergent and clean water and allowed to dry. • Wet paneling should be pried away from wall for drying.

* If mold growth has occurred or materials have been wet for move than 48 hours, consult Table 2 guidelines. Even if materials are dried within 48 hours, mold growth may have occurred. Items may be tested by professionals if there is doubt. Note that mold growth will not always occur after 48 hours; this is only a guideline.

These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage, or chemical or biological pollutants, then Personal Protective Equipment and containment are required by OSHA. An experienced professional should be consulted if you and/or your remediators do not have expertise remediating in contaminated water situations. Do not use fans before determining that the water is clean or sanitary.

† If a particular item(s) has high monetary or sentimental value, you may wish to consult a restoration / water damage specialist.

§ The sub-floor under the carpet or other flooring material must also be cleaned and dried. See the appropriate section of this table for recommended actions depending on the composition of the sub-floor.

Table 2: Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water

Table 1 presents remediation guidelines for building materials that have or are likely to have mold growth. The guidelines in Table 2 are designed to protect the health of occupants and cleanup personnel during remediation. These guidelines are based on the area and type of material affected by water damage and/or mold growth. Please note that these are guidelines; some professionals may prefer other cleaning methods.

If you are considering cleaning your ducts as part of your remediation plan, you should consult EPA's publication entitled, **Should You Have the Air Ducts in Your Home Cleaned?** If possible, remediation activities should be scheduled during off-hours when building occupants are less likely to be affected. Although the level of personal protection suggested in these guidelines is based on the total surface area contaminated and the potential for remediator and/or occupant exposure, professional judgment should always play a part in remediation decisions. These remediation guidelines are based on the size of the affected area to make it easier for remediators to select appropriate techniques, not on the basis of health effects or research showing there is a specific method appropriate at a certain number of square feet. The guidelines have been designed to help construct a remediation plan. The remediation manager will then use professional judgment and experience to adapt the guidelines to particular situations. When in doubt, caution is advised. Consult an experienced mold remediator for more information.

In cases in which a particularly toxic mold species has been identified or is suspected, when extensive hidden mold is expected (such as behind vinyl wallpaper or in the HVAC system), when the chances of the mold becoming airborne are estimated to be high, or sensitive individuals (e.g., those with severe allergies or asthma) are present, a more cautious or conservative approach to remediation is indicated. Always make sure to protect remediators and building occupants from exposure to mold.

Table 2: Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water*			
Material or Furnishing Affected	**Cleanup Methods†**	**Personal Protective Equipment**	**Containment**
SMALL – Total Surface Area Affected Less than 10 square feet (ft^2)			
Books and papers	3	Minimum N-95 respirator, gloves and goggles	None required
Carpet and backing	1, 3		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1, 2, 3		
Non-porous, hard surfaces (plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 3		
Wallboard (drywall and gypsum board)	3		
Wood surfaces	1, 2, 3		
MEDIUM – Total Surface Area Affected Less than 10 and 100 (ft^2)			
Books and papers	3	Limited or Full Use professional judgment, consider potential for remediator exposure and size of contaminated area	Limited Use professional judgment, consider potential for remediator/ occupant exposure and size of contaminated area
Carpet and backing	1, 3, 4		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1, 2, 3		
Non-porous, hard surfaces (plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 3, 4		
Wallboard (drywall and gypsum board)	3, 4		
Wood surfaces	1, 2, 3		

Table 2: Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water*			
Material or Furnishing Affected	**Cleanup Methods†**	**Personal Protective Equipment**	**Containment**
LARGE – Total Surface Area Affected Greater Than 100 (ft^2) or Potential for Increased Occupant or Remediator Exposure During Remediation Estimated to be Significant			
Books and papers	3	Full Use professional judgment, consider potential for remediator/ occupant exposure and size of contaminated area	Full Use professional judgment, consider potential for remediator exposure and size of contaminated area
Carpet and backing	1, 3, 4		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1, 2, 3, 4		
Non-porous, hard surfaces (plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 2, 4		
Wallboard (drywall and gypsum board)	3, 4		
Wood surfaces	1, 2, 3,4		

* Use professional judgment to determine prudent levels of Personal Protective Equipment and containment for each situation, particularly as the remediation site size increases and the potential for exposure and health effects rises. Assess the need for increased Personal Protective Equipment, if, during remediation, more extensive contamination is encountered than was expected. Consult Table 1 if materials have been wet for less than 48 hours and mold growth is not apparent. These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage, or chemical or biological pollutants, then the Occupational Safety and Health Administration (OSHA) required PPE and containment. An experienced professional should be consulted if you and/or your remediators do not have expertise in remediating contaminated water situations.

† Select method most appropriate to situation. Since molds gradually destroy the things they grow on, if mold growth is not addressed promptly, some items may be damaged such that cleaning will not restore their original appearance. If mold growth is heavy and items are valuable or important, you may wish to consult a restoration/water damage/remediation expert. Please note that these are guidelines; other cleaning methods may be preferred by some professionals.

Table 2 continued

Cleanup Methods

1. Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried). Steam cleaning may be an alternative for carpets and some upholstered furniture.
2. Damp-wipe surfaces with plain water or with water and detergent solution (except wood – use wood floor cleaner); scrub as needed.
3. High-efficiency particulate air (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.
4. Discard – remove water-damaged materials and seal in plastic bags while inside of containment, if present. Dispose of as normal waste. HEPA vacuum area after it is dried.

Personal Protective Equipment (PPE)

- Minimum: Gloves, N-95 respirator, goggles/eye protection.
- Limited: Gloves, N-95 respirator or half-face respirator with HEPA filter, disposable overalls, goggles/eye protection.
- Full: Gloves, disposable full body clothing, head gear, foot coverings, and full-face respirator with HEPA filter.

Containment

- Limited: Use polyethylene sheeting ceiling to floor around affected area with a slit entry and covering flap; maintain area under negative pressure with HEPA-filtered fan unit. Block supply and return air vents within containment area.
- Full: Use two layers of fire-retardant polyethylene sheeting with one airlock chamber. Maintain are under negative pressure with HEPA-filtered fan exhausted outside of building. Block supply and return air vents within containment area.

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Response

SAMPLE RECORD DOCUMENT

Contractor Abatement/Mitigation Record

Post-Flood or Water-Intrusion Event Contractor(s)

Date+	Location*	Describe How The Area Was Selected Pre-Abatement				Describe the Nature and Extent of Abatement							Describe How The Area Was Cleared Post-Abatement				Assigned/Responsible Subcontractors						Date Release To Owner
							Describe Equipment Used										#1		#2		#3		
																	Date (s)						
		Date	Visual	Instrument	% Moisture	Drywall Removed (SF)	Wet/Dry Vacuum (Hrs)		Dehumidify		HVAC or HEPA		Date	Air Samples	Visual	% Moisture	Assigned	Cleared	Assigned	Cleared	Assigned	Cleared	
							Mach. ID	(Hrs)	Mach. ID	(Hrs)	Mach. ID	(Hrs)											

Superintendent/Project Manager:_____

Date:_____

Key: + Record date of first discovery

* Any method may be used, i.e., room number, assigned designation letters, numbers, etc.

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SECTION 10
EXCAVATIONS AND TRENCHING

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart P (Excavations). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply. Each Subcontractor is required to enforce the contents of this section.

Before preparing a bid, these specific site conditions should be taken into consideration:

A. Traffic

B. Nearness of adjacent structures, buildings and their conditions

C. Soil

D. Surface and ground water/water accumulation

E. Overhead and underground utilities

F. Weather

These conditions can be determined by job site studies, observations and soil test borings and consultation with local officials and utility companies.

Prior to any trenching and excavation activities, the Subcontractors must locate all underground installations (sewer, telephone, electrical, gas and other fuel lines, storage tanks, etc.). Hand excavation must be performed within 3 feet horizontal and 3 feet vertical of any known underground utility.

Sloping or benching for excavations greater than 20 feet deep or when there are unusual conditions, adjacent building foundations, etc., shall be designed by a Registered Professional Engineer.

The Subcontractor shall submit the name of the responsible "Competent Person" regarding excavations to the Lauth Superintendent. The Subcontractor's Supervisor and Competent Person shall be responsible for ensuring that their employees and lower tier Subcontractor's comply with all applicable standards.

Inspections

A. Documented daily inspections of excavations, adjacent areas, and protective systems shall be performed by a competent person (see form). Inspections will also be made after every rainstorm or other hazard increasing occurrence. Exposed workers will be removed if evidence of possible cave-ins, failure of protective systems, hazardous atmospheres, or other hazardous conditions are found, until necessary precautions have been taken.

B. As conditions change throughout the day that may affect the stability of the excavations (i.e., changing weather conditions or vehicular traffic) additional documented inspections are required prior to worker re-entry.

C. The excavation competent person must remain on site at all times while workers are in an excavation five feet or greater.

General Requirements

A. Protection of workers must be provided in excavations/trenches against cave-ins except when the excavation is in stable rock or less than fire (5) feet deep AND examination by a competent person determines that there is no evidence that a cave-in should be expected. Protection will also be provided against falling rock, soil or material by use of an "adequate" system. The latter operation includes scaling to remove loose rock and soil, installation of protective barricades and other "equivalent" protection. Material or equipment which might fall or roll into an excavation must be kept at two (2) feet from the edge of the excavation, or have retaining devices. Excavations should be backfilled as soon as possible.

B. All trenches greater than four (4) feet deep must have a safe means of access/egress (stairway, ladder or ramp) so that no more than 25 feet of travel is required.

C. Workers exposed to public vehicular traffic must wear a high-visibility warning vest and be properly trained.

D. No person should be permitted under loads of digging equipment or equipment designed to lift or lower any item.

E. Excavating equipment must be kept at least 10 feet away from any overhead energized electrical power lines.

F. Special precautions should be made for adjacent structures, buildings, etc. as needed to protect workers.

G. Water must either be prevented from accumulating, or be controlled from accumulating by a pump or other system.

H. All crossovers, walkways and bridges must have standard guardrails.

I. Workers and the public must be protected from trip/fall hazards into excavations by guardrail systems, fencing, barricades, or covers until backfilled. The edge of a well, pit, shaft, and similar excavations six (6) feet or mare that are not readily seen because of plant growth or other visual barrier shall be protected.

J. All spoils shall be kept at least two (2) feet from edges of the excavation or removed from the area.

Hazardous Atmospheres

A. In the event that suspect materials are encountered during excavation operations, all work shall cease. The Subcontractor's competent person must determine when it is deemed safe to resume operations.

B. Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill

areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet in depth.

C. Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation

D. The use of internal combustion engines that operate in the excavation should not be used because of fumes discharged. If this type of a pump is used, then continuous monitoring of the air inside the excavation will need to be done.

Soil Classification & Allowable Slopes

A. Stable Rock – Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposing. Maximum allowable slope: 90 degrees.

B. Type A – Cohesive soils such as clay, silty clay, clay loam, and cemented soils. No soil is Type A if soils are fissured, subject to vibration by heavy traffic or work operations, previously disturbed, or would be classified as a less stable material because of other factors. Maximum allowable slope: ¾:1 (53 degrees).

   1. An exception from the ¾:1 can be used only when a simple slope excavation which is open 24 hours or less (short term) and which is 12 feet or less in depth shall have a maximum allowable slope of ½:1 (63 degrees)

C. Type B – Granular cohesion less soils such as angular gravel (crushed rock), silt silty clay, previously disturbed soils except those which would otherwise be classified as Type C soil, or dry rock that is not stable. Maximum allowable slope: 1:1 (45 degrees).

D. Type C – Granular soils such as gravel, sand, loamy sand, and submerges soil. Maximum allowable slope: 1½: 1 (34 degrees).

Protective Systems

A. All workers in excavations greater than five (5) feet must be protected by either Sloping/Benching or a Support System (shoring/trench box/shield).

B. Excavations less than five (5) feet should be examined by the Subcontractor's competent person to determine if there is any indication of a potential cave-in and the need for a protective system such as sloping or shoring. Also, if any excavation is made in entirely stable rock then compliance with protective systems such as shoring/sloping shall be exempt.

C. Design of sloping and benching systems. The slopes and configurations of sloping and benching systems shall be selected and constructed by the Subcontractor or his designee and shall be in accordance with 29CFR1926- Subpart P (Excavations)

D. While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard the workers and the public.

E. Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of the workers and the public.

Support Systems

A. Sloping or benching for excavations greater than 20 feet deep or when there are unusual soil conditions, adjacent building foundations, etc., shall be designed by a Registered Professional Engineer.

B. Removal of protective system's members must not proceed until other members are installed to carry the imposed load.

C. Final removal of protective systems must begin and progress from the bottom. Back filling must progress together with the removal of the support system.

D. Workers may not work on the face of sloped or benched excavations at levels above other workers unless protected from falling or rolling equipment or material.

E. Workers should not be permitted inside a shield when the shield is being installed, removed, or moved.

Trench Shields (Trench Box)

A. A trench shield is an engineered movable box that is strong enough to protect the worker but light enough to mechanically move inside the trench.

B. Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.

C. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side.

Safety Provisions

A. Shield systems shall not be subject to loads exceeding the design capacity.

B. Shields should be installed in a manner to restrict lateral or other hazardous movement in the event of the applications of sudden lateral loads.

C. Workers shall be protected from the hazard of cave-ins when entering or exiting the areas protected by the shield.

D. Workers shall not be allowed in shields when the shields are being installed, removed, or moved.

E. Excavation of earth material to a level not greater than two (2) feet below the bottom of the shield shall be permitted but only if the shield is designed to resist the forces calculated for the depth of the trench and there are no indications of cave-ins from behind or below the bottom of the shield.

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SECTION 11
FALL PROTECTION

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart M (Fall Protection). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Scope

A. This section sets forth requirements and criteria for fall protection covered under 29 CFR 1926 of the Construction Industry Standards. Exceptions are made when individuals are making an inspection, investigation or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed.

B. Subcontractors shall submit the name of the responsible "Competent Person" regarding fall protection to the Lauth Superintendent. This individual shall be responsible for ensuring that their employees and lower tier Subcontractors comply with this policy.

C. All workers exposed to a fall of six (6) feet or greater shall be protected from falling by using guardrail systems, safety nets, or personal fall arrest systems.

Full-Body Harnesses, Lanyards, and Lifelines

A. An approved full-body harness and lanyard must be worn and used by those workers whose work exposes them to falling distance of greater than 6 feet from the perimeter of a structure, roof, shaft ways, and other openings not adequately guarded.

B. Workers must secure their lanyards to anchor points as high as possible, so as to limit free-fall to less than six (6) feet.

C. A full-body harness and lanyard must be worn when working on thrust-outs or similar locations and when exposed to the hazard of falling more than six (6) feet from buildings, structures, trusses, beams, purlins, or plates. (Exception: When the use of a full-body harness is infeasible or creates a greater hazard, the Subcontractor must complete, adopt, implement and enforce the requirements under a Fall Protection Plan.)

D. A full-body harness and a lanyard must be worn when exposed on suspended staging, catwalks, or walkways 6 feet or more in height.

E. A self-inspection must be performed on all harnesses; lanyards, lifelines as well as any other parts of fall protection prior to each use.

F. All personal fall arrest systems shall be attached to an anchorage point capable of supporting a minimum of 5000 pounds (per person) or engineered to support twice the maximum intended load.

G. All lanyards shall be equipped with shock absorbers and locking- type snap hooks.

Roof and Floor Openings

A. All "holes" or openings greater than 2 inches shall be covered and secured against displacement. Plans for coverage/protection should be made prior to the creation of the opening. Such covers shall be able to withstand twice the maximum intended load and labeled with "HOLE" or "COVER" and "DO NOT REMOVE."

B. When working around skylights, the skylight shall be protected with a guardrail system or an approved skylight cover/screen that meets the fall protection requirements.

Ladders

A. Metal ladders will be permitted only at the discretions of the Lauth Superintendent.

B. All ladders must be inspected prior to each use. Rungs must be clean and free of damage or cracking. Damaged or defective ladders must be tagged "DANGER DO NOT USE" and immediately removed from the work site or destroyed.

C. Ladders used to access upper floor, platforms or roof must extend 3' above the egress point and be secured at the top. If the ladder cannot be secured and properly extended, an egress grab must be provided on both sides of the ladder.

D. All ladders must be secured at the top to prevent slipping or secured at the base by a fellow worker.

E. Ladders must be erected with a 4:1 ratio, i.e., for every 4 feet of working height, the base must extend 1 foot from a perpendicular line drawn from the top resting point.

F. Access and egress points to the ladder will be clear of debris and slippery surface.

G. Workers will face the climbing surface when climbing or working and will maintain three-point contact with the ladder at all times.

H. Ladders will not be used in the horizontal position as a platform or scaffold pick.

I. Ladders will be used only for their designed use and within their design capabilities.

J. A double-cleated ladder or two or more separate ladders will be used for access and egress in a working area of 25 or more employees or the ladder serves simultaneous two-way traffic.

Step-Ladders

A. Metal ladders will be permitted only at the discretions of the Lauth Superintendent.

B. Step-ladders must be used in a full open position only. They may not be used as a straight ladder or partially open.

C. All ladders must be inspected prior to use.

D. The top platform and top step of a step-ladder may not be used.

E. No more than one person will be allowed to work from a step-ladder unless it is specifically designed to accommodate more than one.

Scaffolds and Platforms

A. The Subcontractor's competent person shall properly inspect and tag each scaffold prior to use.

B. The subcontractor shall have a competent person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. Subcontractors are required to provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

C. Railing shall be provided on all open sides and ends of built-up scaffolds, rolling scaffolds, elevated platforms ten (10) feet or more above ground level or floor level.

D. Toeboards shall be solid and extend not less than 3½ inches above the platform and the bottom clearance shall not exceed ¼ inch.

E. Toeboards shall be provided on all open sides and ends of railed scaffolds at locations where people are required to work or pass under the scaffold.

F. Scaffolds must have a proper access ladder that extends at least three (3) feet above the platform.

G. If material on a railed scaffold is piled higher than the toeboard, a barrier of ½ inch mesh wire, canvas or its equivalent shall be provided between the top rail and toeboard. The barrier shall be secured at both top and bottom at locations where persons are required to work or pass under scaffold. Note: When side screens are used, midrail maybe omitted.

H. Mobile scaffolds shall be equipped with a positive method of locking the scaffold against movement during use. A scaffold shall be locked in position while in use.

I. Rolling scaffold shall not be moved until all workers are off of the scaffold. No riders.

J. An extension platform outside a wall opening on which material can be hoisted for handling shall have standard guardrails. One side of the platform may have removable railings in order to facilitate handling of materials.

Ramps, Runways, Stairwells and Stairs

A. Wheelbarrow ramps and runways over 3 feet high shall not be less than 2 feet 6 inches wide and shall be secured at each end to prevent sliding.

B. Ramps and runways erected for the use of workers shall not be less that 20 inches in width and shall be secured and supported as to avoid deflection and springing action.

C. Securely fastened cleats shall be used on inclined runways that are sloped 2 feet for every10 feet of lateral travel and not be more than 10 inches apart.

D. Handrails when used in connection with stairways shall be 30 inches to 34 inches above the tread nosing.

E. Uprights shall be not less than 2 inches by 4 inches, spaced not more than 8 feet apart and properly anchored.

F. Standard guardrails shall consist of a top rail not less than 42 inches or more than 45 inches in height as measured from the upper surface of the top rail to the floor. The midrail shall be halfway between.

G. Posts shall not be less than 2 inches by 4 inches and spaced at 8 foot intervals or less.

H. Guardrails and covers are needed for excavation crossovers.

Aerial Baskets or Platforms

A. Only properly trained and authorized persons shall operate an aerial device.

B. Personal fall arrest/restraint systems shall be utilized when occupying any type of aerial lift (including scissor lifts) and be secured to an engineered anchor point.

C. Lift controls shall be tested in accordance with the manufacturer's recommendations or instructions prior to use in order to determine that such controls are in safe working condition.

D. Aerial baskets or platforms shall not be supported by adjacent structures when workers are on the platform or in the basket while in an elevated position.

E. Belting off to an adjacent pole, structure, or equipment shall not be permitted.

F. Workers shall not sit or climb on the edge of the basket or use planks, ladders or other devices to gain greater working height.

G. Boom and basket and platform load limits specified by the manufacturer shall not be exceeded.

H. The braking systems shall be set when elevating personnel with the vehicle stationary.

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

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

K. An aerial device truck shall not be moved when the boom is elevated in a working position with workers in the basket or on the platform.

L. Employees working in a Boatswain's Chair shall be tied off to a static line with the use of a full-body harness. The employee shall be tied off before entering the Boatswain's Chair. All other related and pertinent OSHA fall-protection regulations apply.

Housekeeping

A. Walkways, ladders, and stairs shall be kept clear at all times.

B. All work areas shall be kept clean and free of trip hazards.

Safety Nets

A. Safety nets must be used when conventional fall protection is required but not practical.

B. Safety nets are required at the exterior and interior perimeter of a structure if the elevation is 25 feet or more and the use of a full-body harness is not practical.

C. Safety nets must be used if a building structure is not adaptable to temporary floors or scaffolding, and the fall distance exceeds 25 feet.

Training

Due to specific job requirements of Lauth employees as General Contractors and their limited exposure to falls, fall protection training requirement for all Lauth personnel are satisfied through OSHA 10/30 training which covers 1926.503 Subpart M as pertaining to:

A. Nature of fall Hazards in the work area.

B. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.

C. The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used, and the role of each employee in the safety monitoring system when this system is used.

D. The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs.

E. The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.

F. The role of employees in fall protection plans.

G. The standards contained in subpart M, Fall Protection.

H. Lauth will verify compliance with training by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer.

I. Subcontractors shall provide training for all workers exposed to falls six (6) feet or greater. Their employees shall be trained in the proper use, inspection and storage of fall protection equipment.

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SECTION 12
FIRE PREVENTION/PROTECTION

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart F (Fire Protection and Prevention). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

General Requirements

Each Subcontractor is required to provide adequate fire protection/prevention for their scope of work and ensure that all workers and lower tier Subcontractors comply with this policy. Workers must be properly trained in the use of fire protection equipment.

A. Workers must be advised as to location of fire extinguishers and their operation and the location of alarm boxes or emergency signaling devices and reporting procedures.

B. Emergency phone numbers shall be posted at phones and personnel entrances.

C. Only approved containers and portable tanks may be used for the storage and handling of flammable liquids or solid chemicals. Each container must be properly labeled.

D. One 20# ABC fire extinguisher (or equivalent) must be present for each 3000 square feet of protected building area. The travel distance to the nearest fire extinguisher will not exceed 100 feet.

E. Fire-fighting equipment will be conspicuously located and identified.

F. Emergency equipment will not be used for fire watch duty.

G. Materials will not be stored in front of fire-fighting equipment or within 24" of fire sprinkler heads.

H. All fire-fighting equipment must be inspected on a monthly basis. Portable fire extinguishers must also be inspected annually and maintained in accordance with Maintenance and Use of Portable Fire Extinguishers, NFPA No. 10A-1970.

I. All offices, shanties, job site trailers, designated smoking areas, etc. will be equipped with a minimum of one 20# ABC fire extinguisher (or equivalent).

J. All shanties, break areas, smoke areas, etc. will be constructed from fire retardant material.

K. A qualified fire watch must be posted at all times when sprinkler systems and/or alarms are disabled.

L. All temporary openings made through rated core wall, ceiling, and floor and any floor, ceiling and wall of the fire stairs or risers must be temporarily fireproofed.

M. Any holes made into or through any wall, ceiling, and floor of the fire stairs or risers must be properly sleeved and fire stopped before the job can be considered to be complete. Any holes that are altered in any way either by removing piping, conduit, etc., must be properly fire stopped upon the completion of the alterations. All holes made through rated core walls must be repaired so as to restore the full integrity of the wall system.

N. No varnishes, lacquers or flammable marking paints are to be sprayed inside of the building without prior approval of Lauth.

O. One or more fire extinguishers, rated not less than 20# ABC is to be provided on each floor. In multistory buildings, at least one fire extinguisher shall be located adjacent to stairway.

P. A fire extinguisher rated not less than 20 ABC shall be provided within 50 feet of wherever more than 5 gallons of flammable liquids or 5 pounds of flammable gas are being used on the job site.

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

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

S. Not more than 60 gallons of Category 1, 2 and/or 3 flammable liquids or 120 gallons of Category 4 flammable liquids shall be stored in any single storage area or one storage cabinet.

T. Flammable liquids may be used only where there are no open flames or other sources of ignition within 50 feet of the operation unless conditions warrant greater clearance.

U. The storage of flammable liquids shall comply with OSHA 1926.152.

V. When welding and cutting operations are being done, they shall comply with OSHA 1926.352 Fire prevention and 1926.354 Welding, cutting and heating in way of preventive coatings.

W. A fire watch shall be stationed to provide coverage for each welding, cutting, and other hot work operations. A fire watch may cover multiple operations within a 100-foot radius. In order for a fire watch to cover multiple operations, he/she shall have a clear line of sight to each operation and an unobstructed pathway to each operation.

X. All spark-producing operations shall require the use of fire extinguishing equipment rated not less than 2A-20 B:C. ("20#ABC")

Y. All tarps and blankets shall be constructed of a fire retardant material.

Z. Open fires shall not be permitted.

AA. Use of gas or Diesel powered tools and equipment in enclosed spaces shall be avoided at all times. Exceptions may be made only if the use of the power tool(s) and/or equipment is determined necessary by and is authorized by the Lauth Superintendent. In the case of such exceptions, measures shall be taken to ensure adequate ventilation to prevent buildup of exhaust fumes and fuel vapors.

BB. All gasoline and Diesel powered equipment adjacent to, or inside a building or structure shall have a fire extinguisher rated not less than 20#ABC available for use.

CC. The Lauth Superintendent shall designate fuel storage and lay down areas.

DD. Signs stating "DANGER – Flammable - No Smoking or Open Flame" shall be conspicuously posted at fuel storage areas.

EE. Fuel storage tanks shall be placed in containments or diked to contain spills. Two (2) layers of six- (6) mil plastic shall protect the ground area inside the berm/dike. All seams of the plastic layers shall be sealed so not to allow leakage of fluids.

FF. All large fuel storage tanks shall be grounded.

GG. All containers shall be clearly marked to show the contents.

HH. Unless in the original container, only UL- approved metal containers (no plastic safety cans) with flash arrestors shall be used for the handling and use of flammable liquids of five (5) gallons or less.

II. Oxygen and acetylene bottles shall be stored at least twenty (20) feet apart or separated by a firewall. A fire extinguisher shall be located within seventy-five (75) feet of travel.

JJ. All stored compressed cylinders shall be capped and secured in an upright position. "No Smoking" signs shall be posted.

KK. At least one portable fire extinguisher, having a rating of not less than 20-B units, shall be located no more than 25 feet from storage of more than 60 gallons of flammable liquids.

Fire/Life Safety System

A. All fire doors and corridor doors must remain closed and will not be blocked open.

B. All access doors and egress doors will be kept clear of equipment, material and debris.

C. Any tie-in to the fire/life alarm system must be made at the direction of the building manager, who must be notified before working on any of the devices. Any devices that are accidentally or otherwise made to be inoperative must be repaired or replaced immediately.

D. Any time that a burning or welding device is used, all surrounding areas must be protected from the heat, odor, and/or flame of the device. Fire extinguishers provided for emergency use will not be used for fire watch on hot work jobs. Each Subcontractor is responsible for providing adequate 20# ABC extinguishers for fire watch service. All fire watch personnel must be properly trained.

E. Fire/Life Safety System equipment must remain in operation at all times during construction.

F. Full compliance with applicable laws and local codes must be maintained through all construction. Only authorized strobe light panels may be tied into the building's Fire/Life Safety System.

G. No pre-action system may be tied into the building system without it having been approved by the appropriate governing authority. Copies of such approval must be provided to the Building Manager before tie-in.

H. Lauth or their designated Subcontractor is responsible for filing and obtaining all approvals relative to standalone Fire/Life Safety System, security systems or other materials/systems required to obtain governing authority compliance. Copies of all approvals for these systems must be provided to Lauth and/or the Building Manger before tie-in authorization is given.

I. All rooms which contain pre-action or other ancillary equipment to the buildings sprinkler systems, must have signage installed upon the doors for such areas. These signs must provide the approved building standard message. Additionally, these areas must be kept locked, and all locks provided for such must be operated within the building's keying system and the client.

Stand Pipe and Sprinkler

A. The Subcontractor must not open or close shut-off valves without providing written notice to Lauth.

B. Any time a sprinkler shutoff valve is closed to work on the system, it must be opened by the end of that work day or sooner and the building engineering or Property Management staff must be notified when it is opened and closed. At no time will a floor be left without sprinkler coverage during non-business hours.

C. When sprinkler system changes are made that affect partial or entire system hydraulic calculations, new calculations must be submitted to Lauth and the Building Manager prior to completion of the work.

Alarm Suppression

A. For any work requiring suppression of the alarm systems, the Subcontractor must provide advance notice and schedule work in writing by submitting an "Access Request Form" through Lauth to the building manager and receiving approval for the schedule.

B. Subcontractors must schedule work in writing with an "Access Request Form" submitted to Lauth and the building manager prior to use of any burning or welding device, spray painting, application of flammable or combustible material, and demolition work so that the fire alarm system may be taken "off-line." Notification must also be given when the work is complete.

C. Smoke detectors and other fire alarm system devices must be protected during any spray application or performing other jobs which may cause these devices to become unduly dusty. Any protecting devices, such as paper, tape and plastic, etc. must be removed by the end of the same day they are installed.

Equipment

A. An accessible fire extinguisher of 5 BC rating or higher shall be available at all operator stations or cabs of crane equipment.

B. All motor vehicles as defined in OSHA 1926.601 shall be checked at the beginning of each shift for safe operating condition including fire extinguishers.

C. Fire-resistant hydraulic fluids shall be used in hydraulically actuated underground machinery and equipment unless such equipment is protected by a fire suppression system or by multi-purpose fire extinguishers rated at a sufficient capacity for the type and size of hydraulic equipment involved, but rated at least 4A:40BC.

D. Fire protection for underground construction shall comply with subpart "F" of the OSHA 1926 Standards except as modified by 1926.800 (m) Fire prevention and control.

E. Fire prevention and protection for compressed air in chambers or caissons shall be available at all times and shall be maintained in working order.

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SECTION 13
HAZARD COMMUNICATION PROGRAM

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart D (Occupational Health and Environmental Controls). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply. Each Subcontractor is required to enforce the contents of this section.

Program Purpose

This document defines the program which has been developed to comply with Federal and/or State regulations which require that employees be made aware of the potential hazards associated with chemicals in the workplace.

Definitions

A. Chemical - Any substance, or mixture of substances.

B. Exposure or Exposed - An employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

C. Flammable liquid - Any liquid having a flashpoint at or below 199.4°F. Flammable liquids are divided into four categories as follows:

1. Category 1 shall include liquids having flashpoints below 73.4°F and having a boiling point at or below 95°F.

2. Category 2 shall include liquids having flashpoints below 73.4°F and having a boiling point above 95°F.

3. Category 3 shall include liquids having flashpoints at or above 73.4°F and at or below 140 °F. When a Category 3 liquid with a flashpoint at or above 100°F is heated for use to within 30°F of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100°F.

4. Category 4 shall include liquids having flashpoints above 140°F and at or below 199.4°F. When a Category 4 flammable liquid is heated for use to within 30°F of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100°F.

D. Flash point - The minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid.

E. Globally Harmonized System - The Globally Harmonized System (GHS) is an international approach to hazard communication, providing agreed criteria for classification of chemical hazards, and a standardized approach to label elements and safety data sheets. It is based on major existing systems around the world, including OSHA's Hazard Communication Standard and the chemical classification and labeling systems of other US agencies.

F. Hazard Category - The division of criteria within each hazard class, (e.g., oral acute toxicity and flammable liquids include four hazard categories). These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

G. Hazard Class - The nature of the physical or health hazards, (e.g., flammable solid, carcinogen, oral acute toxicity).

H. Hazard Not Otherwise Classified (HNOC) - An adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section. This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).

I. Hazard Statement - A statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

J. Hazardous Chemical - Any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

K. Health Hazard - A chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A to §1910.1200—Health Hazard Criteria.

L. Immediate Use - The hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

M. Label - An appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

N. Label Elements - The specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

O. Mixture - A combination or a solution composed of two or more substances in which they do not react.

P. Physical Hazard - A chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas.

Q. Pictogram - A composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

R. Precautionary Statement - A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling.

S. Product Identifier - The name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

T. Safety Data Sheet (SDS) - A written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of this section.

U. Signal Word - A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are "*DANGER*" and "*WARNING.*" "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

V. Substance - Chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Applicability

This standard is applicable to any hazardous chemical which is present in the workplace in such a manner that employees may be exposed under normal conditions or foreseeable emergencies. Manufacturer and/or importers are required to prove industrial users with information regarding the chemicals they provide.

This information is generally provided by way of the Safety Data Sheets (SDS). These Safety Data Sheets contain information on toxicity, treatments and antidotes, flammability, method of fighting fires, personal protective equipment which is normally required in an emergency, and the basic contents of the chemical. In some cases, an employer may have to develop his own SDSs.

A. Hazard Communication Program - It is required that a written Hazard Communication Program, which covers the chemicals used in the operation, be developed. This program must contain, at least, the following:

   1. A listing of hazardous chemicals used. This list must be updated whenever new chemicals are brought into the workplace, including the same type of chemical made by a different manufacturer.
   2. Method of informing employees and contracted employees regarding routine and non-routine hazards associated with each chemical.
   3. A labeling method and an explanation of the method.

B. Labeling - Labeling is an important part of the Hazard Communication Program. All hazardous chemicals must be labeled. These labels or tags must include the following:

   1. Product identifier
   2. Signal word
   3. Hazard statement(s)
   4. Pictogram(s)
   5. Precautionary statement(s)
   6. Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.

Superintendents will ensure that all containers of chemicals are properly labeled at the time they are received. This person will ensure that the container is clearly labeled with the following: product identifier; signal word; hazard statements; pictograms; precautionary statements; and name, address, telephone number of the chemical manufacturer, imports, or other responsible party.

Employees are required to label all portable containers into which hazardous chemicals are transferred from labeled containers. Secondary container labels will list the product identifier; pictogram(s); and hazard statement(s). Labels are not to be removed from any container, or defaced in any manner.

Empty containers are not to be re-used to store other materials unless the container has been cleaned, the old label removed, and a new label affixed in its place.

As of June 1, 2015, hazardous chemical labels must include pictograms to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

Health Hazard 	**Flame** 	**Exclamation Mark** 
• Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	• Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	• Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder 	**Corrosion** 	**Exploding Bomb** 
• Gases under Pressure	• Skin Corrosion/ burns • Eye Damage • Corrosive to Metals	• Explosives • Self-Reactives • Organic Peroxides
Flame over Circle 	**Environment *(Non Mandatory)** 	**Skull and Crossbones** 
• Oxidizers	• Aquatic Toxicity	• Acute Toxicity (fatal or toxic)

Program Requirements

General

This program has been developed to provide employees with information concerning hazardous chemicals to which they may be exposed at their work location, the protective measures to be taken, the safe work habits necessary to eliminate or minimize the risks of unhealthful exposure, and the information required to facilitate medical treatment in the event of unsafe levels of exposure.

The primary elements of the program are:

A. Identification and maintenance of a listing of all hazardous substances in use in the plant or job site, as applicable.

B. Obtaining from suppliers, Subcontractors (or other parties, when applicable) a Safety Data Sheet (SDS) for each hazardous substance in use and to maintain the SDSs and keep them readily accessible to all employees (as well as client or Subcontractor representatives, if applicable).

C. Ensuring that all containers of hazardous chemicals are properly labeled.

D. Communicating to employees the contents of this program as well as SDS information for the specific hazardous substances to which they may be exposed.

E. Each Subcontractor shall provide Lauth's Project Superintendent copies of SDSs (in an organized binder) and a Chemical Inventory List for products/chemicals anticipated to be used at the project before product arrives on site or at the same time the product arrives. It is suggested that the copies be received 24 hours before the product arrives on site. A copy of the Subcontractor's supplied SDSs shall be retained in the field office and updated by the Subcontractor as necessary for the duration of the project.

Identification of Hazardous Substances

It shall be the responsibility of the Subcontractor to identify the hazardous substances in use by their workers on the job site and prepare and perpetually maintain a listing of the substances.

At the request of the Project Manager or Superintendent, Subcontractors shall be required to provide a listing of all hazardous chemicals under the Subcontractor's control.

The hazardous chemicals list shall be maintained current by the following actions:

A. Purchasing personnel shall request an SDS for every chemical which is requisitioned.

B. When it is determined that a new hazardous chemical is to be used at the job site, the new substance will be added to the list.

C. The Project Manager or Superintendent shall require that the Subcontractor's management supply information when a new hazardous substance is brought on the job site.

D. As hazardous substances are permanently depleted or removed from the job site, the Project Manager or Superintendent shall remove those items from the active listing. Example: If a

particular Subcontractor is the only one using a substance that is on the listing and that Subcontractor's work has been completed and the substance removed, it will be deleted from the listing. Likewise, if a chemical is used at the job site for a particular phase of work (i.e., cleaning solvent for high-voltage terminations) and the substance is no longer needed, it shall be disposed of and the item removed from the active listing by the Subcontractor.

E. When acting as a Subcontractor or when work on a job site is under the control of a General Contractor or Construction Manager, the Lauth Project Manager or Superintendent shall request SDSs from the General Contractor or Construction Manager or arrange for employees to have access to other contractor's SDS files, as applicable, and to take part in the hazard training provided by the individual contractors. This is particularly important in Process Mechanical-type operations.

Safety Data Sheets (SDS)

Chemical manufacturers are required to provide SDS's to users of the chemicals. An SDS is shown as Exhibit No. 1 for familiarization and training purposes. Areas circled are subjects to be stressed during training. For each hazardous substance shown on the listing prepared as described in Sections a. – d. above, the Purchasing Agent, Project Manager or Superintendent, as applicable, shall coordinate to obtain an SDS to be used for information and training of personnel and for reference information for Subcontractors when applicable.

A. SDSs for hazardous substances purchases by Lauth personnel will be requested from the vendor or other source from which purchases.

B. SDSs for hazardous substances brought to the job site by Subcontractors will be requested from the Subcontractor.

C. In certain situations, where there is no fixed job site, such as in servicing operations, SDSs may be retained in a central location, providing that the information is readily available by telephone, computer terminal, etc., in the event of an emergency.

By December 1, 2015 chemical manufacturers and distributors will provide safety data sheets which meet the 16-section standardized format. These sections will include:

Section 1	Identification
Section 2	Hazard(s) Identification
Section 3	Composition/information on ingredients
Section 4	Fire aid measures
Section 5	Fire-fighting measures
Section 6	Accidental release measures
Section 7	Handling and storage
Section 8	Exposure controls/personal protection
Section 9	Physical and chemical properties
Section 10	Stability and reactivity

Section 11	Toxicological information
Section 12	Ecological information
Section 13	Disposal considerations
Section 14	Transport information
Section 15	Regulatory information
Section 16	Other information, including date of preparation or last revision

Labeling Containers of Hazardous Substances

The Project Manager or Superintendent shall ensure that containers or hazardous substances on the job site are labeled with the identity of the substance and with appropriate words (English language), pictures or symbols to convey a warning of the health and physical hazards of the substance. Labeling must conform to the following criteria:

A. The name appearing on the label must match the name shown on the corresponding SDS. (Refer to SDS Section 1, upper left.)

B. The name on the label must also match the name shown on the hazardous substance listing. (Refer to Exhibit No. 2.)

C. The Subcontractor who introduces a hazardous substance to a jobsite, of a supplier of a purchased substance, should provide the labels.

D. Labeling is not required for small portable containers into which hazardous chemicals are transferred from a labeled container and which are intended only for the immediate use by the worker who transfers the substance. However, the Project Manager or Superintendent must closely monitor work activities to assure that portable containers are not left unattended or handled in such a manner as to create an undue hazard and/or secondary containers that are not intended for immediate use will also be labeled accordingly.

Employee Information and Training

The contents of this program shall be conveyed to affected employees. Employees shall be made aware of any operation in their work area where hazardous chemicals are present, where the hazardous chemical listing is maintained, and the procedure for obtaining SDS information.

Training of employees may be by classroom or group methods. However, based on work schedules, job peculiarities, etc., the training requirements can be met if each employee reads the contents of this program and is given an opportunity to present questions and receive answers concerning the program. New employees should receive orientation and training on the program as soon as they report to work.

Employee training shall include.

A. Methods and observations which may be used to detect the presence or release of hazardous chemicals.

B. The physical and health hazards of chemicals in the work area.

C. The measures employers can take to protect themselves from these hazards, including any plant or job site procedures, work practices or personal protective equipment.

D. Details of the hazard communication program including an explanation of labeling, how to read SDSs and how the employee can obtain and use hazard information.

E. Non-Routine Task Training.

F. Periodically, employees are required to perform hazardous non-routine tasks. Prior to starting work on such projects, each affected employee will be given information by his supervisor about chemical hazards to which the employee may be exposed during such an activity.

G. The Superintendent shall assign personnel to conduct training of Lauth employees. Personnel performing training functions shall maintain accurate records of all personnel trained including dates of training, subjects covered and personnel attending. Each Subcontractor shall be responsible for training their employees in Hazard Communication.

Hazardous Materials

A. Subcontractors shall be required to IMMEDIATELY notify the Lauth Superintendent of any spillage of hazardous materials, regardless of the quantity.

B. Drums or other containers uncovered during excavation operations shall be reported immediately to the Lauth Superintendent.

C. When the disposal of hazardous waste is necessary, a proper manifest shall be required. Copies of all manifests shall be forwarded to the Lauth Superintendent.

Sample Forms Exhibits

A. Exhibit No. 1 Sample SDS

B. Exhibit No. 2 Hazardous Substance Listing Form

C. Exhibit No. 3 Purchase Order/Subcontractor Statements

D. Exhibit No. 4 Supplier SDS Request Follow-up

E. Exhibit No. 5 OSHA Notification of No Response to SDS Request

F. Exhibit No. 6 SDS Request – Sample General Contractor/Construction Manager

G. Exhibit No. 7 Listing of Hazardous Materials

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Exhibit No. 1

Sample SDS

SAFETY DATA SHEET

Airgas

Acetylene

Section 1. Identification

GHS product identifier	: Acetylene
Chemical name	: acetylene
Other means of identification	: Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene
Product use	: Synthetic/Analytical chemistry.
Synonym	: Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene
SDS #	: 001001
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
Emergency telephone number (with hours of operation)	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :

Signal word	: Danger
Hazard statements	: Extremely flammable gas. May form explosive mixtures with air. Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Fusible plugs in top, bottom, or valve melt at 98°C to 107°C (208°F to 224°F). Do not discharge at pressures above 15psig (103kpa). Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Approach suspected leak area with caution.

Prevention : Never Put cylinders into unventilated areas of passenger vehicles. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use and store only outdoors or in a well ventilated place.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : acetylene

Other means of identification : Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene

CAS number/other identifiers

CAS number : 74-86-2

Product code : 001001

Ingredient name	%	CAS number
acetylene	100	74-86-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
acetylene	**NIOSH REL (United States, 1/2013).** CEIL: 2662 mg/m³ CEIL: 2500 ppm

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state	: Gas.
Color	: Colorless.
Molecular weight	: 26.04 g/mole
Molecular formula	: C2-H2
Melting/freezing point	: -81°C (-113.8°F)
Critical temperature	: 35.25°C (95.5°F)
Odor	: Mild. Ethereal.
Odor threshold	: Not available.
pH	: Not available.
Flash point	: Closed cup: -18.15°C (-0.67°F)
Burning time	: Not applicable.
Burning rate	: Not applicable.
Evaporation rate	: Not available.
Flammability (solid, gas)	: Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.
Lower and upper explosive (flammable) limits	: Lower: 2.3% Upper: 100%
Vapor pressure	: 635 (psig)
Vapor density	: 0.907 (Air = 1)
Specific Volume (ft^3/lb)	: 14.7058
Gas Density (lb/ft^3)	: 0.0691
Relative density	: Not applicable.
Solubility	: Not available.
Solubility in water	: 1.2 g/l
Partition coefficient: n-octanol/water	: 0.37
Auto-ignition temperature	: 305°C (581°F)
Decomposition temperature	: Not available.
SADT	: Not available.
Viscosity	: Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatibility with various substances	: Extremely reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity
Not available.

Carcinogenicity
Not available.

Reproductive toxicity
Not available.

Teratogenicity
Not available.

Specific target organ toxicity (single exposure)
Not available.

Specific target organ toxicity (repeated exposure)
Not available.

Aspiration hazard
Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact	: Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: Contact with rapidly expanding gas may cause burns or frostbite.
Ingestion	: As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Long term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Potential chronic health effects
Not available.

General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.

Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
acetylene	0.37	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1001	UN1001	UN1001	UN1001	UN1001
UN proper shipping name	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.

Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: Forbidden. **Cargo aircraft** Quantity limitation: 15 kg	**Explosive Limit and Limited Quantity Index** 0 **Passenger Carrying Ship Index** 75 **Passenger Carrying Road or Rail Index** Forbidden **Special provisions** 36, 42	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 0 Forbidden **Cargo Aircraft Only** Quantity limitation: 15 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
United States inventory (TSCA 8b): This material is listed or exempted.
Clean Air Act (CAA) 112 regulated flammable substances: acetylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
acetylene	100	Yes.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.
New York : This material is not listed.
New Jersey : This material is listed.
Pennsylvania : This material is listed.
Canada inventory : This material is listed or exempted.

International regulations

International lists	: **Australia inventory (AICS)**: This material is listed or exempted. **China inventory (IECSC)**: This material is listed or exempted. **Japan inventory**: This material is listed or exempted. **Korea inventory**: This material is listed or exempted. **Malaysia Inventory (EHS Register)**: Not determined. **New Zealand Inventory of Chemicals (NZIoC)**: This material is listed or exempted. **Philippines inventory (PICCS)**: This material is listed or exempted. **Taiwan inventory (CSNN)**: Not determined.
Chemical Weapons Convention List Schedule I Chemicals	: Not listed
Chemical Weapons Convention List Schedule II Chemicals	: Not listed
Chemical Weapons Convention List Schedule III Chemicals	: Not listed

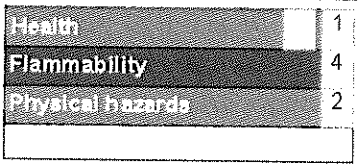
Canada

WHMIS (Canada)	: Class A: Compressed gas. Class B-1: Flammable gas. Class F: Dangerously reactive material. **CEPA Toxic substances**: This material is not listed. **Canadian ARET**: This material is not listed. **Canadian NPRI**: This material is listed. **Alberta Designated Substances**: This material is not listed. **Ontario Designated Substances**: This material is not listed. **Quebec Designated Substances**: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.
Class B-1: Flammable gas.
Class F: Dangerously reactive material.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Note: The instability hazard rating for acetylene, dissolved (stabilized acetylene) is 2.

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History

Date of printing	: 4/26/2015.
Date of issue/Date of revision	: 4/26/2015.
Date of previous issue	: 10/14/2014.
Version	: 0.04
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists AIHA – American Industrial Hygiene Association CAS – Chemical Abstract Services CEPA – Canadian Environmental Protection Act CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)

CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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Exhibit No. 2

Hazardous Substance Listing Form
(Hazardous Components of a Substance Must Match Those On the Label)

Exhibit No. 3

Sample Purchase Order Statements

"If any chemicals on this order have been identified as "hazardous substances" in 29 CFR, Part 1910, Subpart Z or State Government, suppliers shall provide a Safety Data Sheet (SDS) for the hazardous substances as required by 29 CFR Part 1910.1200."

If order is for a material which is known to be a hazardous substance, the purchase order should contain the following statement:

"Item(s) _____ of this purchase order is/are a known hazardous substance. Please provide a Safety Data Sheet (SDS) required by OSHA 29 CFR 1910.1200.

Subcontracts should include the following statement:

"Prior to the start of your job site work, submit a Safety Data Sheet (SDS) for each substance you or your Subcontractors intend to use on the jobsite which is classified as a hazardous substance by Federal or State agencies. Submit the SDSs to the Project Manager."

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Exhibit No. 4

SDS Supplier Follow-Up Request Letter

Date:

Addressee:

Dear

On (date of first letter), we requested a SDS for the following substance(s):

(List substance(s) by chemical name, common name and trade name.)

To date, we have not received the above-referenced SDS (s). In order to comply with the Hazard Communication Standard, 20 CFR Part 1926.1200, we need to be in receipt of the SDS (s) by the (25 days from the date of the original letter).

Your cooperation in this matter is greatly needed and appreciated. Please send the SDS(s) to:

(Name of Hazard Communication Compliance Manager)

(Address)

Sincerely,

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Exhibit No. 5

SDS Directors Notice of No Response

Date:

The Director of Industrial Relations or
OSHA Regional Director
Address in Applicable State

Dear Director:

We have made two requests to (Name of supplier), our chemical supplier, requesting (a) SDS(s) for the following substance(s).

(List substance(s) by chemical name, common name and trade name.)

Our request was made in an attempt to comply with a request from our employee. To date we have received no response. In order to be in compliance with Federal Regulation 29 CFR Part 1910.1200, enclosed are copies of the two requests.

Your assistance in this matter is greatly appreciated.

Sincerely,

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Exhibit No. 6

SDS Request – Sample General Contractor/Construction Manager

Date:

Addressee:

Reference: 29 CFR Part 1910.1200 Subpart Z

Dear

Our Company hereby requests that Safety Data Sheet (SDSs) for hazardous chemicals used on the (Name) job site by other contractors be furnished to our site Project Manager (Name). If such action cannot be accomplished within 15 days after receipt of this request, please arrange for affected employees to have access to SDS information in the individual contractor's files and to attend hazardous materials training conducted by the other site contractors.

Your cooperation in helping us to comply with Federal and State regulations concerning employee hazard communication will be greatly appreciated.

Sincerely,

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Exhibit No. 7

Listing of Hazardous Materials

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SECTION 14
HEAVY EQUIPMENT & MOTOR VEHICLES

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart O (Motor Vehicles, Mechanized Equipment, and Marine Operations). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

HEAVY EQUIPMENT

General Requirements

A. All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment.

B. Suspended or held aloft by use of slings, hoists, or jacks shall be substantially blocked or cribbed to prevent falling or shifting before workers are permitted to work under or between them.

C. All cab glass shall be safety glass or equivalent and have no visible distortion affecting the safe operation of equipment.

D. All haulage vehicles whose payload is loaded by means of cranes, power shovels, loaders, or similar equipment shall have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.

E. Tools and material shall be secured to prevent movement when transported in the same compartment with employees.

F. Trucks with dump bodies shall be equipped with positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done.

G. Operating levers controlling hoisting or dumping devices on haulage bodies shall be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism.

H. Trip handles for tailgates of dump trucks shall be so arranged that, in dumping, the operator will be in the clear.

Material Handling Equipment

These rules apply to the following types of earthmoving equipment: scrapers, loaders, crawler or wheel tractors, bulldozers, backhoes, bob cats, off-highway trucks, graders, agricultural and industrial tractors,

and similar equipment. The promulgation of specific rules for compactors and rubber-tired "skid-steer" equipment is reserved pending consideration of standards currently being developed by other states. Seat belts need not be provided for equipment which is designed only for standup operation or equipment which does not have roll-over protective structure (ROPS) or adequate canopy protection.

A. Access Roadways and Grades - No worker shall move or cause to be moved construction equipment or vehicles upon any access roadway or grade unless the access roadway or grade is constructed and maintained to accommodate safely the movement of the equipment and vehicles involved.

B. Brakes - All earthmoving equipment mentioned earlier in this section shall have a service braking system capable of stopping and holding the equipment fully loaded as specified in Society of Automotive Engineers SAE-J237, *Loader Dozer*-1971.

Heavy Equipment Operation

A. General Requirements

1. Machinery and equipment shall be operated by qualified and authorized workers only.

2. Do not operate any machinery, vehicles, or electrical equipment without first making sure, by personal investigation, that no one will be hurt by your use of the equipment.

3. Do not service, repair, or adjust machinery or equipment while it is in motion unless there are safeguards to prevent possible injury.

4. Keep fuel-operated equipment clean; store fuel in designated areas.

5. Heavy equipment operators are responsible for knowing the location of ground personnel before moving equipment.

6. Ground personnel should wear orange vests to increase their visibility.

7. Only trained and authorized personnel shall load and unload equipment onto "low-boy" transport vehicles. Proper loading procedures must be followed at all times. Loads must be properly secured before entering public access roads.

8. Properly maintain and utilize safety features provided with heavy equipment such as seat belts, back-up alarms, canopies, hand holds, etc., according to DOT rules and regulations.

9. No riders on equipment unless there is a seat and seat belt provided for them.

10. Operators must lower ground-engaging tools to the ground before dismounting equipment.

B. Audible Alarms

1. All bidirectional machines, such as rollers, compacters, front-end loaders, bulldozers, and similar equipment, shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction. The horn shall be maintained in an operative condition.
2. No Subcontractor shall permit earthmoving or compacting equipment which has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or an employee signals that it is safe to do so.

C. Inspection

1. At least once each shift the operator must inspect the following items for safe operation before use: tires, lights, fuel system, battery, steering mechanism, horn, lift system, brakes, and controller.
2. Any vehicle in need of repair should not be used until repairs have been made.

D. Traffic Control

1. Traffic may be controlled by flaggers when all other means of traffic control are impractical.
2. Flaggers must:
   a) Be trained in traffic control techniques.
   b) Be trained in situations peculiar to each project.
   c) Have all necessary protective clothing, including high visibility clothing at least of class two.
   d) Use appropriate devices to control or otherwise direct traffic through the job site.
   e) Report problems to their foreman immediately.

MOTOR VEHICLES

General Requirements

All vehicles brought on to any Lauth Project shall be insured per Lauth insurance requirements specifications. Operators of motor vehicles shall carry a valid driver's license

A. All vehicles shall have a brake system, an emergency brake system, and a parking brake system. These systems may use common components, and shall be maintained in operable condition.

B. Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two tail lights in operable condition.

C. All vehicles, or combination of vehicles, shall have brake lights in operable condition regardless of light conditions.

D. All vehicles shall be equipped with an adequate audible warning device at the operator's station and in an operable condition.

E. No employer shall use any motor vehicle equipment having an obstructed view to the rear unless:

1. The vehicle has a reverse signal alarm audible above the surrounding noise level, or
2. The vehicle is backed up only when an assigned observer signals that it is safe to do so.

F. All vehicles with cabs shall be equipped with windshields and powered wipers. Cracked and broken glass shall be replaced. Vehicles operating in areas or under conditions that cause fogging or frosting of the windshields shall be equipped with operable defogging or defrosting devices.

G. All haulage vehicles, whose payload is loaded by means of cranes, power shovels, loaders, or similar equipment, shall have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.

H. Tools and material shall be secured to prevent movement when transported in the same compartment with employees.

I. Vehicles used to transport workers shall have seats firmly secured and adequate for the number of workers to be carried.

J. Trucks with dump bodies shall be equipped with positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done.

K. Operating levers controlling hoisting or dumping devices on haulage bodies shall be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism.

L. Trip handles for tailgates of dump trucks shall be so arranged that, in dumping, the operator will be in the clear.

M. All rubber-tired motor vehicle equipment shall be equipped with fenders. Mud flaps may be used in lieu of fenders whenever motor vehicle equipment is not designed for fenders.

N. All vehicles in use shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use:

1. Service brakes, including trailer brake connections
2. Parking system (hand brake)
3. Emergency stopping system (brakes)
4. Tires
5. Horn
6. Steering mechanism

7. Coupling devices
8. Seat belts
9. Operating controls and
10. Safety devices

O. All defects shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

P. Personal vehicles shall only park in designated parking areas.

Q. All vehicles entering/leaving the Project shall be subject to search.

R. Workers being transported in a vehicle shall be seated inside the cab or within the confines of the truck bed (Workers are not permitted to ride on the tailgate). Trucks with dump bodies shall be equipped with positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done.

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SECTION 15
HOUSEKEEPING

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart C (General Safety and Health Provisions). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

A neat and orderly job is fundamental to efficient, accident-free performances and each Project Superintendent must establish a sound program of housekeeping for his/her work area(s). Good housekeeping shall be planned at the beginning of the job and be carefully supervised and followed to the final clean-up. Housekeeping shall be the responsibility of each and every worker. Confusion will be reduced and operations will be more efficient when the work area is neat and orderly at all times. Listed below are general guidelines to maintain a safe and efficient jobsite (keeping in mind that it should not be limited to just the items below):

A. Subcontractors shall maintain an orderly worksite, free from accumulations of construction debris. Clean-up shall be performed on an ongoing basis, but no less than daily. Failure to maintain cleanliness will result in clean-up by others with subsequent back charge to the responsible Subcontractor.

B. Rubbish, debris, waste and useless material constitute fire and accident hazards and shall be removed from the work area as fast as they accumulate.

C. Special instructions shall be given concerning the hazard of projecting nails that are not removed or bent over. All boards, planks, blocks, debris and other material having projecting nails shall be immediately removed from the job site or be placed in orderly piles where workers will not be likely to stumble or fall on them. All workers removing such material should always wear heavy gloves and hard-soled shoes.

D. All formwork shall be promptly removed to storage/staging areas after stripping operations are completed.

E. All stairways, corridors, ladders, catwalks, ramps, passageways and work platforms shall be kept clear of loose material and trash.

F. Hoses, welding leads, electrical cords, etc., shall be placed overhead or out of walkways in such a manner as to eliminate tripping hazards.

G. Oily rags, flammable liquids, combustible waste and other similar materials subject to spontaneous combustion shall be placed in fire-resistant covered containers and disposed of daily.

H. Materials and supplies shall be kept away from edges of hoist ways, stairways, floor openings and when exterior walls are being built away from the perimeter of the building.

I. Tools shall not be strewn about where they may cause tripping or falling hazards. Additionally, tools shall be collected and properly stored at the end of each work day.

J. Tool sheds should be well organized to prevent walking over materials to reach other items.

K. Upon completion of each work area, a thorough clean-up shall be done prior to relocating to another work area.

L. Access areas and work surfaces are to be maintained in a mud/rut free condition by use of stone or other aggregate material to eliminate the possibility of slips, trips, or fall.

M. Each worker must be instructed to practice required housekeeping as part of their assigned duties.

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SECTION 16
LADDERS & STAIRWAYS

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart X (Stairways and Ladders). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

A stairway or ladder must be provided at all points of access where there is a change in elevation of 19" or more unless a ramp, runway, sloped embankment or personnel hoist is provided. Each Subcontractor is required to enforce the contents of this section.

Ladders

A. Metal ladders may only be used at the discretion of the Lauth Superintendent.

B. All ladders must be inspected prior to use by the Subcontractor's competent person

C. Rungs must be clean and free of damage or cracking. Damaged or defective ladders must be tagged "Danger: Do Not Use" and immediately removed from the work site or destroyed.

D. Ladders used to access upper floor, platforms or roof must extend three (3) feet above the egress point and be secured at the top. If the ladder cannot be secured and properly extended, an egress grab must be provided on both sides of the ladder.

E. All ladders must be secured at the top to prevent slipping or secured at the base by a fellow worker.

F. Straight or extension-type ladders should be used for access only and not as work platforms.

G. Ladders must be erected with a 4:1 ratio, i.e., for every 4 feet of working height, the base must extend 1 foot from a perpendicular line drawn from the top resting point.

H. Access and egress points to the ladder will be clear of debris and slippery surface.

I. Workers must face the ladder when climbing or working and will maintain three point-contact with the ladder at all times.

J. Ladders will not be used in the horizontal position as a platform or scaffold pick.

K. Ladders will be used only for their designed use and within their design capabilities.

L. A double-cleated ladder or two or more separate ladders will be used for access and egress in a working area of 25 or more employees or the ladder serves simultaneous two-way traffic.

M. Each worker who uses a ladder shall be trained to recognize hazards related to ladders and stairways, and the procedure to be followed to minimize these hazards.

N. Only one person on a ladder at a time shall be allowed.

O. Ladders shall not be tied or fastened together to provide longer sections unless they are specifically designed for such use.

P. Any worker exposed to a fall greater than six (6) feet must be protected by guardrails, covers, safety nets, or personal fall arrest systems. The Subcontractor must determine if it is infeasible or creates a greater hazard.

Q. All straight ladders shall have "safety feet" and must be secured against displacement.

R. Workers working from ladders exposed to a fall of 6 feet or greater shall be required to wear and use appropriate fall protection unless the Subcontractor can show that it is not feasible or creates a greater hazard.

Step-Ladders

A. Step-ladders must be used in a full open position only. They may not be used as a straight ladder or partially open.

B. All ladders must be inspected prior to use.

C. Workers shall not stand on or work from the top two (2) steps of a step-ladder.

D. No more than one person will be allowed to work from a step-ladder unless it is specifically designed to accommodate more than one.

Different Types of Ladders

A. When cranes and derricks are being used and where necessary for rigging or service requirements, a ladder, or steps, shall be provided to give access to a cab roof.

B. During demolition, only those stairways, passageways, and ladders designed as means of access to the structure of a building, shall be used and shall be periodically inspected and maintained in a clean safe condition. Other access ways shall be entirely closed at all times.

C. During power transmission and distribution and prior to climbing poles, ladders, scaffolds, or other elevated structures, an inspection shall be made to determine that the structures are capable of sustaining the additional or unbalanced stress to which they will be subject.

Stairways

A. Stairways and ladders to office trailers and supply trailers must provide a platform which should extend 20" beyond the swing of the door and be protected by a standard guard rail system.

B. All stairways must be kept clear of debris, cord sets, nails, screws, hoses, slippery conditions or stored material.

C. Stairways greater than 30 inches high or having four or more risers must be equipped with a handrail, and mid rail on unprotected sides and edges.

D. Handrails must be between 36 inches and 37 inches high and capable of withstanding a 200 lb load in any direction with a minimum deflection.

E. Handrails/mid-rails must not be constructed using double-head nails.

F. A minimum clearance distance of 3 inches must exist between the rail and the wall or other appurtenances.

G. Pan treads, stairs and landings must be filled with wood or other solid materials and must be installed full width and depth if the stairs are to be used for foot traffic.

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SECTION 17
LOCKOUT / TAGOUT

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 (Construction Industry Regulations). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Purpose

A. This procedure establishes the minimum requirements for the lockout of energy sources. It shall be used to ensure that, before any worker performs any servicing or maintenance activities where the unexpected start-up or release of stored energy could occur and cause injury, all potentially hazardous energy is isolated and locked out. This procedure will be evaluated at least annually to ensure its applicability as well as assignment of responsibilities.
B. Training requirements shall cover three classes of workers as they differ in the degree of responsibility for or involvement in the lockout program and the training requirements are to cover authorized workers with comprehensive training, affected workers with awareness and understanding training, and other workers with general awareness training.
C. Retraining must be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures. Additional retraining shall also be conducted whenever a periodic inspection reveals or whenever the employer has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

Responsibility

Each Subcontractor shall at all times enforce an energy control (lockout/tagout) program when working on or nearby machinery or equipment where the unexpected movement or release of stored energy could endanger workers. Subcontractors shall provide a copy of their Company's lockout/tagout program to the Lauth Superintendent prior to work operations for review. All workers shall be instructed of the significance of the lockout procedure by their employer. Each new or transferred worker must be instructed of the purpose and use of the lockout procedure by their employer.

Preparation for Lock Out

A. Subcontractor workers authorized to perform lockout shall be certain as to which switch, valve, or other energy-isolating devices applies to the equipment being locked out. More than one energy source (electrical, mechanical, or others) may be involved.
B. Workers should clear any questionable identification of sources with their supervisors. Before lockout commences, job authorization should be obtained.

Sequence of Lock Out Procedure

A. The Subcontractor must notify all affected workers that a lockout is required and the reason thereof.

B. If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.).

C. Operate the switch, valve, or other energy-isolating devices so that the sources(s) (electrical, mechanical, hydraulic, etc.) is/are disconnected or isolated from the equipment. Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam or water pressure, etc., must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

D. Lock out energy isolating-devices with an assigned individual lock. Locks can be obtained in the construction office.

E. After the Subcontractor ensures that no workers are exposed and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. CAUTION: RETURN OPERATING CONTROLS TO NEUTRAL POSITION AFTER TEST.

F. The equipment is now locked out.

G. In addition to locking out, a "DO NOT USE" tag shall be placed at the lockout location. These tags must state the reason for the lockout, name of the Subcontractor (and worker) that is working on the equipment, and the date and time the tags were placed.

H. Lockout/tagout does not apply to:

1. Lockout/tagout applied for reasons other than servicing and maintenance
2. Minor servicing as part of normal, routine maintenance
3. Where the danger of unexpected energization can be controlled by a cord and plug in the employee's exclusive control
4. Hot tap activities that are covered by equivalent worker protection

Restoring Equipment to Service

A. When the job is complete and equipment is ready for testing or normal service, the Subcontractor must check the equipment area to see that no one is exposed.

B. When the equipment is clear, remove all locks. Only the worker who placed the lock should remove the lock. The energy-isolating devices may be operated to restore energy to equipment.

C. In the event the worker with the lockout/tagout keys has left the premises and cannot be contacted, the highest ranking person on the shift at the time will go through the lockout/tagout procedures to restore the equipment operational, provided the reason for the lockout/tagout is complete.

Procedure Involving More Than One Person

In the preceding steps, if more than one Subcontractor (or worker) is required to lock out equipment, each shall place their own personal lock on the energy-isolating devices. One designated individual of a work crew or a supervisor, with the knowledge of the crew, may lock out equipment for the whole crew. In such cases, it may be the responsibility of the individual to carry out all steps of the lockout procedure and inform the crew when it is safe to work on the equipment. Additionally, the designated individual shall not remove a crew lock until it has been verified that all individuals are clear.

Release of Lockout/Tagout

A. When the authorized person who applied the lockout/tagout is not available to remove it, the following shall be done:

1. The device may be removed under the direction of the Subcontractor AND LAUTH, provided that specific procedures and training for such removal have been developed, documented and incorporated into the Subcontractor's energy control program.

2. The Subcontractor shall demonstrate that the specific procedure provides equivalent safety to the removal of the device, by the authorized worker who applied it.

3. The procedure shall include the following

   a. Verification by the Subcontractor that the authorized worker who applied the device is not at the facility.

   b. All reasonable efforts will be made to contact the authorized worker to inform him/her that the lockout or tagout device has been removed.

   c. Ensure that the authorized worker has this knowledge before he/she resumes work at that facility.

Testing and Release

When testing of equipment requires the temporary removal of lockout/tagout, the Subcontractor must take following steps:

A. Clear the machine or equipment of all stray tools and materials

B. Make sure each worker is accounted for and is clear of the area that will be re-energized

C. Remove the lockout/tagout following the specific removal procedures

D. Energize the machine or equipment and perform the necessary testing

E. Shut down and de-energize the system, and reapply the energy control measures

Periodic Inspections

At least annually, Lauth will conduct a periodic inspection of the energy control procedure to ensure that the procedure and the requirements of this standard are being followed.

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SECTION 18
MACHINERY & MACHINE GUARDING

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR1926 – Subpart I (Tools – Hand and Power). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Woodwork

A. Machine Controls and Equipment

1. A mechanical or electrical power control shall be provided on each machine to make it possible for the operator to cut off power from each machine without leaving his position to the point of operation.

2. In applications where injury to the operator might result if motors were to restart after power failures, provisions shall be made to prevent machines from automatically restarting upon restoration of power.

3. Power controls and operating controls should be located within easy reach of the operators while they are at their regular working location, making it unnecessary for them to put any part of their body in danger.

B. Specific Machine Requirements

1. All woodworking machinery such as table saws, swing saws, radial saws, etc., shall be effectively guarded to protect the operator and other workers from hazards inherent to their operation.
2. On applications where injury to the operator might result if motors were to restart after power failures, provisions shall be made to prevent machines from automatically restarting upon restoration of power.

C. Table Saws

1. Circular table saws shall have a hood over the portion of the blade above the table, so mounted that the hood will automatically adjust itself to the thickness of and remain in contact with the material being cut.

2. Table saws used for "ripping" shall have non-kickback fingers or dogs.

D. Swing or Sliding Cut-off Saws

1. All swing or sliding cut-off saws shall be provided with a hood that will completely enclose the upper half of the saw blade.
2. Limit stops shall be provided to prevent swing or sliding-type cut-off saws from extending beyond the front or back edges of the table.
3. Each swing or sliding cut-off saw shall be provided with an effective device to return the saw automatically to the back of the table when released at any point of its travel.
4. Inverted sawing or swing cut-off saws shall be provided with a hood that will cover the part of the saw that protrudes above the top of the table or material being cut.

E. Radial Saws

1. The upper hood shall completely enclose the upper portion of the blade down to a point that will include the end of the saw arbor.
2. The sides of the lower exposed portion of the blade shall be guarded to the full diameter of the blade by a device that will automatically adjust itself to the thickness of the stock and remain in contact with the stock being cut.
3. Radial saws used for "ripping" shall have non-kickback fingers or dogs.
4. An adjustable stop shall be provided to prevent forward travel of the blade beyond the position necessary to complete the cut in repetitive operations.

F. Miscellaneous Woodworking Machines

1. The mention of specific machines in previous paragraphs is not intended to exclude other woodworking machines from the requirement that suitable guards and exhaust hoods be provided to reduce to a minimum the hazard due to the point of operation of such machines.

Abrasive Wheel Machinery (Metal, Concrete, Etc.)

This section regulates only abrasive wheel machinery. It does not cover wire wheel, buffing wheels or the like. An abrasive wheel is made up of individual particles that are bonded together to form a wheel. If not properly mounted and used, the wheels can explode. Sections of the wheel may fly out at high speeds and can strike the operator and/or other workers causing death or serious injury. Proper Eye AND Face protection shall be worn when using abrasive-wheel tools and equipment.

A. Machine Guarding

1. Abrasive wheels shall be used only on machines with safety guards with the following exceptions:
   a) Wheels used for internal work while within the work being done.

b) Mounted wheel, used in portable operations, 2 inches and smaller in diameter.

B. Guard Design

1. Abrasive wheel safety guards shall cover the spindle end, nut and flange projection, except:

a) Safety guards on all operations where the work provides a suitable measure of protection to the operator may be so constructed that the spindle end, nut and outer flange are exposed;

b) Where the nature of the work is such to entirely cover the side of the wheel, the side covers of the guard may be omitted; and

c) The spindle end, nut and outer flange may be exposed on machines designed as portable saws.

C. Mounting

1. Immediately before mounting, all wheels shall be closely inspected and sounded by the user ("ring test") to make sure they have not been damaged. A ring test is performed by snapping your fingernail against the wheel. A sound wheel will emit a bell-like ringing sound. A damaged or defective wheel will emit a dull "thunk."
2. The spindle speed of the machine shall be checked before mounting of any type of wheel to be certain that it does not exceed the maximum operating speed on the wheel.
3. Floor and bench mounted grinders shall be provided with work rests that shall be kept at a distance not to exceed $^1/_8$ inch from the surface of the wheel and the top tongue shall never exceed ¼ inch from the same surface.

Other Equipment Requiring Guarding

A. Blades of a fan less than 7 feet above the floor or working level shall be guarded with openings no larger than ½ inch.

B. All exposed parts of horizontal shafting 7 feet or less from the floor or working platform shall be guarded.

C. All exposed vertical and inclined shafting 7 feet or less from the floor or working platform shall be guarded.

D. Pulleys, any parts of which are 7 feet or less from the floor or working platform, shall be guarded.

E. Belt, rope, chain drives, gears, sprockets, chains, clutches, cutoff couplings, and clutch pulleys 7 feet or less from the floor or working platform shall be guarded.

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SECTION 19
MARINE OPERATIONS

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR1926 – Subpart O (Motor Vehicles, Mechanized Equipment, and Marine Operations). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

General

A. All floating plants that are regulated by the U.S. Coast Guard shall have a current inspection and certification issued by the USCG prior to being placed into service. A copy of the certification shall be posted on the vessel bulletin board.

B. All other floating plants shall be inspected by a qualified person before being placed in service and then annually thereafter. The inspection shall be documented and a copy of the most recent inspection shall be posted.

C. Copies of inspections shall be provided by the Subcontractor to the Lauth Superintendent.

D. Floating plants found in an unsafe condition shall be taken out of service and their use prohibited until the unsafe conditions have been corrected and documentation completed.

E. Fenders shall be provided to prevent damage and sparking and to provide safe areas for workers exposed to pinching situations caused by floating equipment.

F. Where appropriate, vessels shall have watertight compartments readily identified and properly maintained in a watertight condition, i.e., sealable doors in place and fully functional.

G. All walking surfaces shall be well maintained. Anti-slip material shall be used where appropriate.

H. All Subcontractor personnel working on or visiting a barge or floating work platform will wear an approved flotation device.

Access

A. Safe access for boarding or leaving a floating plant shall be provided and guarded to prevent persons from falling or slipping thereon.

B. A stairway, ladder, ramp, gangway, or personnel hoist shall be provided at all personnel points of access with breaks of 19 inches or greater.

C. All means of access shall be properly secured, guarded, and maintained free of slipping and tripping hazards.

D. Non-slip surfaces shall be provided on all working decks, stair treads, ships ladders, platforms, catwalks, and walkways.

E. Ramps for access of equipment and vehicles to, or between vessels, or land and vessel shall be of adequate strength and be equipped with sideboards.

F. Gangways and ramps shall be:

1. Secured at one end with lines or chains to prevent overturning.
2. Manufactured components shall be placed at an angle no greater than that recommended by the manufacturer.
3. Provided with standard guardrails.

G. There should be at least one portable or permanent ladder of sufficient length to allow a person to self-rescue by boarding the ladder from the water.

H. Where walkways are open on both sides, railings or handrails shall be installed on both sides if falls are greater than three (3) feet.

I. The tops of permanent ladders shall be closed off.

J. Stairs with greater than four (4) risers shall have a railing as appropriate.

Safe Practices

A. Barriers, curbs, or other structures shall be provided to prevent mobile equipment from falling into the water.

B. Projection and tripping hazards shall be removed, identified with warning signs, or distinctly marked with safety yellow paint.

C. All anchor points shall be clearly identified and shall be inspected prior to applying a load.

Confined Spaces

A. Every floating plant will be surveyed for the presence of confined spaces. A list of all confined spaces will be maintained on board and in the job site safety binder.

B. All Permit-Required Confined Spaces shall be labeled with a sign or placard.

C. Areas under piers, wharfs, and docks are considered Permit-Required Confined Spaces until Project Superintendent conducts an evaluation, to include air monitoring, to determine if the area/space down grades the spaces to a Non-Permit Space.

Severe Weather Precautions – Reserved

A. Motorboats and Skiffs

1. Crew requirements – the following circumstances require at least two qualified Subcontractor employees:

a) When conditions of navigation make it hazardous for the operator to leave the wheel,

b) When operations being performed, other than tying–in, require the handling of lines,

c) When operating at night or during inclement weather, or

d) When towing.

2. Passenger and Cargo requirements:

   a) The maximum number of personnel and weight that can be safely transported shall be posted on all motorboats and skiffs.

   b) The number of personnel (including crew) will not exceed the number of Personal Flotation Devices (PFDs) on board.

   c) Each person on the motorboat or skiff will wear an approved PFD.

   d) Motorboats and skiffs less than 20 ft (6m) in length shall meet 33 CFR 183 requiring level flotation after flooding or swamping.

   e) All motorboats or skiffs will be equipped with dead-man switches.

3. Fire Protection – Minimum number and rating of fire extinguishers:

   a) Less than 26 ft (7.9m) is One 1-A:10-B:C

   b) 26 ft (.9m) or more is Two 1-A:10-B:C

B. Personal Flotation Devices

1. Type III or Type IV work vests equipped with reflective tape and automatically activated light is required for nighttime operations, and will be properly worn, (e.g., zipped, tied, latched, etc) by all personnel under the following conditions:

   a) On floating rafts, pontoons.

   b) On motorboats and skiffs.

   c) When working within 6 feet of the edge of wharfs, piers, docks, etc.; to include the operation of mobile equipment.

   d) Whenever there is a drowning hazard.

2. Working alone at night regardless of the protective devices where there is a drowning hazard. WARNING: - The Subcontractor foreman will ensure that a controlled access zone is established and maintained at least 6 feet from the water's edge. In the absence of the controlled access zone, all workers on the wharf, pier, dock, etc., are required to properly wear a Type III or IV PFD.

3. Users are required to inspect their PFDs before and after each use. Defective devices are to be removed from service.

C. Throwable Devices

1. Ring Buoys – rope attachment required.

   a. Should have at least 70 feet of 3/8" solid braid polypropylene or equivalent.

b. Shall be readily accessible and located at the following locations:

i. At least one on each safety skiff.

ii. At least one on each motorboat up to 40 feet.

iii. At least two on each motorboat 40 feet or longer.

iv. At intervals not to exceed 200 feet along wharfs, piers, docks, etc.

c. In the vicinity of each barge in use, at least one U.S. Coast Guard-approved 30 inch life ring with not less than 90 feet of line attached.

d. Employees walking or working on the unguarded decks of barges shall be protected with U.S. Coast Guard-approved work vests or buoyant vest.

D. Lifesaving and Safety Skiffs

1. At least one skiff will be immediately available at locations where work over or next to water.

2. Skiffs will be kept afloat or ready for immediate launching.

3. Material handling equipment will remain available when required to place skiff from the shore to the water. DANGER- Skiff operators and crew are not allowed to ride inside the skiff as it is being placed into the water from the shore, via crane or other lifting device.

E. Access to Barges

1. Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained, and properly secured.

2. Jacob's ladders shall be of the double rung or flat tread type, well maintained, and properly secured and shall either hang without slack from its lashings or be pulled up entirely.

3. Obstructions shall not be laid on or across the gangway.

4. The means of access shall be adequately illuminated for its full length.

5. Unless the structure makes it impossible, the means of access shall be so located that the load will not pass over workers.

6. Workers shall not be permitted to walk along the sides of covered lighters or barges with coamings more than 5 feet high, unless there is a 3 foot clear walkway, or a grab rail or a taut hand line is provided.

7. Decks and other working surfaces shall be maintained in a safe condition.

8. Workers shall not be permitted to walk over deck loads from rail to coaming unless there is a safe passage. If it is necessary to stand at the outboard or inboard edge of the deck load where less than 24 inches of bulwark, rail, coaming or other protection exists, all workers shall be provided with a suitable means of protection against falling from the deck load.

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SECTION 20
MATERIALS HANDLING & RIGGING

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart H (Materials Handling, Storage, Use and Disposal) and Subpart R (Steel Erection). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Materials Handling, Storage and Disposal

This section covers safety procedures for moving, storing and handling materials used on the job site to prevent injuries due to falls, slip or falling objects. Good housekeeping practices, orderliness and organization will reduce injuries to workers.

A. General Requirements

1. All material stored in tiers will be stacked, racked, blocked, interlocked or otherwise secured to prevent sliding, falling or collapse.

2. Maximum safe load limits of floors within building and structures, in pounds per square foot, should be conspicuously posted in all areas, except for floor slab on grade. Maximum safe working loads will not be exceeded. Building exits must not be blocked.

3. Bagged materials will be stacked by stepping back the layers and cross-keying the bags at least every 10 bags high,

4. Non-compatible materials must not be stored together.

5. Materials must not be stored on scaffolds or runways in excess of supplies needed for immediate operations.

6. Brick stacks must not be more that 7 feet in height. When a loose brick stack reaches a height of 4 feet, it should be tapered back 2 inches in every foot of height above the 4-foot level.

7. When masonry blocks are stacked higher than 6 feet, the stack will be tapered back one-half block per tier above the 6-foot level.

8. Materials stored inside buildings under construction will not be placed within 6 feet of a hoist way or inside floor opening, or within 10 feet of an exterior wall which does not extend above the top of the material stored.

9. Structural steel, poles, pipe, bar stock and other cylindrical materials, unless racked, will be stacked and blocked so as to prevent spreading, tilting or toppling.

10. Maintain clear access to all work areas.

11. In handling materials, know the weight of any object to be handled. If weight is excessive, get help.

12. No materials or equipment shall be stored under energized bus, energized lines, or near energized equipment, if it is practical to store elsewhere.

13. Where tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening shall be erected from the walking/working surface or toeboard to the top of a guardrail system's top rail or mid-rail, for a distance sufficient to protect workers below.

14. No materials or equipment shall be stored under energized bus, energized lines, or near energized equipment, if it is practical to store elsewhere.

15. Materials stored aloft must be secured at all times and must be kept a minimum of 6' from any leading edge.

16. Materials must not be stored on scaffolds or runways in excess of supplies needed for immediate operations.

B. Lumber

1. Used lumber must have all nails withdrawn before stacking.

2. Lumber must be stacked on level and solidly supported sills or dunnage.

3. Lumber must be so stacked as to be stable and self-supporting.

4. Lumber piles will not exceed 20 feet in height, provided that lumber to be handled manually will not be stacked more than 16 feet.

C. Disposal of Materials

1. Whenever materials are dropped more than 20 feet to any point lying outside the exterior walls of a building, an enclosed chute of wood or equivalent material will be used.

2. When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is being dropped must be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs warning of the hazard of falling materials will be posted at each level. Removal will not be permitted in this lower area until debris handling ceases above.

3. All scrap lumber, waste material and rubbish will be removed from the work area as the work progresses.

4. All solvent waste, oily rags and flammable liquids will be kept in fire-resistant covered containers until removed from the work site. Storage and disposal will be according to all federal, state, local, client and Lauth requirements.
5. Disposal of waste material or debris by burning will comply with local fire regulations and all Federal, State, client and Lauth regulations.

Rigging Practices

A. General Requirements

1. Rigging equipment for material handling must be inspected prior to use on each shift. Defective rigging equipment will be removed from service.
2. Use "softeners" on sharp edges and secure them so there will be no danger of fall-out when the rigging is released.
3. No one is to give signals to the Operator except the person authorized by the Subcontractor / Foreman. Approved standard hand signals must be posted in a conspicuous location.
4. Never raise loads over the head of other workers or the public.
5. Use tag lines to control loads.
6. Hands and fingers will not be placed between the rigging and its load while the rigging is being tightened around the load.

B. Shackles and Hooks

1. Shackles will be used in choker eyes to secure loads on hooks.
2. All hooks must be inspected before each use for defects and spreads, and if defects are noted, they must be taken out of service immediately.
3. All hooks must have a safety latch (shake-out hooks are an exception).

C. Slings

1. Slings must:
   a) Be inspected prior to use and shall be in good repair.
   b) Not be shortened with knots or bolts or other makeshift devices.
   c) Not be loaded in excess of their rated capacity.
   d) Be securely attached to their loads.
   e) Be padded or protected from the sharp edges of their loads.
   f) Not be pulled from under a load when the load is resting on the sling.

g) Have permanently affixed and legible identification markings as prescribed by the manufacturer that indicate the recommended safe working load.

D. Wire Rope Slings – Removal from Service

1. Wire Rope Slings shall be immediately removed from service if any of the following conditions are present:

a) Ten randomly distributed broken wires in one rope lay, or five broken wires in one strand in one rope lay.

b) Wear or scraping of one-third the original diameter of outside individual wires.

c) Kinking, crushing, bird caging or any other damage resulting in distortion of the wire rope structure.

d) Evidence of heat damage.

e) End attachments that are cracked, deformed or worn.

f) Hooks that have been opened more than 15 percent of the normal throat.

g) Protruding ends of strands in splices and bridles shall be covered or blunted.

h) Slings be shortened with knots or bolts or other makeshift devices

NOTE: Earth-moving material handling equipment can be found under "Heavy Equipment" section of this manual.

E. Natural and Synthetic Fiber Rope Slings

1. Natural and synthetic fiber rope slings will be immediately removed from service if any of the following conditions are present:

a) Acid or caustic burns.

b) Melting or charring of any of the sling surfaces.

c) Abnormal wear.

d) Powdered fiber between strands.

e) Broken or cut fibers.

f) Variations in the size of roundness of strands.

g) Discoloration or rotting.

h) Distortion of hardware in the sling.

F. Chain Falls and Come-a-longs

1. Chain falls and come-a-longs will be inspected prior to each use.
2. Properly functioning safety latches must be installed on the hooks of all chain falls and come-a-longs.
3. Never put on a load heavier than the capacity of the chain fall or come-a-long. Equipment must be equipped with an automatic load brake to prevent load from dropping. Load brakes will be the "fail safe" type.
4. Never leave a load suspended by chain falls or come-a-longs without a watchperson or barricade.
5. Never wrap the load chain around the load.
6. Never hook the load on the end of the hook; always hook it in the center.
7. Never stand or have any part of your body below a load suspended on a chain fall or come-a-long.

G. Alloy Steel Chains

1. Welded alloy steel chain slings shall have permanently affixed durable identification stating size, grade, rated capacity and sling manufacturer.
2. A thorough periodic inspection of alloy steel chain slings in use shall be made on a regular basis based on sling use, nature of lifts, experience with other chain use, etc. but in no event intervals greater than once a year.
3. The Subcontractor shall make and maintain a record of the most recent month in which each alloy chain sling was thoroughly inspected.

Materials Handling – Powered Industrial Trucks/Vehicles

A. Truck Operations

1. Only properly trained and authorized personnel shall be permitted to operate hosting equipment and mobile equipment. This shall also include powered industrial trucks and forklifts.
2. Seat belts shall be worn while operating all types of material handling equipment.
3. All vehicles/material handling equipment shall be equipped with functioning backup alarms and warning alarms.
4. Damaged/defective equipment shall not be permitted on any Lauth Project.
5. Absorbent diapers shall be utilized on all equipment where a chance of an oil leak exists.

6. Fire Extinguishers shall be located on all types of material handling equipment.
7. Trucks shall not be driven up to anyone standing in front of a bench or other fixed object.
8. No person shall be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.
9. Passengers will not be permitted to ride on powered industrial trucks, unless the powered industrial truck (PIT) is equipped to accommodate passengers.
10. Operators are prohibited to place arms or legs from being placed between the uprights of the mast or outside the running lines of the truck.
11. When a powered industrial truck is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set. Wheels shall be blocked if the truck is parked on an incline.
12. A powered industrial truck is left unattended when the operator is 25 feet or more away from the vehicle which remains in his view, or whenever the operator leaves the vehicle and it is not in his view.
13. When the operator of an industrial truck is dismounted and within 25 feet of the truck is still in his view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.
14. A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, or platform or freight car. Trucks shall not be used for opening or closing freight doors.
15. Brakes shall be set and wheel blocks shall be in place to prevent movement of trucks, trailers, or railroad cars while loading or unloading. Fixed jacks may be necessary to support a semitrailer during loading or unloading when the trailer is not coupled to a tractor. The flooring of trucks, trailers, and railroad cars shall be checked for breaks and weakness before they are drive onto.
16. There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc.
17. An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.
18. Fire aisles, access to stairways and fire equipment shall be kept clear.
19. Industrial trucks will be equipped with functioning backup alarms.
20. Employees are instructed to enter and exit the truck by means provided by the manufacturer.

21. If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.
22. Fuel tanks shall not be filled while the engine is running. Spillage shall be avoided.
23. Spillage of oil or fuel shall be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.
24. No truck shall be operated with a leak in the fuel system until the leak has been corrected.
25. Eye protection is required in PIT's that do not have enclosed cabs. Seat belts are required while operating PIT's that are equipped with seat belts.
26. PIT's will only be used for their intended purpose.

B. Traveling

1. All traffic regulations shall be observed, including authorized plant speed limits. A safe distance shall be maintained approximately three truck lengths from the truck ahead, and the truck shall be kept under control at all times.
2. Other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations shall not be passed.
3. The driver shall be required to slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.
4. The driver shall be required to look in the direction of, and keep a clear view of the path of travel.
5. Grades shall be ascended or descended slowly.
6. When ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.
7. On all grades the load and load engaging means shall be tilted back if applicable, and raised only as far as necessary to clear the road surface.
8. Under all travel conditions the truck shall be operated at a speed that will permit it to be brought to a stop in a safe manner.
9. Stunt driving and horseplay shall not be permitted.

10. The driver shall be required to slow down for wet and slippery floors.
11. Dockboard or bridgeplates shall be properly secured before they are driven over.
12. Dockboard or bridgeplates shall be driven over carefully and slowly and their rated capacity never exceeded.
13. Running over loose objects on the roadway surface shall be avoided.
14. While negotiating turns, speed shall be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion.
15. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate.
16. PIT's will not be loaded past the rated load limit. All loads will be secured in place for safe transport.

C. Loading

1. Only stable or safely arranged loads shall be handled.
2. Caution shall be exercised when handling off-center loads which cannot be centered.
3. Only loads within the rated capacity of the truck shall be handled.
4. The long or high (including multiple-tiered) loads which may affect capacity shall be adjusted.
5. Trucks equipped with attachments shall be operated as partially loaded trucks when not handling a load.
6. A load engaging means shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.
7. Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated shall be prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.
8. The operator must verify the trailer wheels are chocked, supports, and dock plates are in place prior to loading/unloading trailers.

D. Maintenance of Industrial Trucks

1. Any power-operated industrial truck in safe operating condition shall be removed from

service. All repairs shall be made by authorized personnel.

2. No repairs shall be made in Class I, II and III locations.

3. Those repairs to the fuel and ignition systems of industrial trucks which involve fire hazards shall be conducted only in locations designated for such repairs

4. Trucks in need of repairs to the electrical system shall have the battery disconnected prior to such repairs.

5. Open flames shall not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.

6. All parts of any such industrial truck requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design.

7. Industrial trucks shall be examined before being placed in service and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination shall be made at least daily.

8. When the temperature of any part of any truck is found to be in excess of its normal operating temperature, thus creating a hazardous condition, the vehicle shall be removed from service and not returned to service until the cause of such overheating has been eliminated.

9. Industrial trucks shall be kept in a clean condition, free of lint, excess oil and grease. Noncombustible agents should be used for cleaning trucks. Low flash point (below 100 deg. F) solvents shall not be used. High flash point (at or below 100 deg. F) solvents may be used.

10. Precautions regarding toxicity, ventilation and fire hazard shall be consonant with the agent or solvent used.

E. Inspections

1. Powered industrial trucks will be inspected before each use and/or during shift changes, utilizing the inspection form.

F. Training Requirements

1. Only trained, certified and authorized operators will be permitted to operate a powered industrial truck. Methods will be devised to train operators in the safe operation of powered industrial trucks. Trainers must have the knowledge and ability to teach and evaluate operators.

2. The first part of the training program will include explanations of safe operation, load limits,

distances, automobile versus PIT, refueling/recharging, instruction, visibility, balance/counterbalance, controls, truck instrumentation, attachments and general usage information.

3. The second part of the program shall also include training on maintenance procedures, specific to the forklift.

4. The third part of the program will include supervised operation of the forklift.

5. Mandatory refresher training will be conducted when employee demonstrates unsafe acts, accident, change in conditions and/or a different vehicle type.

6. Trained employees will receive a certification card indicating the operators name, date of training, name of trainer and evaluation date. Re-certification is required every three (3) years.

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SECTION 21
PERSONAL PROTECTIVE EQUIPMENT

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart E (Personal Protective and Life Saving Equipment). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Application

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

Personal Protective Equipment

Lauth will supply its employees with proper hard hats, safety glasses, gloves and any specialty safety gear required to perform their work scope. All subcontractors are responsible for the issuance, maintenance, inspection and training in the proper use of personal protective equipment. PPE training will be provided to each employee and will include:

A. **When PPE is necessary;**

B. **What PPE is necessary;**

C. **How to properly don, doff, adjust, and wear PPE;**

D. **The limitations of the PPE; and,**

E. **The proper care, maintenance, useful life and disposal of the PPE.**

If the employee is responsible for providing their own equipment, the employer must inspect the equipment and train the employee in the proper use, care and inspection of equipment. Employees are additionally responsible for inspection prior to each use. Defective equipment will be immediately tagged and identified as defective and removed from the site, or rendered inoperable and destroyed. The following personnel protective equipment items are required at this project:

A. Safety Head Wear - ANSI-compliant Safety Head Wear (hard hats). Aluminum hats and bump caps are not permitted. Certified non-conductive Safety Head Wear must be utilized for electrical work or where contact with exposed energized circuits may occur. "Soft Shell" welding shields or grinding face shields are permitted only where there is no potential of being struck by a falling or flying object. Head wear must be worn in accordance with OSHA specs and manufacturer's design. All head wear will be worn with the bill facing forward unless otherwise approved by Lauth Construction Services.

B. Safety Eye Wear - ANSI Z87.1 compliant Safety Eye Wear with side shields is required at all times on Lauth projects. Lauth recognizes that OSHA only requires eye protection as hazards dictate and therefore have given the Superintendent the authority to relax this 100% requirement during the beginning and/or end phases of construction, when there is no known or expected hazard present to the eyes.

1. Double eye protection, i.e., impact-resistant full face shields and safety eye wear will be used when grinding, using chop saws, tile saws, brick saws, etc.
2. Hard hats with full face shields and hearing protection will be provided for all chain saw and wood-chipping activities.
3. Face shields, goggles or appropriate welding helmet with proper color density are required for welding and burning operations. Welding screens shall also be used as needed to protect against welding flash.
4. Chemical-resistant full face shields are required where exposure to chemicals may occur.
5. Warning signs will be properly placed when lasers are in use.
6. Except for welding, brazing and /or burning, dark tinted lenses are not permitted while working indoors.

C. Clothing - The following clothing will be worn at this site:

1. Polyester fabrics may not be worn.
2. Shirts with at least 3-inch sleeves.
3. Long pants.
4. Chaps will be provided for chain saw work.
5. Appropriate chemical, cut, or heat-resistant gloves where exposure exists.
6. Chemical-resistant clothing where exposure to spill or splash exists.
7. Appropriate protective chaps or leathers for welding/burning.

D. Foot Wear - Employers are required to establish the appropriate type of foot wear based upon an evaluation of employee exposure. At a minimum, substantial shoes must be worn on all Lauth sites. No canvas or leather sneakers (even if equipped with steel toe) or sandals will be worn. All boots or shoes designed to accommodate laces must be fully laced.

E. Fall Protection - Single body belts will not be used at Lauth sites. Only four-point harness with shock absorbing lanyards will be used. A Four-point harness with positioning lanyards may also be utilized. This site is 100% fall protection at elevations of 6 feet and greater. Therefore, double lanyards must be utilized to prevent the worker from ever being disconnected from an acceptable anchorage point.

F. Hearing Protection - Hearing protection will be worn in high noise areas (90 DBA) or while using certain tools, i.e., Hilti guns, chop saws, jack hammers, chain saws, wood chippers, etc.

G. Respiratory Protection: - Respiratory protection will be used when required by exposure, i.e., exposure to hazards such as asbestos fibers, crystalline silica dust, lead, welding fumes, etc. When respiratory protection is required, the employer will submit evidence of compliance with OSHA Standard 1910.134. This evidence shall include proof of training, fit testing, and medical evaluation at a minimum.

H. Electrical Protective Equipment - It is the intention of Lauth that no electrical work will be performed live and Lockout/ Tagout procedures will be followed. The following personnel protective equipment items, at a minimum, are required:

1. Protective gloves, rated for appropriate voltage, with current dielectric testing date.
2. Protective mats, rated for appropriate voltage, with current dielectric testing date.
3. Protective sleeves, rated for appropriate voltage with current dielectric testing date.
4. Protective head, eye and face wear with electrical safety rating.
5. Fire-retardant clothing.
6. All hot sticks and testing devices must also be properly rated and stamped with date of last test and/or calibration.
7. No conductive jewelry, i.e., rings, eyeglass frames, bracelets or earrings will be worn during this work.

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SECTION 22
PILE DRIVING/CAISSONS/ ROCK DRILLING

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR1926 – Subpart S (Underground Construction, Caissons, Cofferdams, and Compressed Air). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Pile Driving

A. Crane operators and pile driving crew are to be trained to the functions that they perform.

B. Equipment used for pile driving is to be checked for any safety defects which if found, need to be corrected before being used.

C. Different types of pile driving equipment are sonic, water jet, air that runs single-or double-acting hammers, and diesel.

D. Different types of piling include concrete, shell, H piling, and wood (treated and non-treated).

E. Rigging is to conform to the OSHA standards for rigging found in 1926.550 and .251 and under Section 5.18 of this manual.

F. All cranes used for pile driving are to conform to OSHA 1926.550 and Section 5.4 of this manual.

G. Hard hats, safety glass, ear protection, fall protection, foot and leg protection when putting points on wood piling, are to be used and conform to OSHA 1926.353, .96, and .951 and Section 28.

H. Excavations where pile driving is taking place shall have the sides slopped to the angle of repose or sheet piling and braced. Ingress and exiting the excavation must be in place and no more than 25 feet horizontal travel distance to the ladder when excavation is 4 feet or more deep.

I. Boilers and piping systems which are part of or used with pile driving systems shall meet the applicable requirements of the American Society of Mechanical Engineers.

J. Pressure vessels which are a part of or used with pile-driving equipment shall meet the applicable requirements of the American Society of Mechanical Engineers Pressure Vessels (section VIII).

K. Overhead protection which will not obscure the vision of the operator shall be provided.

L. Stop blocks shall be provided for the leads to prevent the hammer from being raised against the head block.

M. A blocking device capable of safely supporting the weight of the hammer shall be provided for placement in the leads under the hammer while employees are working under the hammer.

N. Guards shall be provided across the top of the head block to prevent the cable from jumping out of the sheaves.

O. Inclined leads, when driving battered piles, shall have provisions to stabilize the leads.

P. Fixed leads shall be provided with ladder and adequate rings or similar attachment points so that the loft worker may engage his safety harness and lanyard to the leads. Loft platforms that are provided shall have standard guardrails.

Q. Hoses leading to the hammer or jet pipe shall be securely attached to the hammer or jet pipe to prevent whipping in the event the joint is broken. Any hose connections shall be pinned to prevent hose from coming apart.

R. Guys, outriggers, thrustouts, or counterbalances shall be provided as necessary to maintain stability of the pile driving rigs.

S. Pile driving off barges and floats shall meet the applicable requirements of OSHA 1926.605, .550 and Section 18 of this manual.

T. Engineers and winchmen shall accept signals only from the designated signalmen.

U. All workers shall be kept clear when piling is being hoisted into the leads.

V. When steel tube/shell piles are being cleaned of material inside the shell or tube, workers shall be kept well beyond the range of falling materials.

W. When cutting off the tops of pilings, pile-driving operations shall be suspended unless the cutting operations are located at least twice the length of the longest pile from the driver.

X. When driving jacked piles, all access pits shall be provided with ladders and bulkhead curbs to prevent material from falling into the pit.

Caissons

A. Only equipment designed for caisson work is to be used.

B. All equipment used is to comply with the OSHA 1926 Construction Standards as well as applicable sections of this manual.

C. No one is to work inside a caisson hole without the proper personal protective equipment required such as hard hats, safety glass, harness and lanyard and means of extraction.

D. Excavated material is not to be placed next to the hole being excavated.

E. Caissons that have a bell at the bottom should be inspected only by other means other than entering the excavation.

F. When compressed air is used and the working chamber is less than 11 feet in height, and when such caissons are at any time suspended or hung while work is in progress so the bottom of the excavation is more than 9 feet below the deck of the working chamber, a shield shall be erected therein for the protection of the worker.

G. Shafts shall be hydrostatic or air pressure tested at which pressure they shall be tight. The shaft shall be stamped 12 inches from each flange to show the pressure at which it was tested.

H. Whenever a shaft is used, it shall be provided, where space permits, a safe, proper, suitable staircase for its entire length with landings ever 20 feet.

I. Caissons greater than 10 feet shall be provided with a man lock and shaft for the exclusive use of employees.

J. Gauges in the locks shall be maintained on the outer and inner side of each bulkhead and shall be accessible at all times and kept in accurate working order.

K. In compressed air operations, OSHA 1926.803 shall be followed.

Drilling

A. The Subcontractor's competent person shall inspect all drilling and assorted equipment prior to each use and any defects affecting safety shall be corrected before the equipment is used.

B. The drilling area shall be inspected for hazards before the drilling operations start.

C. The required personal protective equipment is to be used such as hard hats, safety glasses, hearing protection, harness and lanyard where required or any other safety equipment needed.

D. Workers shall not be allowed on the drill mast when operating or being moved.

E. Drill steel, tools, and other equipment shall be secured and the mast shall be placed in the safe position when the drill rig is moved.

F. A way to store drill steel shall be provided, such as receptacles or racks.

G. Workers working below jumbo decks shall be warned whenever drilling is about to start.

H. Drills on columns shall be anchored firmly and retightened before starting drilling.

I. Mechanical means on the top deck of a jumbo for lifting unwieldy or heavy objects shall be provided.

J. Jumbo decks over 10 feet high shall have installed stairs wide enough for two people.

K. Jumbo decks over 10 feet in height shall be equipped with a guardrail system that meets that requirement.

L. Jumbos shall be chocked to prevent movement while workers are working on them.

M. Stair treads on jumbo decks shall be slip-resistant and secured.

N. Blasting holes shall not be drilled through blasted rock (muck) or water.

O. Workers in a shaft shall be protected either by location or a suitable barrier when powered mechanical loading equipment is used to remove items containing unfired explosives.

P. A caution sign reading "BURIED LINE" or similar wording shall be posted where air lines are buried or otherwise hidden by water or debris.

Q. A bore hole shall never be sprung when it is adjacent to or near a hole that is loaded for blasting.

R. All drill holes shall be large enough when drilled to admit freely the insertion of cartridges or explosives.

S. Drilling shall not be started until remaining butts of old holes are examined for unexploded charges and if found, re-fired before drilling proceeds.

T. No person shall be allowed to deepen drill holes which have contained explosives or blasting agents.

U. Hole drilling or equipment operated shall not be done within 50 feet of loaded holes.

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SECTION 23
PROCESS SAFETY MANAGEMENT

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR1910 (General Industry Standards) and 29CFR1926 (Construction Industry Regulations). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Purpose

The purpose of this program is to provide safety requirements that will prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable or explosive chemicals, which may result in toxic exposure, fire or explosion.

Application

This program will apply to all company work performed at or adjacent to facilities covered by the requirements of OSHA 29CFR1910.119, Process Safety Management of Hazardous Chemicals. Those facilities are normally defined as those containing:

A. A process which involves chemicals at or above those threshold quantities that are listed in 1910.119, Appendix A.

B. A process which involves a flammable liquid or gas as defined in 1910.1200 (c), on site in one location, in a quantity in excess of 10,000 pounds. Exceptions:

1. Hydrocarbon fuels used solely for workplace consumption.
2. Flammable liquids stored in atmospheric tanks or transferred which are kept below their normal boiling point without chilling or refrigeration.
3. Retail facilities.
4. Oil or gas well drilling or servicing operations.
5. Normally unoccupied remote facilities.

Compliance

Compliance with this policy, OSHA Standards and client established safety programs are considered terms and conditions of employment. Due to the highly hazardous nature of work performed in facilities covered by the Process Management Facility and the dangers they pose to the environment, workers and surrounding communities, anyone found violating this policy will be immediately removed from the work site and will face disciplinary action up to and including termination.

Pre-Job Planning

Pre-job planning for work in PSM covered facilities must begin in the bid preparation phase.

A. In addition to normal estimating procedures, the following information must be obtained prior to estimating the project:

   1. The owner/client must provide information regarding the known potential fire, explosion, or toxic release hazards related to the work and the process.

   2. The owner/client must provide explanation regarding all applicable provisions of their emergency action plan.

   3. The owner/client must provide copies of work permitting programs or other methods of controlling the access, presence and exit of our employees.

B. The Regional Safety Manager, Project Manager and Superintendent will review the information and ensure that adequate time is provided for each employee to receive safety training prior to any field assignment.

Job Site Safety Plan

The Regional Safety Manager, Project Manger and Supervisor(s) will develop a site safety plan for submittal to the client and subsequent approval by the client, prior to any performance of work at the site. The site safety plan will be developed by utilizing information provided by the owner in conjunction with job hazard analysis of the tasks to be performed. The site safety plan will include, at a minimum:

A. Identification of known potential fire, explosion or toxic release hazards related to the employees' job.

B. Material Safety Data Sheets for hazardous materials which may be encountered.

C. Personal Protective Equipment is required to protect employees from known or anticipated hazards.

D. Company and Owner's mandated emergency response plan including emergency telephone numbers, contact names, medical treatment facilities and emergency response organizations.

E. Substance abuse training including testing requirements and review of the company substance abuse program.

F. Safety Procedures such as permitting requirements, confined space entry, hot work, control of hazardous energy, etc. (Where owner-mandated safety procedures exceed or are more restrictive than those of OSHA, the client and/or the company, the owner procedures shall be followed).

G. Method of controlling access and egress to the work site, i.e., employee badges, hard hat color coding, sign in/out sheets, etc.

Training Program

No employee or visitor will be released to the field until required training is completed and documented. Where the owner requires attendance at an owner-presented safety orientation program, all employees will attend prior to assignment to any "in-facility" work. The company will also require site-specific training in addition to any training provided by the client. This training must include a method of verification that the employee understood the training presented. The site-specific safety program will be the basis for this training program.

A. The training will include, at a minimum:

1. Substance Abuse Program and testing requirements.
2. The known or potential fire, explosion or toxic release hazards related to the work.
3. The company hazard communication program with specific review of any owner MSDS associated with materials which may be encountered.
4. Personnel Protective Equipment requirements
   a) Limitations
   b) Use of equipment
   c) Care
   d) Inspection
   e) Maintenance
   f) Storage
5. Access and egress to the facility, operating areas, laboratories, etc.
6. Emergency Action Plan
   a) Reporting of Accidents, Incidents, Injuries, Illness
   b) Reporting of releases, spills, etc.
   c) Alarm methods (audio/visual)
   d) Emergency response
   e) Evacuation routes
   f) Safety havens (if applicable)
   g) Form up areas
7. Task specific safety requirements
   a) Work permitting systems
   b) Control of Hazardous Energy (tag out)
   c) Opening and closing of process and associated equipment.

d) Confined Space Entry

e) Excavations

f) Fall Protection

8. Penalties for failure to comply.

B. Refresher safety training will be provided through site safety meetings and tool box safety meetings. One Material Safety Data Sheet will be selected for presentation and review at each safety meeting and tool box safety meeting.

Documentation of Training

A training record will be prepared by the site safety coordinator. This record will include the name of the employee trained, employee number or SSN, the date of training, the method used to verify the employee's understanding of training and the name of the individual presenting the training. The training acknowledgment form will be signed by the employee trained and the individual providing training upon request.

Accident Reporting and Investigation

All accidents, incidents, near misses, spills and/or releases will be reported to the Lauth Regional Safety Manager and the Owner Representative immediately. All incidents will be investigated and copies of the investigations provided to the owner.

Control of Change

Materials and equipment contained in owner-supplied specifications cannot be altered and/or substituted for without express written authorization of the owner representative.

Safety Auditing

The company-designated site safety coordinator will have the responsibility of inspecting the work for compliance with this policy and owner requirements. These inspections will be documented and will be available to the owner upon request.

APPENDIX A

SAFETY PROCEDURES FOR USE WITH PROCESS SAFETY MANAGEMENT

Emergencies and Emergency Response

Each project will post emergency reporting numbers near telephones and in areas frequented by employees. All Subcontractors will post emergency numbers for fire, police, rescue and medical treatment facilities selected in the same manner. A copy of the Subcontractor emergency listing will be provided to the company project superintendent.

A. Emergencies are defined as follows:

1. Occupational Injury and/or illness
2. Fires
3. Environmental Incidents (spills, leaks, releases)
4. Vehicle Accidents
5. Equipment Accidents
6. Near Miss Incidents

a) Injuries, spills, chemical releases, leaks, and fires rapidly become life-threatening situations. Emergencies must be reported quickly and accurately to obtain the proper assistance. Failure to report emergencies immediately may result in excess property damage, employee exposure to illness and injury, releases to the atmosphere and surrounding communities.

b) Employees must be aware of our company and client procedures prior to field assignment. The project superintendent shall ensure that our employees are knowledgeable of client and company procedures. Emergencies shall be reported to the regional Safety Manager immediately. (see attachment 1P1 Emergency Report Tree)

c) The following are general guidelines for reporting: (Be clear and concise. Don't panic)

i. State your name

ii. Location of the emergency

iii. Nature of the emergency and materials involved

iv. Type of injury

v. If possible, remain in the area and provide direction to location to the Emergency Response Teams.

vi. Do not interfere with Emergency Response Teams.

B. Emergency response - Unless otherwise specified in contract documents, the company role in emergency response is limited to reporting the incident and securing assistance. Employees will

follow emergency notification plans, provide direction to the site, incident location and (if necessary) evacuate to a safe location as specified in Site Emergency Evacuation Plans. Do not depart the Emergency Evacuation Form-Up Area until you are dismissed by a company representative or directed to leave by emergency responders or client representative.

Fire Control

A. In the event of fire, follow the site emergency notification plan.

B. Fire watches are responsible for spark containment and incipient stage quenching of materials that may have ignited unless specifically designated as an emergency responder or fire brigade member by the employer. This rule applies regardless of employee status with voluntary fire and rescue services outside the place of employment.

C. Follow the Site Emergency Evacuation Plan. "On-lookers" constitute an additional hazard and concern for emergency responders.

D. Only Carbon Dioxide or Purple K dry powder extinguishers shall be used on or near electrical equipment fires.

E. The use of water in chemical or oil production and storage areas shall be carefully evaluated. Some chemicals and hot oils react violently with water. Water can rapidly spread or splash oil and gasoline fires and drive toxic/flammable materials into unprotected sewer systems. Consult the client or Material Safety Data Sheet on use of water.

F. If hazardous materials are involved in an incident, or may potentially become involved, the Material Safety Data Sheets shall be provided to the emergency responders.

Fire Fighting Equipment and Control Devices

A. All electrical equipment, welding/burning units and motorized vehicles shall be equipped with fire extinguishers.

B. Emergency fire fighting equipment shall be readily accessible and not blocked by tools, vehicles, debris or equipment.

C. Use of emergency fire fighting equipment for any purpose other than an emergency situation is prohibited.

D. Client safety procedures shall be consulted for instructions on use of fire hydrants, lines and standpipes. Permits may be required.

E. Horseplay involving firewater and hoses will result in immediate removal from the site.

F. Any fire extinguisher that is empty, partially used or commissioned shall be removed and replaced immediately.

G. The client-designated representative shall approve disabling or temporary relocation of any fire/smoke detection or suppression system or device prior to work being performed. Damage to fire/smoke detection or suppression systems shall be immediately reported.

H. Fire alarms and smoke detectors installed in company trailers or work locations shall be inspected and tested regularly.

I. Fire extinguishers shall be inspected monthly for charge and condition of cylinder and hose. Corroded and partially discharged equipment shall be removed from service immediately and replaced.

J. Fire extinguishers used for fire watch duties shall be inspected at the beginning and end of each day. Defective, damaged or discharged equipment shall be removed from service and replaced

K. Emergency Evacuation and Response routes shall not be blocked by tools or equipment and shall remain clearly marked during construction/demolition activities.

First Aid

Our employees are not required to perform the duties of first aid personnel or emergency responders unless trained, qualified, designated to provide first aid. Additionally, certification of training in blood-borne pathogens is required. All employees are reminded that their primary concern in the event of an injury or illness is to get help from qualified emergency responders!

APPENDIX A (CONTINUED)
WELDING, CUTTING AND BURNING

General

Welding, cutting and burning operations are limited to qualified and designated personnel only. Client locations may require the issuance of Hot Work permits prior to starting welding, cutting and burning operations. Due to the extraordinary hazard created by these operations, extreme care shall be taken during the procedure and pre-job setup.

Fire Prevention

A. Objects to be welded, cut, burned or heated should be moved to a designated safe location when practical.

B. If the objects cannot be moved, all fire hazards in the vicinity shall be eliminated by removal, cleaning, or containment of sparks, flame and slag, prior to beginning of work. All debris shall be a minimum distance of 35' away from the location.

C. Welding, cutting, burning or heating operations shall not be performed where the application of flammable paints, compounds or heavy dust accumulation shall present a hazard.

D. The proper fire extinguishing equipment and fire watch shall be in place prior to the onset of work.

E. Cylinders shall remain outside confined spaces.

F. Torches and hoses shall not be left in confined spaces and excavations over night.

G. Welding and cutting on used drums is prohibited unless the drums have been properly cleaned and purged of hazardous materials.

H. Hollow spaces, cavities and containers shall be vented and purged with an inert gas before preheating, welding or cutting.

Gas Welding, Cutting and Burning

A. When transporting gas cylinders, they shall be secured on a cradle, sling board or pallet. Choker sling or electric magnets shall not be used.

B. The cylinders shall be secured and transported in a vertical position with the valve protective caps in place.

C. Unless cylinders are firmly secured on a special carrier intended for the purpose, regulators shall be removed and protective caps shall be in place prior to movement.

D. An approved cylinder truck or chain shall be used to steady the cylinders while in use or storage. The cylinder valve may be opened only when work is being performed.

E. All gas cylinders shall be kept away from the actual welding or cutting operation and protected from sparks, hot slag or flames.

F. Cylinders may not be placed where they may become a part of an electrical circuit.

G. Oxygen cylinders shall be stored in an upright position, with regulators removed and safety caps installed.

H. Oxygen cylinders shall be separated from fuel cylinders by a minimum of 20 feet.

I. All cylinders shall be properly labeled with content and hazard warnings.

J. Cylinders shall have fixed wheels, keys, handles or a non-adjustable wrench on the valve stem.

K. Acetylene cylinders shall never be opened more than 1 and 1/2 turns of the spindle.

L. Before connecting a regulator to a cylinder valve, crack the valve open slightly and close to ensure tight stop and no leakage. Do not stand in front of the valve when opening.

M. Fuel gas hose and oxygen hose shall be easily distinguishable from each other. (Red hose for fuel gases, green hoses for oxygen and non-combustible gases, black hose for inert gas and air).

N. All regulators, hoses and valves shall be kept free and clear of oil and other materials.

O. Parallel sections of oxygen and fuel hose that have been taped together shall be taped with not more than 4 inches of tape every 12 inches.

P. Hoses with noticeable or suspected defect shall not be used.

Q. All hoses, cables and other equipment shall be kept clear of walkways and roadways.

R. Torches shall be inspected each day for leaking shutoff valves, hose couplings and tip connections.

S. Torches may be lit by friction lighters only. No matches or cigarette lighters.

T. All gauges, valves and pressure regulators shall be in proper working order.

U. Check valves shall be installed.

V. Cutting, welding and burning may not be performed on surfaces with protective coatings applied without proper breathing zone ventilation or appropriate respiratory protection.

W. Proper protective equipment must be worn when performing welding, cutting or burning.

X. Hoses must not be wrapped around an individual body.

Y. Flash back arrestors shall be installed on the gauges and between the hose.

Arc Welding and Cutting

A. MSDS for welding rods shall be available in the Hazcom program.

B. Positive ventilation shall be provided when welding and cutting are performed in a confined space, or respiratory protection shall be provided.

C. All ground connections shall be inspected to ensure that they are mechanically sound and properly rated for the required current.

D. A ground return cable shall have a safe current carrying capacity equal to or exceeding the specified maximum output of the arc welding unit.

E. The frames of all arc welding machines shall be grounded either through a third wire in the cable containing the circuit conductor or through a separate wire that is grounded at the source of the current.

F. Gasoline or propane fueled portable welding machines and auxiliary generators shall have a positive ground before placing them in service.

G. Arc welding and cutting operations with shall be screened with non-combustible or flameproof screens wherever possible.

H. Use only manual electrode holders specifically designed for arc welding and cutting.

I. All current-carrying parts shall be fully insulated against the maximum voltage encountered to ground.

J. All arc-welding cables shall be capable of handling the maximum current requirements of the work being accomplished.

K. Cables shall be equipped with standard insulated connectors of a capacity at least equivalent to that of the cable.

L. Proper eye and face protection shall be used when performing arc welding or cutting.

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SECTION 24
RESPIRATORY PROTECTION

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart E (Personal Protective and Life Saving Equipment) and 29CFR 1910 – Subpart I (Personal Protective Equipment). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

It is Lauth Construction Services, Inc.'s policy to reduce worker exposure from occupational dusts, fumes, mists, gases and vapor. The primary objective is to prevent excessive exposure to contaminants. When feasible, exposure to contaminants will be eliminated by engineering controls. When effective engineering controls are not feasible by Subcontractors, those Subcontractors must provide and use personal respiratory protective equipment.

Responsibilities

A. It is Lauth's responsibility to monitor a Subcontractor to ensure that he complies with OSHA regulations. Any deficiency observed should be brought to the attention of the Subcontractor for corrective action.

B. Each Subcontractor using respiratory protection shall submit the name of the "Qualified Person" regarding respiratory protection to the Lauth Superintendent. This person shall be responsible for ensuring that "his" workers and lower tier Subcontractor workers comply with all applicable standards.

C. It is each Subcontractor's responsibility to determine what specific applications require use of respiratory equipment. The Subcontractor must provide proper respiratory equipment to meet the needs of each specific application. Workers must be provided adequate training and instruction on all equipment.

D. Subcontractors, Superintendents, Supervisors and Foremen of each area are responsible for ensuring that all workers under their control are completely knowledgeable for the respiratory protection requirements for the areas in which they work and shall designate a competent person prior to beginning their work that will be responsible for their program implementation. They are also responsible for ensuring that all workers under their control comply with all facets of their respiratory protections program, including respiratory inspection and maintenance.

E. Workers are also responsible for wearing the appropriate respiratory equipment according to proper instructions and for maintaining the equipment in a clean and operable condition.

Use of Respirator

For most operations a respirator is not necessary. However, to evaluate the adequacy of a respiratory protection program, monitoring will be conducted on a periodic basis to provide for a continuing healthful environment for workers. Personal sampling equipment may be used in accordance with accepted

industrial hygiene standards to sample each work area. Results of these samples will pinpoint areas where respiratory protection is required.

Employee Training and Evaluation

A. Physical examinations/medical evaluations must be conducted on workers that need respirator equipment to assure that they are in adequate health condition (physically able to perform their work and can use respiratory equipment as required) as well as quantitative/qualitative fit testing annually.

B. The medical questionnaire and examinations must be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire must be administered in a manner that ensures that the employee understands its content.

C. Periodic physical examinations must be given to regular workers in order to assist them in maintaining their health.

D. Upon assignment to an area requiring respirators, workers must be instructed by their employer on the responsibilities in the respiratory program. They must also be instructed in need, use, limitations and care of their respirator(s). The training must be comprehensive, understandable, and recur annually, and more often if necessary

E. Workers required to wear a respirator must be fitted properly and tested for a face seal prior to use of the respirator in a regulated area.

F. The Subcontractor must properly select and approve respirators based upon physical and chemical properties of the air contaminants and the concentrations level likely to be encountered by the workers.

G. The Subcontractor must make a respirator available to each worker who is placed as a new hire or as a transferee on a job that requires respiratory protection.

H. Replacement respirators/pre-filters must be made available as required.

Inspection and Maintenance

A. The wearer must properly inspect the respirator prior to each use.

B. The Supervisor or foremen must periodically spot check respirators for fit, usage and condition.

C. Respirators not discarded after one shift use should be cleaned and stored in a suitable container away from areas of contamination.

D. Whenever feasible, respirators not discarded after one use will be marked or stored in a manner to assure they are worn only by the assigned worker. If use by more than one worker is required, the respirator will be cleaned between uses.

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SECTION 25
SCAFFOLDS & AERIAL WORK PLATFORMS

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart L (Scaffolds) and Subpart M (Fall Protection). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

This section covers policies for the safe construction and use of scaffolds and aerial work platforms. Both are designed to provide a safe, secure, elevated work platform for workers and materials.

Scaffolds

A. General Requirements - The following safety guidelines and requirements apply to scaffolds as indicated. There is no such thing as a temporary scaffold. All scaffolding must be erected and maintained to conform to established standards.

1. No scaffold shall be used until it has been properly inspected and properly tagged by the Subcontractor's competent person.
2. Scaffolds will not exceed 4 times the minimum base dimension.
3. Scaffolds and their components must be capable of supporting, without failure, at least 4 times the maximum intended load.
4. Guardrails, mid-rails and toe-boards will be installed on all open sides of scaffolds more than ten (10) feet in height.
5. Guardrails and mid-rails and toe-boards must be installed on all open sides of scaffolds more than four (4) feet in height when a minimum horizontal dimension is less than 45 inches in either direction (i.e., "baker-type" scaffolds).
6. Guardrails, mid-rails and toe-boards should be constructed from components furnished by the manufacturer. Where this is not possible, sound 2" x 4" nominal lumber must be used for the guardrails and mid-rails. Toe-boards must be 4" nominal in height.
7. Scaffold planks must be at least 2" x 10" full thickness lumber, scaffold grade or equivalent. Planks must be cleated, secured and extend over the end supports at least 6" but no more than 12 inches. The maximum permissible span will be 6 feet.
8. All work platforms and walkways must be at least 2 planks wide; no worker may work from a single plank.
9. Scaffolds planks must be visually inspected before each use. Damaged scaffold planks must be removed from site or destroyed.
10. Access ladders must be provided for each scaffold. Climbing off the end frames is not acceptable unless their design incorporates an approved ladder.

11. Adequate mud sills or other rigid footing, capable of withstanding a maximum intended load, must be provided.
12. Do not overload scaffolds. Materials should be brought up as needed.
13. Boxes, barrels, kegs and similar unstable objects must never be used as work platforms or to support scaffolds.
14. Where persons are required to pass under a scaffold, toe-boards and/or mesh is required to eliminate fall hazards.
15. Nails or bolts used in the construction of scaffolds will be of adequate size and in sufficient numbers at each connection to develop the designed strength of the scaffold. Nails will not be subjected to a straight pull and will be driven full length.
16. Scaffolds will not be altered or moved horizontally while they are in use or occupied.
17. Damaged steel scaffolding will not be field repaired or welded. It shall be "red tagged" and taken out of service until such time as repairs are completed.
18. Scaffolds will be properly secured at intervals not to exceed 30 feet horizontally and 26 feet vertically.
19. Any worker exposed to a fall greater than six (6) feet must be protected by guardrails, covers, safety nets, or personal fall arrest systems. The Subcontractor must determine if it is infeasible or creates a greater hazard.
20. Fall protection must be worn and utilized when erecting or dismantling scaffolds unless the Subcontractor can demonstrate that it is infeasible or creates a greater hazard.
21. Base plates must be used at all times, even when the scaffold is placed on concrete.

B. Manually Propelled Mobile Scaffolds

1. Casters will be properly designed for strength and dimension to support 4 times the maximum intended load. All casters will be provided with a positive locking device to hold the scaffold in position.
2. Workers are not permitted to "ride" on a manually propelled scaffold.
3. Diagonal bracing will be installed to prevent the scaffold from "racking".

C. Tube and Coupler Scaffolds

1. Tube and coupler scaffolds will be constructed and erected to support 4 times the maximum intended load.

2. Tube and coupler scaffolds will have all posts, runners and bracing of nominal 2 inch O.D. steel tubing, with the posts spaced not more than 6' x 6'6". Other structural metals when used must be designed to carry an equivalent load. No dissimilar metals will be used together.
3. Bearers will be installed transversely between posts and will be securely coupled to the posts bearing on the runner coupler.
4. Cross-bracing will be installed across the width of the scaffold at least every third set of posts horizontally and every fourth runner vertically.
5. Longitudinal diagonal bracing on the inner and outer rows will be installed at approximately a 45-degree angle near the base of the first outer post upward to the extreme top of the scaffold.

D. Tubular Welded Frame Scaffold

1. Metal tubular frame scaffolds and all accessories will be designed, constructed and erected to support 4 times the maximum intended load.
2. Scaffolds will be properly braced by cross-bracing, diagonal bracing, or both for securing vertical members together laterally, and the cross braces will be of such lengths as will automatically square and align vertical members.
3. Scaffold legs will be set on adjustable bases or plain bases placed on mud sills or other foundations adequate to support the maximum intended load.
4. Scaffolds will be secured to a structure or building at intervals not to exceed 30 feet horizontally and 26 feet vertically.
5. Drawings and specifications for all frame scaffolds over 125 feet in height above the base plates will be designed by a registered professional engineer.

E. Inspection and Tagging Procedures

1. Scaffolds shall be erected, moved, dismantled or altered under the supervision of the Subcontractor's competent person.
2. Scaffolds shall be inspected by a competent person before use for damaged or weakened components, loosened or pulled-out nails, unsafe guardrails and toe boards, missing components and other defects. Upon completion of inspection, the competent person shall attach one of the following inspection tags:
   a) "Green" Scaffold Inspection Tag – The scaffold meets all of OSHA's requirements for a complete scaffold.
   b) "Yellow" Scaffold Inspection Tag (Caution) – Denotes a scaffold which can be used only when certain safety measures are implemented. For example: if it is because of interferences, a "yellow" scaffold tag will be attached.

c) The scaffold must provide a structurally sound work platform. Fall protection requirements or other precautionary requirements must be noted on the yellow tag.

d) "Red" Scaffold Inspection Tag (Danger) – A "red" tag denotes a scaffold that is unsafe to use until modifications are performed. "Red" tags will be installed on all scaffolds being erected or dismantled.

e) Any scaffold that is found to be incomplete, damaged or weakened from any cause shall be immediately "red tagged" and repaired. Workers shall not be allowed to use it until repairs have been completed.

Aerial Work Platforms

This section provides procedures and guidelines to be followed for the safe operation and maintenance of aerial work platforms.

A. Operator Qualifications

1. All workers who operate aerial work platforms must be trained in safe operating procedures, using the manufacturer's operator book. Training will be performed by a person authorized by the manufacturer's representative.
2. The Operator should have, on his person, an "Authorized Operator Card" or equivalent, stating his/her competency in operating the specific model of equipment.
3. Each Subcontractor shall ensure that aerial lift platform operators have been trained in accordance with the manufacturer's operation manual before operating the aerial lift platforms.

B. General Requirements

1. Full body harnesses will be worn while operating any type of aerial work platform (scissors lift included) with lanyards secured to an approved anchorage point. Never attach a safety harness/lanyard to a nearby structure or support.
2. Gasoline, motor oil and hydraulic oil levels must be checked prior to use.
3. The design and operation of all movable personnel hoists will be in accordance with the manufacturer's recommended procedures for operation.
4. Aerial work platforms must be inspected by the operator before every use.
5. Outriggers will be extended and firmly set before personnel are elevated.
6. Never position steps, ladders or similar items on platform to gain additional reach.
7. Never stand on the handrails to provide additional reach.
8. No aerial work platform will be used as a crane to hoist materials. In order to comply with the manufacturer's design for center-of-gravity stability, aerial work platforms will be used

only to lift personnel, personal tools and material that will fit within the confines of the basket. Materials that do not fit within the confines of the basket should be raised with hand lines, pickers or other material hoisting devices.

9. Never attempt to operate a malfunctioning machine. If a malfunction occurs, shut down the machine, install a red ("defective tool") tag and notify supervision.
10. Barricades shall be erected below any overhead work area.
11. Aerial work platforms shall not be "field modified" for uses other than those intended by the manufacturer unless the modification has been certified in writing by the manufacturer.

C. Articulating Boom Aerial Lift - In addition to the general requirements, the following requirements shall apply:

1. A 10 lbs. ABC fire extinguisher should be maintained on the base of the articulating boom lift. When "hot work" is performed in the air, an extinguisher must also be in the basket.
2. The counterweight swing radius should be barricaded when vehicular or pedestrian traffic is nearby.
3. The gate/chain on the basket must be kept closed and locked at all times when in use.
4. As per manufacturer's recommendations, machine platforms will be kept at a safe distance from electrical power lines.

D. Scissor lifts - In addition to the general requirements, the following requirements shall apply:

1. The gate/chain on the basket must be kept closed and locked at all times when in use.
2. A 10 lbs. ABC fire extinguisher should be maintained on the base of the scissor lift. When "hot work" is performed in the air, an extinguisher must also be in the basket.
3. The platform must be positively blocked up before working under it to prevent the platform from falling during maintenance of the rig.
4. The platform will be fully lowered at the end of the work operation.
5. Outriggers will be extended as per manufacturer's recommendations.

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SECTION 26
SIGNS / SIGNALS / BARRICADES

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart G (Signs, Signals, and Barricades). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply. Signs, signals, and barricades are important, if not critical, to the safety of the construction workers, the client and the public.

Policy and Purpose

A. All devices, structures, and areas where hazardous materials are used, or where hazards or possible hazards may exist, will be identified with appropriate hazard warnings.

B. Signs and tags are not intended as substitutes for preferred abatement methods such as engineering controls, substitution, isolation, or safe work practices. Rather, they are additional safety guidance and increase the employee's awareness of potentially hazardous situations.

C. Tags are temporary means of warning all concerned of hazardous conditions, defective equipment, etc. Tags are not to be considered as a complete warning method, but should be used only until a positive means can be employed to eliminate the hazard.

Responsibilities

A. Superintendent/Subcontractor

1. Posts appropriate warning signs for materials of a hazardous nature (poisonous, toxic, flammable, carcinogenic, biological hazard, radioactive, etc.) or hazardous conditions (high voltage, slippery when wet, welding arcs, etc.).
2. Each Subcontractor is responsible for supplying, installing, maintaining and removing (when the hazard no longer exists) safety signs and tags necessitated by their respective work tasks.

B. Workers

1. Conduct themselves in the manner (safe procedures, protective equipment, clothing, etc.) as called for by the hazard warning signs and training.
2. Assist the superintendent in recognition of any potentially hazardous condition that may need identification by hazard warning signs.

C. Safety and Health Manager

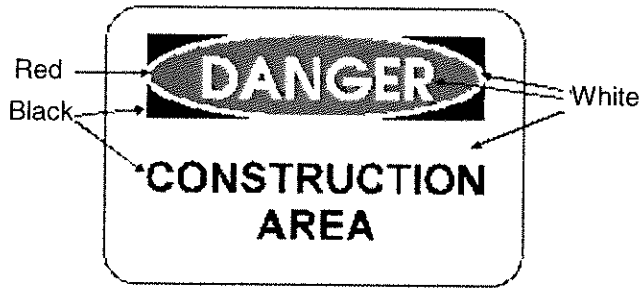
1. Periodically surveys all operations to ensure proper identification of hazardous areas or conditions by use of warning signs and immediately notifies supervisor of any lack of, or improper markings.

2. Assists the supervisor in defining proper identification, and acceptable location of signs in compliance with existing OSHA, Environmental Protection Agency (EPA), or other regulations.
3. Provides fabricated hazard warning signs.
4. Maintains a supply of all frequently used hazard warning signs.

Accident Prevention Signs and Tags

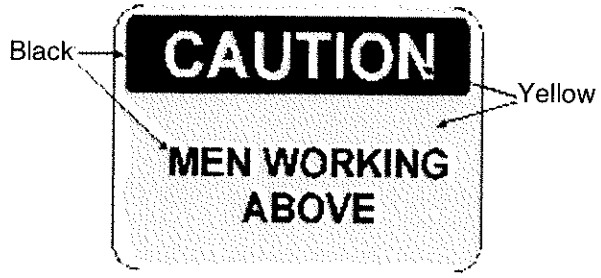
Signs and symbols required by Subpart G of OSHA's Construction Industry Standards shall be visible at all times when work is being performed, and shall be removed or covered promptly when the hazards no longer exist.

A. Danger Signs



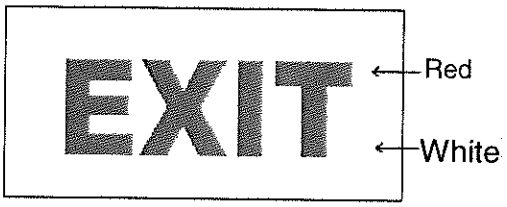
- Danger Signs shall be used only where an immediate hazard exists.
- Danger signs shall have red as the predominating color for the upper panel; black outline on the borders; and a white lower panel for additional sign wording.

B. Caution Signs



- Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices.
- Caution signs shall have yellow as the predominating color; black upper panel and borders; yellow lettering of "caution" on the black panel; and the lower yellow panel for additional sign wording. Black lettering shall be used for additional wording
- Standard color of the background shall be yellow; and the panel, black with yellow letters. Any letters used against the yellow background shall be black. The colors shall be those of opaque glossy samples as specified in Table 1 of American National Standard ANSI Z53.1-1967.

C. Exit Signs



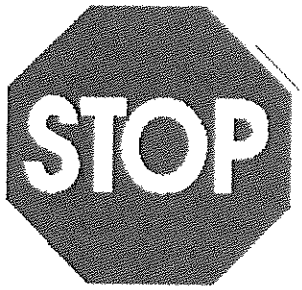
- Exit signs, when required, shall be lettered in legible red letters, not less than 6 inches high, on a white field and the principal stroke of the letters shall be at least three-fourths inch in width.

D. Safety Instruction Signs

- Safety instruction signs, when used, shall be white with green upper panel with white letters to convey the principal message. Any additional wording on the sign shall be black letters on the white background.

E. Directional Signals

Directional signs, other than automotive traffic signs specified in the paragraph below, shall be white with a black panel and a white directional symbol. Any additional wording on the sign shall be black letters on the white background.

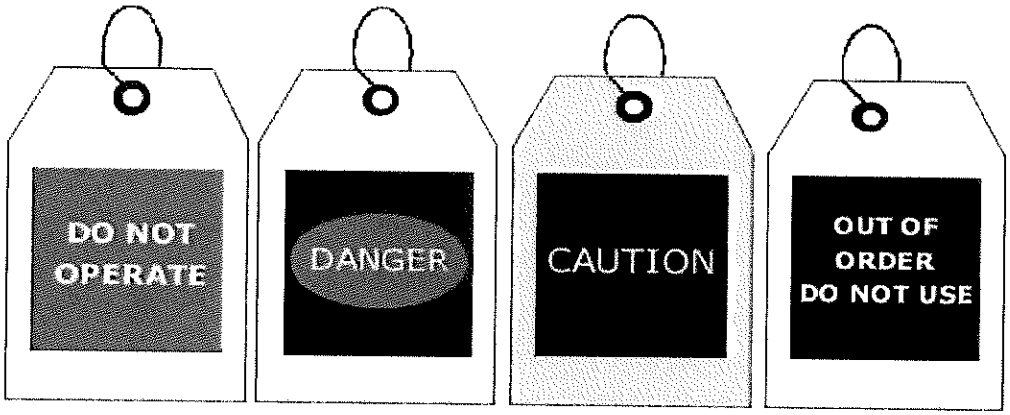


Traffic Signs

- Construction areas shall be posted with legible traffic signs at points of hazard.
- All traffic control signs or devices used for protection of construction workers shall conform to American National Standards Institute ANSI D6.1-1971, *Manual on Uniform Traffic Control Devices for Streets and Highways*.

F. Accident Prevention Tags

1. Accident prevention tags shall be used as a temporary means of warning workers of an existing hazard, such as defective tools, equipment, etc. They shall not be used in place of, or as a substitute for, accident prevention signs.
2. Specifications for accident prevention tags similar to those shown below shall apply.



White tag – White letters on red square

White tag – White letters on red oval with a black square

Yellow tab – Yellow letters on a black background

White tag – White letters on a black background

Basic Stock (Background)	Safety Colors (Ink)	Copy Specification (Letters)
White	Red	Do Not Operate
White	Black and Red	Danger
Yellow	Black	Caution
White	Black	Out of Order: Do Not Use

Additional Rules

American National Standards Institute ANSI Z35.1-1968, *Specifications for Accident Prevention Signs*, and ANSI Z35.2-1968, *Specifications for Accident Prevention Tags*, contain rules which are additional to the rules prescribed in this section. The employer shall comply with these ANSI standards with respect to rules not specifically prescribed in this subpart.

Flagmen

A. When operations are such that signs, signals, and barricades do not provide the necessary protection on or adjacent to a highway or street, flagmen or other appropriate traffic controls shall be provided.

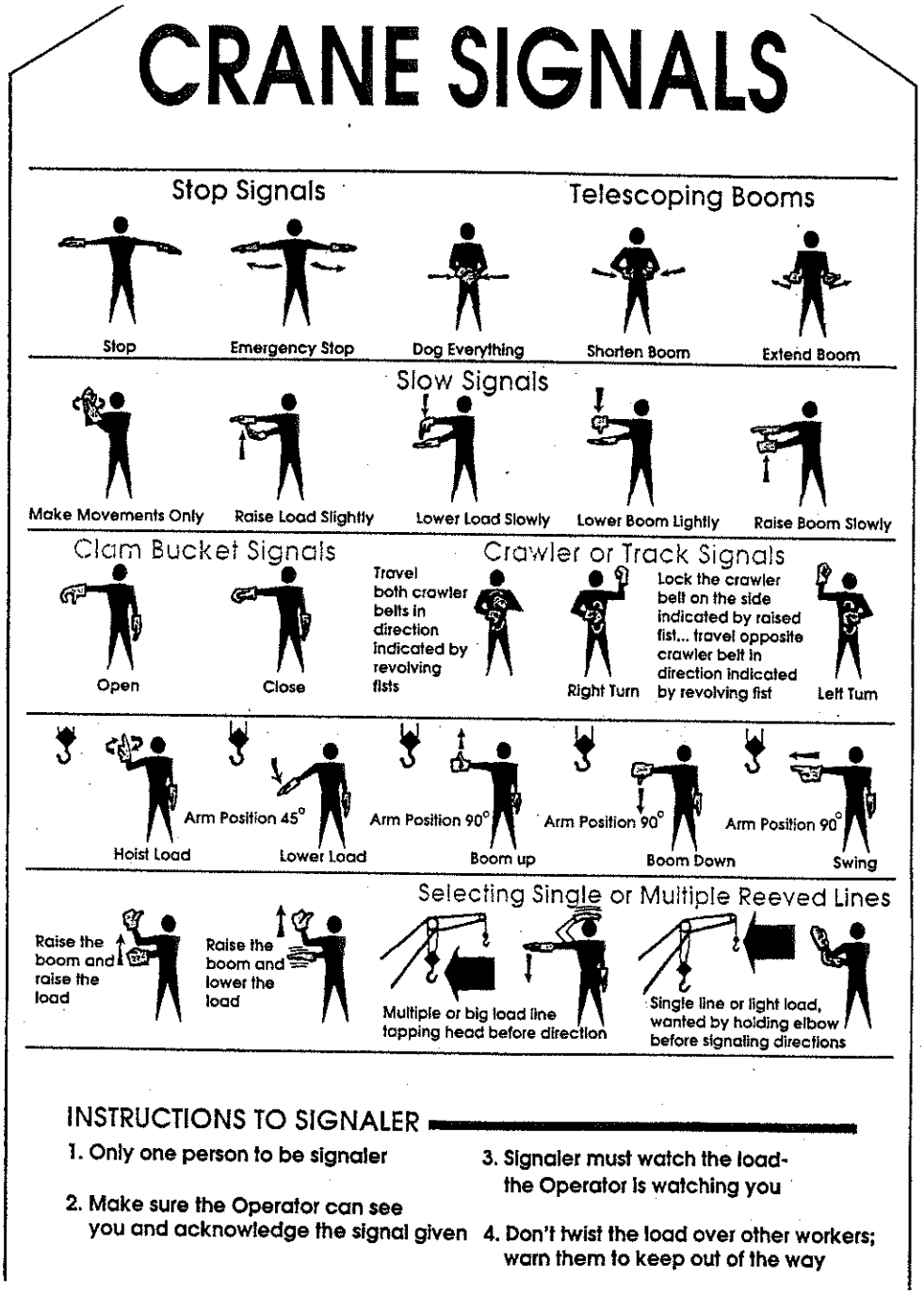
B. Signaling directions by flagmen shall conform to the American National Standards Institute ANSI D6.1-1971, *Manual on Uniform Traffic Control Devices for Streets and Highways*.

C. Hand signaling by flagmen shall be by use of red flags at least 18 inches square or sign paddles, and in periods of darkness, red lights.

D. Flagmen shall be provided with and shall wear a red or orange warning garment while flagging. Warning garments worn at night shall be of reflectorized material.

Crane and Hoist Signals

Regulations for crane and hoist signaling will be found in applicable American National Standards Institute standards.



Barricades

A. Responsibility for the design, placement, operation and maintenance for traffic control devices rests with the governmental body or official having jurisdiction.

B. Barricades for protection of the public and employees shall conform to the portions of the American National Standards Institute ANSI D6.1-1971, *Manual on Uniform Traffic Control Devices for Streets and Highways*, relating to barricades.

C. Barricades are to be kept clear and highly visible during the day and night.

D. Broken and worn barricades shall be replaced.

E. Barricades shall be removed once the hazard no longer exists.

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SECTION 27
STEEL ERECTION & DECKING

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart R (Steel Erection). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

All steel erection will be accomplished in accordance with the current OSHA 29 CFR 1926 Subpart R, other applicable OSHA Construction Safety and Health Standards, this Site Specific Safety Plan, State and Local Laws governing safe work practices.

Steel Erection Components and Design

Structural steel that does not meet the previously sited standards will not be erected.

A. Site Preparation - Lauth or the Controlling Contractor must ensure a flat, well-graded lay down and shake-out area for the Steel Erector. The area must be sufficient to accommodate all space required for laydown and shakeout of steel and will have perimeter protection to prevent entry by those not involved in the steel erection operation. The site will be closely controlled for dust and maintained in a safe manner, free of accumulation of trash, water, snow and/or ice. An access road must be provided around the perimeter of the building, graded and maintained to provide safe crane and aerial/scissors lift access and set up. The Subcontractor/sub-tier responsible for steel erection must provide written requirements for this area to Lauth or the Controlling Contractor.

B. Work Area - The work area must be properly maintained and lighted. No work will be permitted beneath steel erection or within the swing radius of cranes under load with the exception of the Connector and Rigger.

C. Footings and Foundations - Structural members must not be set on footings, foundations or masonry walls until they have reached 75% of designed strength or have attained sufficient strength in accordance with specifications. Lauth or the Controlling Contractor shall provide written proof of tests documenting the attainment of the designed strength (Lauth's "Concrete Strength" form is attached at the end of this Section).

D. The name of the Subcontractor's "Competent Person," "Qualified Person," and "Qualified Rigger" as it relates to Steel Erection for the project must be provided to the Lauth Superintendent prior to commencement of any steel erection work.

E. The Subcontractor must not begin any steel erection activities until they have received written proof from Lauth that the concrete has attained 75% of its designed strength.

F. The Subcontractor must not begin any steel erection activities until they have verified (in writing) from Lauth that any repairs or modifications to anchor bolts were approved by the structural engineer of record.

Columns and Foundation Bolts

A. All columns will be four bolt minimum columns. Lauth or the Controlling Contractor will provide documentation to the steel erection Subcontractor that all foundation bolts are installed according to design specifications (Lauth's "*Anchor Bolt Modification*" form is attached at the end of this Section).

B. In the event that a foundation bolt must be modified or repaired, the "fix" will be determined, in writing, by the structural engineer to Lauth or the Controlling Contractor. Lauth or the Controlling Contractor will provide the specified "fix" to the proper Subcontractor. All repairs and/or modifications will be inspected by a competent structural engineer for compliance with modification/repair specifications and approval of the modification/repair provided to the Controlling Contractor and affected Subcontractor in writing.

Stability

The Subcontractor's Competent Person shall determine if additional bracing or guying is required.

Fall Protection

Lauth requires fall protection to be worn and utilized by ALL trades when workers are exposed to a fall of 6 feet or greater, unless infeasible or it creates a greater hazard. In such cases, a written fall protection plan as per OSHA regulations will be used and submitted to Lauth for approval before work begins (See LSM-25 for Scaffolding). Written fall protection plans must be submitted by the Decking and Steel Erection Subcontractors to Lauth or the Controlling Contractor. Decking and Steel Erection Subcontractors will address, at a minimum, the following:

A. 100% fall protection is required at 6 foot working elevation for all detailers and leading edge decking work.

B. Use of Crane Supported Personnel Platforms must be in accordance with all requirements of 29CFR 1926.550(g).

C. Perimeter protection must be installed during initial structural assembly and installation points provided. The steel erector is responsible for daily maintenance of the fall protection.

D. All loose objects aloft must be secured.

E. Overhead protection provided from falling objects and swinging loads.

F. No more than 3000 square feet of unsecured decking can be installed.

G. Floor and roof penetrations shall not be cut until work operations require the cut to be made.

H. Method of immediately providing, securing and properly marking hole covers and penetration covers.

I. Lauth or the Controlling Contractor pre-inspection and acceptance of fall protection installation prior to departure from site by the steel erection and/or decking Subcontractor (Lauth's "*Fall Protection Acceptance*" form is included at the end of this Section).

Steel Erection Plans

A qualified, authorized, competent and designated representative of the steel erection Subcontractor and/or decking Subcontractor must submit a detailed site specific steel erection plan to Lauth or the Controlling Contractor. This plan will include, at a minimum:

A. Staging of Erection.

B. Employer certification of worker training, names of authorized workers and certification of connector training and designation.

C. Hoist operations and routes for suspended loads.

D. Protection plan for prohibiting access to the erection area and swing space of the crane.

E. Requirement for documented annual, monthly and daily crane inspection by a qualified and designated competent person, which will include the following:

1. Control Mechanisms
2. Drive Mechanisms
3. Safety Devices
4. Air and Hydraulic Lines
5. Hooks and Latches
6. Wire Rope Reeving
7. Electrical Equipment
8. Hydraulic Fluid Levels
9. Tires/Track
10. Ground Conditions

Crane Requirements (Initial setup and after each move)

A. The crane shall not be permitted to be used until Lauth has received a copy of the crane's current annual crane inspection.

B. Crane information, including site position, cut sheet, wind load and load chart.

C. Copy of Operator/Master Rigger License (Crane Operator Certification).

D. Requirement for documented rigging inspection prior to each shift by a qualified, designated, competent person.

E. Plans for deactivation of safety latches from the hook.

F. Multiple Lift Rigging Plan ("Christmas Treeing") which shall, at a minimum, contain the following requirements:

1. Crane manufacturers certification of crane capability for multiple lifting for multiple steel (not multiple lines)
2. Use of a manufactured rigging assembly
3. Restriction of 5 or less pieces at a time.
4. All pieces to be rigged separately to the hook.
5. All pieces to be 7 feet apart.
6. Use of taglines when raising materials overhead.
7. Beams must be stabilized to remain level.
8. Rigging capacity must have 5 to 1 safety factor.
9. Members on the multiple lift rigging assembly must be set from the bottom up.
10. Controlled load lowering used whenever the load is over the connectors.
11. Training must be provided to all workers engaged in the multi-lift procedure and documentation provided to Lauth or the Controlling Contractor.

G. Signs and barriers/barricades must be installed around the crane's swing radius and the overhead hazard area.

Structural Steel Assembly

A. No more than 8 floors shall be erected above permanent floors, except where the structural integrity is maintained as a result of the design.

B. No more than 4 floors or 48 feet of unfinished bolting will be allowed.

C. All columns must be adequately braced and secured to remain stable as beams are set.

D. All structural columns must be secured before beam erection begins.

E. A minimum of 4 anchor bolts are required for better stability.

F. Column bases must be designed to support 300 lb. eccentric load located 18" off the top of the column.

G. Double-beam connections must allow for positive securing of the first beam before the second beam is "flown" in.

H. Perimeter columns must extend at least 48" above the finished floor to permit installation of perimeter protection.

I. Perimeter protection must be installed during initial structural assembly.

J. Installation points must be provided.

K. All open-web steel joists will be landed, installed and accessed in accordance with 29CFR 1926.757.

L. Long bar joists will be installed per manufacturers requirements for bracing or:

1. The row of erection bridging nearest the mid-span of the steel joists shall be installed.

2. Hoisting cables will not be released until the bolted diagonal erection bridging is installed.

Walking and Working Surfaces

A. Walking and working surfaces will be kept clear of all ice, snow and accumulation of debris.

B. No shear studs, anchors, etc. can be installed on the top flanges of steel unless other walking surfaces are provided.

Metal Buildings

The following, in addition to previously listed items, will apply to the erection of metal buildings.

A. Rigid Frames – 50 percent of the bolts or the number required by the manufacturer must be installed before hoisting cables can be released.

B. Joists & Purlins – Ends must be fully bolted or welded before:

1. Releasing the hoisting cables

2. Allowing an employee on the joists

3. Allowing any construction loads on the joists.

C. Fall Protection

1. Purlins and girts may not be used as fall arrest anchorages unless approved by a qualified person.

2. No one may walk on purlins until all permanent bridging has been installed and fall protection is provided.

3. Lauth requires fall protection to be worn and utilized by ALL trades when workers are exposed to a fall of 6 feet or greater. This includes connectors, "detailers," and leading edge decking work.

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SITE-SPECIFIC STEEL ERECTION PLAN

Name of Steel Erector:_____

Project Name:_____

Project Location: _____

Date of Pre-Construction Meeting with General Contractor: _____
(Attendees should include: Erector, General Contractor, Project Engineer, & Fabricator)

Sequence of the Erection Activity

1.. What date did you receive notification that the concrete had attained sufficient strength to support steel?

_____

2. Who will provide adequate road access for deliveries, cranes, trucks, lay-down yards and other equipment?

_____

_____

3. How will the materials be delivered/received?

_____

_____

_____

4. Where will materials be staged and stored?

_____

_____

_____

5. Will other construction activities be barred below the steel erection activities?

Yes No (circle one)

6. What provisions have been made with other trades to eliminate overhead hazards?

_____

_____

Hoisting Operations

1. What is the name of the Competent Person? _____

2. What is the name of the Qualified Rigger? _____

3. What is the name of the Qualified Person? _____

4. What measures will be taken to ensure that the Qualified Rigger conducted the necessary pre-shift inspection of the rigging?

_____

_____

5. What measure will be taken to ensure the crane was properly inspected before each shift?

_____

_____

6. Please describe the crane to be used for the steel erection activities. (include make, model, capacity, jib, etc.).

_____

_____

7. If a crane is not to be used, please describe the piece of equipment that will be used to hoist materials.

_____

_____

8. How will the site be prepared to ensure a firm, properly graded and drained area for the crane?

_____

_____

9. How will lifts be routed to eliminate overhead loads?

_____

_____

10. Will barricades and "Overhead Work" signs be installed to keep others from entering below steel erection activities? Yes No (circle one)

11. Will any lifts be performed within 75% of the crane's capacity? Yes No (circle one) If so please describe the procedure that will be used for a critical lift.

_____

_____

_____

Description of Steel Erection Activities and Procedures

1. Have any anchor rods (bolts) been modified, repaired or replaced? Yes No (circle one)

If so, has the General Contractor provided you with the Structural Engineer of Record's approval? Yes No (circle one)

2. Will a copy of the documentation be maintained at the site? Yes No (circle one)

3. Please describe the stability considerations (if required) for temporary bracing and/or guying.

_____

_____

4. If guying is required, who is responsible for inspecting the rigging (i.e., wire rope, Crosby clamp installation, etc)?

_____

_____

5. Does each column plate have at least four (4) anchor bolts? Yes No (circle one)

6. For "double connections" – will connectors be able to maintain at least one (1) bolt wrench tight or will seats be used?

_____

_____

7. How will the erection bridging be installed? Bolted Welded (circle one)

8. Will the erection bridging be installed before or after releasing the joist from the lifting device?

_____

9. What is the process for releasing the joist(s) from the lifting device?

_____

10. What type of fall protection will be used during joist installation and during the installation of the bridging?

_____

_____

_____

11. Column Splices – Do perimeter cables extend a minimum of 48" above the finished floor and have holes or other devices attached to them for safety cables? Yes No N/A (circle one)

12. Are all joisting ends and bridging secured prior to landing metal decking? Yes No (circle one)

13. If loads are being placed on the joists, by how many joists is the load spread? _____

14. Will the decking be in place prior to the installation of the shear connectors?

Yes No (circle one)

15. Please describe the type of fall protection that will be utilized for leading edge work.

_____

16. Has the Qualified Person determined that it is acceptable to tie off to structural members of the structure?

Yes No (circle one)

17. Roof openings will not be cut until provisions have been made to properly protect them and equipment and material is ready to be set in place. Have provisions/plans been made for securing all openings? Yes No (circle one)

**OSHA defines an "opening" as "a gap or void 12 inches in it's least dimension..." All covers shall be properly secured and marked with "hole" or "cover – do not remove".*

18. How will overhead materials be secured at the end of each shift?

_____

_____

19. Will perimeter cables be installed as the decking operations progress?

Yes No (circle one)

20. Will perimeter cables be flagged every six (6) feet with high visibility material?

Yes No (circle one)

21. Will the fall protection installed by the steel erector be left behind for the other trades to use? Yes No N/A (circle one) If yes, who directed the steel erector to leave the protection in place?

_____

22. Please provide the name of the individual who inspected and accepted control and responsibility of the fall protection left behind by the steel erector?

_____

Special Procedures for Non-Routine Tasks

1. Will there be any special procedures for hazardous non-routine tasks? Yes No (circle one)

If yes, please provide a description of the task and the measures that will be taken to ensure safety compliance during the task.

_____

_____

_____

Training

Please list the individuals that have been properly trained in steel erection as per OSHA Subpart R and will be working on this project. (for additional space use following page)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Following are the Qualified Persons responsible for the preparation of the Steel Erection Plan and are authorized to make modifications. (Please sign and date)

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

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Other

Please note any other comments or additions not covered in the previous sections or pages.

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FALL PROTECTION ACCEPTANCE FORM

Date:

_____
_____
_____

_____
_____
_____

RE: _____

_____

Custody of Fall Protection

Pursuant to 29CFR1926.760 (e) of OSHA's Steel Erection Standard, both parties agree that the fall protection installed by the steel erector meets or exceeds OSHA's minimum requirements. Furthermore, both parties agree that the Steel Erector is no longer responsible for the maintenance of said fall protection. On this date, _____ , Lauth Construction has accepted control and responsibility of the fall protection of the said area.

Steel Erector:

Name of Steel Erector: _____

Signature of Designated / Authorized Person:

_____

Title of Designated / Authorized Person:

_____

Date:

_____

Lauth Construction Services, Inc.

Signature of LAUTH Designated / Authorized Person:

_____

Title of Designated / Authorized Person:

_____

Date:

_____

Copy: Project file

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CONCRETE STRENGTH FORM

Date:

Regional Office:
Address _____
_____
_____

Subcontractor Name: _____
Subcontractor Address: _____
_____

RE Project:
Compressive design strength

Pursuant to 29CFR 1926.752 of the Revised Steel Erection Standard, the attached ASTM standard test reports conducted by testing agency [redacted].
are provided to you for your review/file. Please note that the reports indicated that the concrete in the footings, piers and walls and/or the mortar in masonry piers and walls have attained 75 percent of the intended minimum compressive design strength.

Please see the attached report for specific locations.

If you have any questions regarding this matter, please feel free to contact me at telephone number:

Sincerely,

Name
Title
Lauth Construction

Attachment:

Copy: Project file
[redacted]
[redacted]
[redacted]

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ANCHOR BOLT MODIFICATION FORM

Date:

Regional Office

Address

Subcontractor
Name:

Subcontractor
Address:

RE Project:

Repair, Replacement and/or Modification of Anchor bolts

Pursuant to 29CFR 1926.755(b)(2) of the revised steel erection standard, the attached document is provided to you for your review/file. Please note that the documents verify that the Project Structural Engineer Of Record has approved all repairs, replacements and/or modifications of any and all anchor bolts as outlined in the attached document.

If you have any questions regarding this matter, please feel free to contact me at telephone number:

Sincerely,

Name
Title
Lauth Construction

Attachment:

Copy: Project file

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SECTION 28
TOOLS – HAND/POWER/AIR/PNEUMATIC

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart I (Tools – Hand and Power). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

Subcontractors are reminded that inspections of tools and equipment are mandated by OSHA. Tools supplied by workers must be inspected by the employer prior to use and are subjected to periodic inspection by the employer.

- Tools will be used only for the purpose they are designed.
- Worn, damaged or defective tools must be immediately tagged and removed from the site.
- Only qualified personnel will be assigned to operate tools and equipment.
- Any motorized equipment left on the street or in public access ways, such as walkways, shall be appropriately barricaded and illuminated at night.

Hand Tools

A. Tools will be used only for the purpose for which they are designed.

B. Tools must be kept in peak condition. Worn or damaged tools are dangerous and will be tagged "Do Not Use" and immediately repaired, destroyed or removed from the site.

C. Tools will not be forced beyond their designed capability. "Cheaters" will not be used.

Power Tools

A. Only qualified personnel will be permitted to use power tools.

B. Tools will not be carried, hoisted or secured by the power cord.

C. Subcontractors and workers must inspect all power tools prior to use. Loose fittings, damaged parts, frayed or cut electric cords and electrical cords missing the ground plug will be immediately tagged "Do Not Use" and destroyed or removed from the site.

D. All electrical tools will be double insulated or properly grounded.

E. All guarding devices must be in place and used.

F. Safety clips will be installed on all "Chicago" type pneumatic fittings or quick connect fittings.

G. Face shields, in addition to safety glasses, shall be worn when using tools such as grinders, partner saws, block saws, or similar tools or equipment.

H. Guards and/or safety devices shall not be removed, altered, blocked or bypassed in any way.

I. Makeshift or jury-rigged tools shall not be permitted on any Lauth Project.

Powder Actuated Tools

A. Only trained and qualified personnel, familiar with load charge and type, will be permitted to use powder-actuated tools. The qualified operator shall have a certification card from the manufacturer of the Powder Actuated Tool.

B. Double eye protection (safety glasses AND goggles/face shield) must be worn by operators. Hearing protection should be worn by the operator and employees working in or adjacent to the shooting area.

C. Tools shall remain unloaded until ready for use, and loaded tools will not be left unattended.

D. Fasteners will not be driven into hard or brittle material or into material they will pass through.

E. Areas adjacent to fastening work will be surveyed to ensure that the area is clear of persons and that fasteners are not passing through material.

F. Proper signage must be placed and barricades must be installed to keep workers and the public away from the hazard area.

G. Powder actuated tools must not be used in flammable atmospheres.

H. Powder actuated tools shall not be loaded until immediately before use. "Spent" loads shall be discarded in trash receptacles and not discarded on the ground. Proper warning signage must be installed.

Air/Pneumatic Power Tools

A. Eye, face and hearing protection must be worn by operators.

B. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.

C. Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

D. All pneumatically driven nailers, staplers, and other similar equipment proved with automatic fastener feed, which operate at more than 100 p.s.i. pressure at the tool, shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.

E. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment which meets the Personal Protective requirements of this manual. The 30 p.s.i. requirement does not apply for concrete form, mill scale and similar cleaning purposes.

F. The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fillings shall not be exceeded.

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

H. All hoses exceeding ½ inch in diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.

I. Airless spray guns of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch) shall be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released.

J. In lieu of the above, a diffuser nut which will prevent high pressure, high velocity release, while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection, shall be provided.

K. Abrasive blast cleaning nozzles. The blast cleaning nozzles shall be equipped with an operating valve which must be held open manually. A support shall be provided on which the nozzle may be mounted when not in use.

Hydraulic Power Tools

A. The fluid used in hydraulic powered tools shall be fire-resistant fluids approved under Schedule 30 of the U.S. Bureau of Mines, Department of the Interior, and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed.

B. The manufacturer's safe operating pressures for hoses, valves, pipes, filters, and other fitting shall not be exceeded.

Motorized Vehicles

A. All motorized vehicles on this job site will be appropriately maintained and capable of passing inspection by Federal or State governing agencies.

B. Gasoline and/or diesel powered equipment will not be utilized within the buildings. Propane powered equipment may be used provided it is properly maintained.

C. All construction vehicles and excavation equipment will be equipped with audible backup alarms and appropriate rollover protection.

D. Vehicles will not be refueled in the field without benefit of drip pans or other spill absorbent materials.

E. Vehicles placed on concrete surfaces will be equipped with drip diapers and wheel covers.

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SECTION 29
WELDING & CUTTING

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR 1926 – Subpart J (Welding and Cutting). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

General

Welding, cutting and burning operations are limited to qualified and designated personnel only. Client locations may require the issuance of hot work permits prior to starting welding, cutting and burning operations. If hot work permits are required, additional precautions and resources will be utilized (i.e. fire watch(es), additional fire extinguishers, etc.). Due to the extraordinary hazard created by these operations, extreme care shall be taken during the procedure and pre-job setup.

Fire Prevention

A. When practical, objects to be welded, cut or heated should be moved to an area free of fire hazards, or if the object cannot be moved, all movable fire hazards shall be moved out of the area, and all other hazards protected.

B. If the objects cannot be moved, all fire hazards in the vicinity shall be eliminated by removal, cleaning, or containment of sparks, flame and slag, prior to beginning work. All flammables and combustibles shall be a minimum distance of 35 feet away from the hot work location.

C. When objects cannot be removed from the immediate area, proper flame retardant blankets shall be installed.

D. Welding, cutting, burning or heating operations shall not be performed where the applications of flammable paints, compounds or heavy dust accumulation shall present a hazard.

E. The proper fire extinguishing equipment and fire watch shall be in place prior to the onset of work.

F. Gas supplies to torches shall be shut off at a point, (preferably the source) outside of confined spaces.

G. Torches and hoses shall not be left in confined spaces and excavations while the space is unoccupied (i.e., breaks, lunch, overnight, etc.).

H. Welding and cutting on used drums is prohibited unless the drums have been properly cleaned and purged of hazardous materials.

I. Hollow spaces, cavities and containers shall be vented and purged with an inert gas before preheating, welding or cutting.

J. When the welding, cutting or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel ("fire watch") shall be assigned to guard against fire while the operation is being performed and for a sufficient period of time after the completion of the work to ensure that no possibility of fire exists. When operations are conducted on walls, floors, and ceilings, steps shall be taken to ensure against fire hazards on the opposite side from the work.

K. A fire extinguisher rated not less than 20#ABC shall be immediately available wherever welding or cutting operations are being conducted.

Gas Welding, Cutting and Burning

A. Proper protective equipment must be worn when performing welding, cutting, or burning operations.
B. When transporting gas cylinders, they shall be secured on a cradle, sling board or pallet. Wire rope choker slings and electric magnets shall not be used.
C. Cylinders shall be secured and transported in a vertical position with the valve protection caps in place.
D. Unless cylinders are firmly secured on a special carrier intended for the purpose, regulators shall be removed and protective caps shall be in place prior to movement.
E. An approved cylinder truck or chain shall be used to steady the cylinders while in use or storage.
F. The cylinder valve may be opened only when work is being performed.
G. All gas cylinders shall be kept away from the actual welding or cutting operation and protected from sparks, hot slag or flames.
H. Cylinders may not be placed where they may become part of an electrical circuit.
I. All compressed cylinders shall be stored in an upright position with the regulators removed and the protective caps installed.
J. Oxygen cylinders shall be separated from fuel cylinders by a minimum of 20 feet or protected by a 5 foot firewall (including empty cylinders).
K. All cylinders shall be properly labeled with content and hazard warnings.
L. All cylinders shall have fixed wheels, keys, handles or a non-adjustable wrench on the valve stem.
M. Acetylene cylinders shall never be opened more than 1 and ½ turns of the spindle.
    1. Before connecting a regulator to a cylinder valve, crack the valve open slightly to remove foreign particles from the valve. Close the valve before connecting the hose. Check to make sure that there is no leakage. Do not stand in front of the valve when opening.

N. Fuel gas hose and oxygen hose shall be easily distinguishable from each other. (Red hose for fuel gas, green hoses for oxygen and non-combustible gases, and black hose for inert gas and air).
O. All regulators, hoses, and valves shall be kept free and clear of oil and other materials.
P. Parallel sections of oxygen and fuel hose that have been taped together shall be taped with not more than 4 inches of tape every 12 inches. Hoses with defects shall not be used.
Q. All hoses, cables, and other equipment shall be kept clear of walkways and roadways.
R. All torches, cylinders, hoses and gauges shall be inspected each day for leaking shutoff valves, hose couplings and tip connections, etc.
S. Torches may be lit by friction lighters only. Torches may not be lit by matches, cigarette lighters, or other hot work.
T. All gauges, valves and pressure regulators shall be in proper working order.
U. Flash-back arrestors shall be used between the torch assembly and the hose connections.
V. Cutting, welding and burning may not be performed on surfaces with protective coatings applied or in confined spaces without proper breathing zone ventilation or appropriate respiratory protection.

Arc Welding and Cutting

A. SDS's for welding rods shall be available in the Hazard Communication Program.
B. Proper eye and face protection shall be used when performing arc welding or cutting operations. Tinted safety glasses do not provide adequate protection and shall not be worn for welding/cutting operations.
C. Positive ventilation shall be provided when welding and cutting are performed in a confined space, or respiratory protection shall be provided.
D. All ground connections shall be inspected to ensure that they are mechanically sound and properly rated for the required current.
E. A ground return cable shall have a safe current carrying capacity equal to or exceeding the specified maximum output of the arc welding unit.
F. The frames of all arc welding machines shall be grounded either through a third wire in the cable containing the circuit conductor or through a separate wire that is grounded at the source of the current.
G. Gasoline or propane fueled portable welding machines and auxiliary generators shall have a positive ground before placing them in service.
H. Arc welding and cutting operations shall be screened with non-combustible/flame-proof screens whenever possible.
I. Use only manual electrode holders specifically designed for arc welding and cutting.

J. All current-carrying parts shall be fully insulated against the maximum voltage encountered to ground.

K. All arc welding cables shall be capable of handling the maximum current requirements of the work being accomplished.

L. Cables shall be equipped with standard insulated connectors or a capacity at least equivalent to that of the cable.

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SECTION 30
RETURN TO WORK POLICY STATEMENT

It is the policy of Lauth Group, Inc. to return employees who have sustained work related injuries, and who have not fully recovered, to productive employment as early as possible, taking into consideration physical restrictions and recommended medical treatment. Return-to-Work, as the process is called, is critical in decreasing lost workdays, avoiding unnecessary disability syndromes, improving employee morale, and decreasing company costs.

In essence, the benefits of promoting Lauth Group's Return-to-Work policy are identified below:

- Increase morale among all employees.
- Experience faster recoveries.
- Gain control and increase the chance of a positive resolution of the claim.
- Maintain a productive employee for the wages that are paid.
- Retain the services of a valuable, trained employee.
- Avoid replacement and training costs of hiring a new employee.
- Reduce temporary disability payments.
- Reduce the chance of permanent disability.
- Reduce medical costs.
- Avoid or reduce legal costs.
- Avoid or reduce vocational rehabilitation costs.
- Discourage fraudulent claims.
- Comply with the Americans with Disabilities Act by accommodating disabilities and thus avoid costly lawsuits.

Lauth's first responsibility is the prevention of occupational injury and illness. If an injury or illness does occur, it becomes the responsibility of the insurance carrier and the employer to mitigate the impact of the injury or illness for both the employee and the employer. Offering transitional modified or transitional alternative work to the injured worker aids the process.

Transitional work is a temporary, short term change in existing job duties that allows an injured worker to return to work at a job that is less physically or mentally demanding than his or her regular assignment. This may involve:

- Modification of the injured worker's normal job, considering current medical limitations.
- Periodic adjustments to normalize the job duties, as medical conditions change.
- Alternative work that will accommodate current physical restrictions resulting from the injury, in order to prevent re-injury.
- Setting a positive atmosphere and letting employees ease back into a normal routine, including:
  - Adjusting production quotas.
  - Encouraging employees to adhere to therapy schedules.
  - Explaining the need for transitional work to co-employees.

- Provision of a meaningful job (Not a make-work project).
- Temporary work assignments that are reviewed after each doctor visit and each 14 day period.

Modified work is a change in the work environment, including job restructuring, equipment/tool modification or selection and/or ergonomic workstation modifications that accommodate an imposed physical work restriction.

Alternative work is a change in shift or reassignment to another job, incorporating a productive activity that accommodates an imposed physical work restriction.

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ASSIGNMENT OF RESPONSIBILITIES

Human Resources Manager

Lauth Group, Inc. employs a Human Resources ("HR") Manager. The assigned responsibilities HR are to oversee and effectively manage workers' compensation claims and the company's Return-to-Work Program activities. The duties are as follows:

A. Identify new claims from our workers' compensation insurance carrier notification system or a Lauth project site.
B. Monitor provision of initial medical treatment:
    1. First Aid
    2. Medical Provider
C. Verify Prompt reporting of all claims to:
    1. Our insurance carrier's claim department within 24 hours
    2. Our insurance carrier's claim department within 8 hours for serious injury
    3. Our insurance carrier's claim department within 2 hours for catastrophic injury or death
D. Lost-time claim handling includes:
    1. Contact with project to discuss circumstances, gather additional information and verify if transitional work is available.
    2. Contact injured worker to explain role, provide insurance carrier information, explain the claim process, introduce transitional work, and discuss diagnosis, prognosis and treatment plan, as well as Return-to-Work Program.
    3. Follow up with the project.
    4. Continue contact with injured workers until they are at full duty status.
    5. Send a survey to injured worker to measure satisfaction in medical treatment, as well as claims handling.
E. Medical-only claim handling includes:
    1. Send a letter to the injured worker providing insurance carrier information.
F. Work with Lauth Supervisors and Regional Safety Managers in the modification of the injured worker's normal job when possible.
G. Work with Lauth Supervisors and Regional Safety Managers in the education and identification of temporary alternative duty positions.
H. Work closely with our insurance carrier; obtain wage statements and personnel information as needed. Monitor timely first report of injuries and address late reporting on an individual basis. Review claims status and contact claim handlers to assist in bringing claims to a close by suggesting Independent Medical Examinations, work-hardening programs or possible surveillance.
I. Evaluate the possibility of permanent modified positions, when necessary.

Ongoing Communication/Follow-Up

Injured workers with extended lost time injuries should be contacted weekly or twice monthly by the Regional Safety Manager or the HR Manager through coordinated efforts. This can help Lauth stay in touch with the injured worker's medical progress and ensure that any questions or issues are addressed promptly.

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ASSIGNMENT OF RESPONSIBILITIES

Supervisors and Regional Safety Managers

The assigned responsibilities for the Supervisors and Regional Safety Managers at the project level of Lauth are to assist in the effective management of workers' compensation claims and the company's Return-to-Work Program activities as follows:

A. Assure provision of initial medical treatment:
   1. First Aid
   2. Medical Provider
B. Promptly report all claims to our insurance carrier:
   1. Within 2 hours for catastrophic injury or death
   2. Within 8 hours for serious injury
   3. Within 24 hours for all other injuries
C. Notify the Human Resources Manager
D. Timely document all contacts with:
   1. Injured Worker
E. Monitor on-going medical treatment of injured worker in conjunction with:
   1. Medical Provider
   2. Claim Representative
   3. HR
F. Work with the HR in the modification of the injured worker's normal job when possible.
G. Work with the HR in the identification of temporary alternative duty positions.
H. Monitor injured worker's progress until full release is obtained.
I. Evaluate the possibility of permanent modified positions when necessary.

Ongoing Communication/Follow-Up

Injured workers with extended lost time injuries should be contacted weekly or twice monthly by the safety manager or the HR through coordinated efforts. This can help Lauth stay in touch with the injured worker's medical progress and ensure that any questions or issues are addressed promptly.

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ASSIGNMENT OF RESPONSIBILITIES

Injured Worker

The assigned responsibilities for the injured worker of Lauth for the workers' compensation Return-to-Work Program benefits are as follows:

A. Report all injuries at first awareness to:
   1. Immediate Supervisor
   2. Regional Safety Manager if supervisor is not available
B. Cooperate with initial medical treatment:
C. First Aid
D. Medical Provider
E. Timely respond and cooperate with oral and written contacts with:
F. Employer
G. Medical Provider
H. Claim Department
I. Communicate with supervisor and/or Regional Safety Manager with updated medical information, including work restrictions
J. Actively participate in ongoing medical treatment:
K. Keep Medical Provider appointments
L. Cooperate with physical therapy
M. Follow instructions on any medication
N. Return to work to a transitional task position when available and offered.
O. Return to work to a temporary alternative duty position when available and offered.
P. Return to work to a normal job when available and offered upon full duty release.

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MEDICAL PROVIDER

Selection

Lauth will follow each State's mandated provisions for the selection of a medical facility. Depending on the jurisdiction, this may include participation in a Preferred Provider Organization, Managed Care Organization, Managed Health Care System or a Certified Workplace Medical Plan.

Use of specific, pre-selected medical facilities will be coordinated between Lauth's Supervisors and Safety Managers at the project level and the insurance carrier's claim representative. It should be noted that some states dictate that either the employer or employee may have the initial choice of physician. Additionally, a change of treating physician or medical group will be allowed pursuant to each state's applicable laws.

It is critical that the approved medical facilities be utilized due to the fact that they are capable of addressing workers' compensation injuries and able to produce the appropriate medical reports that support an injured workers' release to transitional work.

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JOB DESCRIPTIONS

Developing job descriptions is an essential component of the Return-to-Work Program. They must be completed for each job class. A directory of job descriptions should be compiled for easy access once an injury occurs. Descriptions can later be personalized to the individual employee who is injured. The attached Task Analysis form is designed for this process.

When an employee is injured, a copy of his or her job description should be sent to the treating physician immediately. This will help the physician understand the physical demands of the job and whether or not the employee can return to work in a full or modified duty position. Job descriptions will also help the physician determine the suitability of alternative duty that may allow the injured worker to return with temporary restrictions.

Generic job descriptions are on file with the HR Manager for many positions.

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TRANSITIONAL TASK POSITIONS

Transitional task modifications will be made when practical to the injured worker's normal job, taking into consideration his/her medical limitations.

There are circumstances that make it impractical to modify the injured employees' normal job. Transitional task alternative job positions, that will accommodate current physical restrictions, will then be offered if available.

Modified Job Positions

A. Review Task Analysis Report (Exhibit - 4) for normal job activities.
B. Review Task Restrictions Physician Report (Exhibit - 5) for restrictions and physical limitations.
C. Evaluate the feasibility of making the changes permanent and applying them to similar jobs if practical and of benefit.

Alternative Job Positions

A. Develop a list of productive activities from the following examples and add others to it:
    1. Unfinished projects
    2. Special surveys
    3. Needed research
    4. Regulatory compliance issues
    5. Support activities that free-up management resources

These transitional work assignments will be reviewed after each doctor visit.

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TASK ANALYSIS REPORT

COMPANY: **Lauth Group, Inc.**							DEPARTMENT:	
EMPLOYEE:							JOB TITLE:	
REQUIREMENTS POSITION/MOVEMENTS	NUMBER OF HOURS PER DAY							
	1	2	3	4	5	6	7	8+
A. SIT								
B. STAND								
C. WALK								
D. BEND/STOOP								
E. SQUAT								
F. CRAWL								
G. CLIMB								
H. REACH ABOVE SHOULDER LEVEL								
I. KNEEL								
J. BALANCING								
K. PUSHING/PULLING								

WEIGHT LIFTED	NOT AT ALL	1-2 HOURS	3-4 HOURS	5-6 HOURS	7+ HOURS
A. UP TO 10 LBS.					
B. 11 TO 25 LBS.					
C. 26 TO 50 LBS.					

REPETITIVE FOOT MOVEMENTS	NOT AT ALL	1-2 HOURS	3-4 HOURS	5-6 HOURS	7+ HOURS
A. RIGHT ONLY					
B. LEFT ONLY					
C. BOTH					

HANDS USED FOR REPETITIVE ACTION SUCH AS:	NOT AT ALL	1-2 HOURS	3-4 HOURS	5-6 HOURS	7+ HOURS
RT: SIMPLE/LIGHT GRASPING					
LT: SIMPLE/LIGHT GRASPING					
RT: FIRM/STRONG GRASPING					
LT: FIRM/STRONG GRASPING					
RT: FINE DEXTERITY					
LT: FINE DEXTERITY					

SUPERVISOR SIGNATURE:
EMPLOYEE SIGNATURE:
DATE:

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TASK RESTRICTIONS PHYSICIAN REPORT

COMPANY: **Lauth Group, Inc.**	DEPARTMENT:
EMPLOYEE:	JOB TITLE:

RESTRICTIONS POSITION/MOVEMENTS	NUMBER OF HOURS PER DAY							
	1	2	3	4	5	6	7	8+
A. SIT								
B. STAND								
C. WALK								
D. BEND/STOOP								
E. SQUAT								
F. CRAWL								
G. CLIMB								
H. REACH ABOVE SHOULDER LEVEL								
I. KNEEL								
J. BALANCING								
K. PUSHING/PULLING								

WEIGHT LIFTED	NOT AT ALL	1-2 HOURS	3-4 HOURS	5-6 HOURS	7+ HOURS
A. UP TO 10 LBS.					
B. 11 TO 25 LBS.					
C. 26 TO 50 LBS.					

REPETITIVE FOOT MOVEMENTS	NOT AT ALL	1-2 HOURS	3-4 HOURS	5-6 HOURS	7+ HOURS
A. RIGHT ONLY					
B. LEFT ONLY					
C. BOTH					

HANDS USED FOR REPETITIVE ACTION SUCH AS:	NOT AT ALL	1-2 HOURS	3-4 HOURS	5-6 HOURS	7+ HOURS
RT: SIMPLE/LIGHT GRASPING					
LT: SIMPLE/LIGHT GRASPING					
RT: FIRM/STRONG GRASPING					
LT: FIRM/STRONG GRASPING					
RT: FINE DEXTERITY					
LT: FINE DEXTERITY					

TREATING FACILITY:
PHYSICIAN'S NAME AND SIGNATURE:
DATE:
NOTE: ATTACH TO MEDICAL RELEASE FORM.

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SAMPLE JOB ASSIGNMENT AGREEMENT

(For injured workers who have been off work for a limited number of lost-work days and have been released with restrictions)

Dr._____ Has released me to Modified or Alternative Duty with the following restrictions:

_____

_____

_____.

(Next appointment:_____ _____)
Date Time

The duration of these restrictions will be:

Date:_____ through Date:_____
Hours:_____
Break Times:_____

I will be reporting to the following individual for the duration of these restrictions:

I agree to work within these restrictions. I will not violate the restrictions as I understand them. I will cooperate with my supervisor[s] and co-workers to help prevent re-injury or aggravation of my present physical condition.

_____ _____
Employee Signature Employee Print

_____ _____
Supervisor Signature Supervisor Print

_____ _____
Manager Signature Effective Date

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DESCRIPTION OF EMPLOYEE'S JOB DUTIES

INSTRUCTIONS: This form shall be developed jointly by the employer and employee and is intended to describe the employee's job duties. The completed form will be reviewed by the treating doctor to determine whether the employee is able to return to his/her job. This is an important document and should accurately show the requirements of the employee's job.

EMPLOYEE NAME: (LAST)	(FIRST)	(M.I.)	CLAIM #
EMPLOYER NAME:	JOB ADDRESS:		
JOB TITLE:	HRS. WORKED PER DAY:	HRS. WORKED PER WEEK:	
DESCRIPTION OF JOB DUTIES: (DESCRIBE ALL JOB DUTIES)			

1. Check the frequency of activity required of the employee to perform the job.

ACTIVITY (Hours per day)	NEVER 0 hours	OCCASIONALLY Up to 3 hours	FREQUENTLY 3 0 6 hours	CONSTANTLY 6 – 8+ hours
Sitting				
Walking				
Standing				
Bending (neck)				
Bending (waist)				
Squatting				
Climbing				
Kneeling				
Crawling				
Twisting (neck)				
Twisting (waist)				
Hand use: Dominant hand Right____ Left____				
Is repetitive use of hand required?				
Simple grasping (right hand)				
Simple grasping (left hand)				
Power grasping (right hand)				
Power grasping (left hand)				
Fine manipulation (right hand)				
Fine manipulation (left hand)				
Pushing & pulling (right hand)				
Pushing & pulling (left hand)				
Reaching (above shoulder level)				
Reaching (below shoulder level)				

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DESCRIPTION OF EMPLOYEE'S JOB DUTIES (Cont'd)

2. Please indicate the daily lifting and carrying requirements of the job: Indicate the height the object is lifted from the floor, table or overhead location and the distance the object is carried.

	LIFTING					CARRYING				
	Never 0 hrs	Occasionally Up to 3 hrs.	Frequently 3 – 6 hrs.	Constantly 6 – 8+ hrs.	Height	Never 0 hrs	Occasionally Up to 3 hrs.	Frequently 3 – 6 hrs.	Constantly 6 – 8+ hrs.	Distance
0 – 10 lbs.										
11-25 lbs.										
26-50 lbs.										
51-75 lbs.										
76-100 lbs.										
100+ lbs.										

Describe the heaviest item to carry and the distance to be carried: _____

3. Please indicate if the job requires	YES	NO	(IF YES, PLEASE BRIEFLY DESCRIBE)
a. Driving cars, trucks, forklifts, and other equipment?			
b. Working around equipment and machinery?			
c. Walking on uneven ground?			
d. Exposure to excessive noise?			
e. Exposure to extremes in temperature, humidity, or wetness?			
f. Exposure to dust, gas, fumes, or chemicals?			
g. Working at heights?			
h. Operation of foot controls or repetitive foot motion?			
i. Use of special visual or auditory protective equipment?			
j. Working with biohazards such as: blood pathogens, sewage, hospital waste, etc.			

Employee Comments:	
Employer Comments:	
EMPLOYER CONTACT NAME:	EMPLOYER CONTACT TITLE:
EMPLOYER REPRESENTATIVE SIGNTURE:	DATE:
EMPLOYEE'S SIGNATURE:	DATE:

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SECTION 31
Hearing Conservation Plan

All Subcontractors are required to follow OSHA construction industry regulations as outlined in 29CFR1926.52 – Subpart D (Occupational Health and Environmental Controls). Where Lauth, Subcontractor, or state/local requirements are more stringent, those requirements shall apply.

1.0 PURPOSE

1.1 This procedure establishes the methods for providing adequate hearing protection.

2.0 APPLICABILITY

2.1 This procedure applies to Lauth employees engaged in work at Lauth client locations and Lauth subcontractors who do not maintain a procedure identifying hearing protection.

3.0 INTRODUCTION

3.1 Noise exposures at client locations may originate from one or more of the following sources:

a. Station equipment noise (fans, compressors, gear sets, etc.).
b. Process flow noise (steam pressure reducing valve, etc.).
c. Work activity by station personnel or other contractors.
d. Lauth work activity. This may include equipment and tools in use as part of the work activity.

4.0 REFERENCES

4.1 OSHA 29CFR1910.95 – Occupational Noise Exposure

4.2 OSHA 29CFR1926.52 – Occupational Noise Exposure

4.3 OSHA 29CFR1926.101 – Hearing Protection

5.0 DEFINITIONS

5.1 Attenuation – The average reduction in sound pressure level measured in decibels, usually obtained by the use of engineering controls, distance or hearing protectors (earplugs, earcaps or ear muffs). The attenuation provided by hearing protectors is given by an index called the Noise Reduction Rating.

5.2 Decibel (dB) – A unit used to represent the relative magnitude of sound. A level of zero (0) dB is the weakest sound that can be heard by a person with good hearing. The decibel scale is logarithmic, increasing by six (6) for every doubling of sound pressure.

5.3 Noise Reduction Rating (NRR) – See attenuation.

5.4 Permissible Noise Exposure (PNE) – The sound level, in decibels, in an employee's immediate work area that shall not be exceeded. Reference sections 7.1 and 7.2 of this procedure.

6.0 RESPONSIBILITIES

6.1 The Regional Safety Manager shall maintain this procedure in compliance with Federal, Local and client occupational safety and health requirements. S/He shall assist, as required, in specifying noise control exposure methods and in obtaining hearing protection equipment and training for employees.

6.2 The Site Superintendent shall ensure that the requirements of this procedure are enforced.

6.3 The Site Safety Engineer shall work closely with the Superintendents to implement this procedure and maintain contact with the client and other contractors on noise control measures.

6.4 The Lauth Superintendents and Subcontractor Foremen shall:

a. Review work to be performed and ensure that the required noise exposure controls have been evaluated and requirements identified prior to commencing work.
b. Ensure that employees are wearing the required personal protective equipment.
c. Maintain safe work conditions for employees, at all times.
d. Notify and maintain a list of date worked, name, social security number and craft of employees who have been advised of a high noise level (above Action Levels) in their work area and provided the use of hearing protectors.

6.5 Lauth Employees and subcontractor employees shall:

a. Use the provided hearing protectors in accordance with the instructions and training received.
b. Return hearing protectors that are not performing properly to their immediate supervisor and obtain a replacement.
c. Inspect hearing protectors before and after each use.
d. Perform field fit tests after donning the hearing protectors.
e. Clean the protector and store in a clean, protected location after each use.

7.0 NOISE EXPOSURE CONTROL

7.1 The use of engineering controls, work practices or administrative controls to reduce noise levels to an acceptable level shall be the primary focus and shall be implemented whenever practical.

When these measures are not able to reduce sound levels to acceptable limits, hearing protectors shall be furnished to employees.

7.2 Permissible Noise Exposure, in decibels, for various working hours per day is identified in Attachment 1. The equivalent exposure for ten (10) hours is 88 dB and for twelve (12)

hours is 87 dB. Attachment 1 also provides a method for computing the combined effect of working in different sound levels during the day.

7.3 Whenever possible, the Lauth Superintendent and Subcontractor Foremen shall evaluate the work to be performed and its potential for noise prior to the start of activity. The Craft Supervisor shall consider and utilize engineering or administrative controls if the work activity is expected to exceed the Permissible Noise Exposure.

a. Engineering control examples include the use of tools and equipment that generate less noise or temporary fastening or blanketing of the work-piece to reduce the noise it creates.

b. If the work activity is a relatively short-term requirement, rotating the work assignment or otherwise limiting the noise exposure per day to each individual may be an effective administrative control.

7.4 If the Lauth Superintendent believes the sound level may be exceeding 90 dB and engineering or administrative controls are not feasible, he/she shall request a sound level survey of the work area. The survey and a report should be requested from the activity (client, other contractor or LAUTH) creating the noise.

8.0 SOUND LEVEL SURVEY

8.1 This survey is taken with a sound level meter. The sound level meter measures the intensity of sound only at a given moment at that specific location. To obtain a realistic picture of the noise exposure of an employee, a "map" of the work area should be sketched. The "map" should indicate the noise source, the work activity and the employee(s) location or range of locations. The readings shall be measured on the "A" scale of the meter, at slow response.

8.2 The survey should be made by taking several measurements at different locations within the work area, with more measurements taken in the locations where the employee spends the most time. The survey must be made when the noise source is active, whether it is generated by the work activity or some other source.

8.3 The readings should be recorded on the "map". If necessary, take repeat readings at different times. By reviewing the range of readings and the expected employee positions, an estimate of individual exposure levels can be developed.

8.4 If the work area is isolated and concentrated (for example, inside a small tank) only two (2) readings are required. The second reading is to avoid a reading/measurement error.

8.5 If the estimated exposure levels, from section 8.3, or the spot readings from section 8.4 exceed the values shown on Attachment 1, then hearing protection is required for employees working in that area.

8.6 All test results are to be made available to all affected/potentially affected employees.

8.7 When the work activity is in progress, signs shall be posted at the access points to that area. Signs shall read:

CAUTION
HEARING PROTECTION
REQUIRED
BEYOND THIS POINT

9.0 HEARING PROTECTOR CLASSIFICATION/SELECTION

9.1 Hearing protectors issued to employees must have an NRR shown on the hearing protector package.

9.2 Hearing protectors with NRR's are available in three (3) different types:

a. Earmuffs – Earmuffs fit around the outer ear. Note that earmuffs with conventional headbands are not compatible with standard hardhats. The earmuffs may also interfere with eyeglasses.

b. Earplugs – Earplugs are made of soft, pliable material that fits into and seals the ear canal.

c. Ear Caps – Ear Caps are also made of soft material, but they fit over or partially insert into the ear canal. They are held in place with a lightweight band that is worn under the chin or behind the neck. The designs that fit over the ear canal have lower NRR's than the insert models and they are likely to shift in position from abrupt movement.

9.3 Selection by Type – The earplugs or ear caps are preferred, as they create no interference with hardhats or eyeglasses. Earplugs should be obtained with an attached cord as their use or nonuse is more easily observed. Earmuffs may be necessary for special situations such as an employee with an ear canal condition that prevents use of the earplugs.

9.4 Selection by NRR – To determine the acceptability of a hearing protector, subtract seven (7) from the NRR. Subtract the remainder from the estimated exposure level or spot reading (from section 8.5). The resulting sound level must be less than the values shown on Attachment 1.

10.0 HEARING PROTECTOR USE

10.1 Earplugs – In order to avoid the introduction of dirt into the ear canal, employees shall insert earplugs with clean hands. Earplugs are best inserted by pulling up and out on the top of the ear with the hand opposite the ear and inserting the earplug with the other hand. Earplugs must fit snugly into the ear canal to provide full attenuation. Talking and chewing may result in a loosening of the earplug fit, so the fit should be checked throughout the day. Disposable earplugs shall be discarded after each use.

10.2 Ear Caps – Ear caps of the semi-insert type are used in a manner similar to earplugs.

10.3 Earmuffs – When provided for special situations, the employee shall keep his/her hearing protector clean and in good condition. Oil from the skin will eventually cause deterioration of cushion materials. For prolonged cushion life and for hygiene reasons, earmuffs shall be frequently disassembled and washed according to the manufacturer's instructions. Objects such as hair, pencils stored behind the ear and eyeglass temple bars which intrude between the earmuff cushion and the skin reduce the attenuation provided and should be avoided or repositioned where possible.

Care should be taken to remove objects from around the ear before earmuffs are put on and to use the smallest eyeglass temple bars possible. Under no circumstances should the recommended eye, head and face protection be removed to facilitate the use of earmuffs. Employees shall not deform or reshape earmuff headbands or make any modification to hearing protectors. Earmuffs should not be placed over hardhats. Replacement parts and units shall be provided by the company, as necessary.

11.0 TRAINING

11.1 Employees shall be advised by their foreman of the effect of high noise levels on hearing, the importance of observing areas posted for high noise and the availability of noise protectors when they are initially assigned to work task.

11.2 Prior to working in an area posted for high noise, noise protectors shall be distributed and employees shall receive training on their use, fitting and care.

11.3 All employees exposed at or above 8 hour TWA to noise above 85 dbA must receive annual training and must receive an audiometric baseline within 6 months of exposure.

11.4 All audiometric testing shall be performed by a licensed or certified audiologist, otolaryngologist, or physician.

12.0 RECORDS

12.1 The following records shall be maintained for the indicated periods:

RECORD	SP REFERENCE	PERIOD
A. High noise level work activity	6.4(d)	Job life + 1 year
B. Sound level survey maps	8.3	Job life
C. Isolated work area sound level	8.4	Job life
D. Employee high noise assignment training (included on Record A)	11.2	Job life + 1 year
E. Supervisor training	11.3	Job life

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SECTION 32.1
EMERGENCY PHONE NUMBER LIST TEMPLATE

EMERGENCY NUMBERS	
FIRE/MEDICAL/POLICE/SHERIFF **911**	
HOSPITAL OR CLINIC NON-EMERGENCY PHONE NUMBER:	
FIRE DEPARTMENT NON-EMERGENCY PHONE NUMBER:	
POLICE DEPARTMENT NON-EMERGENCY PHONE NUMBER:	
JOBSITE LOCATION	
JOBSITE NAME:	
STREET ADDRESS:	
CITY:	
DESIGN-BUILDER:	
SUPERINTENDENT NAME:	
SUPERINTENDENT PHONE:	
OTHER NUMBERS	
UTILITIES LOCATOR:	
IN ACCORDANCE WITH OSHA REG. 1926.50, POST IN A CONSPICUOUS LOCATION	

SECTION 32.2
EMERGENCY PROCEDURE CHECKLIST

PROJECT: _____

PROJECT ADDRESS: _____

SUPERINTENDENT: _____

PROJECT MANAGER: _____

- ❒ Call 911
- ❒ First Aid trained individuals to administer on-site First Aid and CPR if necessary
- ❒ Secure accident site; make safe from imminent danger
- ❒ Invoke site reaction plan
- ❒ Call Construction leaders/corporate response team:
  - Matt Childress, Senior VP, Operations: 317-430-7588
  - Ron Baker, Safety Coordinator: 317-501-5475
  - Robin Cornelius, Shepherd Insurance: 317-573-3024
- ❒ When instructed call company(s) involved in the accident
- ❒ Lauth Superintendent and /or Lauth Safety Consultant to call OSHA in severe or fatal accidents
- ❒ Take digital photographs and document accident site including what happened and how
- ❒ The supervisor of the injured individual should ride in the ambulance with the victim to the hospital
- ❒ If possible and where it does not impede necessary care to the injured individual, immediately have drug tests done upon arrival to hospital
- ❒ Acquire results of drug test
- ❒ Document incident findings from accident witnesses. Use:
  1. Incident Investigation Form
  2. Injured Workers Statement
  3. Lauth Construction Supervisors Statement
  4. Vehicle Accident Report

SECTION 32.3
OSHA INSPECTION PROCEDURE

Occasional OSHA inspections may occur on jobsites. OSHA may cite violations if they determine an unsafe condition exists. The following are suggestions for demonstrating compliance and minimizing the risk for receiving citations.

A. Superintendent will engage and manage the OSHA Compliance Safety and Health Officer (CSHO) while on-site. At no time should the CSHO be left alone. The Superintendent will accompany the CSHO on all inspections. The following are specific items to consider regarding an inspection:

1. The Superintendent should ask the reason for the inspection to determine if it is a general scheduled visit; the result of an employee complaint; a referral or media attention.
2. It there was an employee complain, ask whether it was formal (written and signed) or informal (via phone). Ask for copies of any complaints and the applicable standard.
3. The CSHO will initiate an inspection by presenting credentials. Review the credentials and ask for a business card.
4. Superintendent will notify the Safety Coordinator/Safety Consultant, General Superintendent/Field Coordinator and Project Manager when an inspector arrives. If the Safety Coordinator/Safety Consultant is in close proximity to the jobsite, ask that the inspection be delayed until the Safety Coordinator/Safety Consultant arrives at the job. Be polite with your request; it will usually be honored.
5. If there is a wait time, provide the CSHO with the Lauth Construction Safety Manual, Weekly Toolbox Talks for Lauth Construction and Subcontractors, training records, inspection records and any other written programs.
6. All inspections begin with an opening conference. The objective is to provide all involved employers with an explanation of the scope and purpose of the inspection as well as of how the inspection with be conducted.
7. An inspection may be limited to a specific incident or area and the CSHO should not be allowed to exceed the scope of the specific inspection. The following are examples of how inspections should be limited:
    a. Inspections based on alleged Imminent Danger and Complaint Inspections should at a maximum be limited to the area of the alleged condition.
    b. Inspections based on Fatality and Accident Investigation should be limited to the area of the accident.

c. Inspections based on Referral Inspections should be limited to only the specific items questioned in the original inspection.
d. Inspections based on Special Emphasis Programs (i.e. Trenching, Silica Dust, Asbestos, etc.) should be limited to the areas covered by the program.

8. The Superintendent will contact and invite every Subcontractor on-site to the Opening Conference. The Subcontractor must send a competent person to the meeting. The CSHO will obtain information from each subcontractor to fill out the inspection report. Typical information gathered is as follows:
    a. Establishment name and address
    b. Number of employees
    c. Accident and illness information
    d. Names of employees and employee representatives
9. Don't volunteer information, engage in long talks with an inspector or admit to a violation.
10. Don't ask if something is or isn't in compliance.
11. Point out safety measures instituted and at the jobsite.
12. If the inspection resulted from an employee complaint, the CSHO will provide a copy of the complaint at the opening conference. The inspection must be limited to the scope of the complaint. The CSHO, however, will reserve the right to observe and issue a citation for any alleged violations "in plain view" on the way to and from the complaint area.
13. The Superintendent should carry a notebook, pen and camera during the inspection and should take detailed notes of questions asked, comments made, areas inspected and the discussions about each location and possible violations.
14. The Superintendent should take the same photographs at the CSHO takes from the same angle at the same time. After the inspection, the Superintendent should consider taking additional photos from different vantage points and wide angle photos that show adjacent safe conditions.
15. Keep jobsites clean. An inspector may issue a citation for allowing workers to work in unsafe conditions caused by poor housekeeping.
16. Don't admit the existence of a violation when answering an inspector's questions. If work is not being conducted in some areas of a site, inform the CSHO that the areas are inactive. Don't volunteer to expand the scope of the inspection and don't volunteer extra information. Anything said could help to prove a violation or could trigger something else OSHA might otherwise have ignored. It is okay to decline answering any question. Unless the CSHO

presents a specific warrant, it is not required to start any machinery or demonstrate any process.

17. If any clear violations are noted by the CSHO during the course of the walk around, it is a good policy to begin correcting the violations immediately if it is reasonably possible. Be careful not to admit any fault in the process of taking any corrective actions.
18. An inspector may speak to employees at the jobsite about working conditions. Employees have a right to decline to be interviewed; request the presence of a third-party witness; or refuse to give a statement.
19. An authorized representative of a Subcontractor should be present during an inspection of their work.
20. Do not argue with the CSHO about anything the CSHO feels is a violation. If appropriate, politely disagree with an interpretation and politely explain the point of view to the CSHO.
21. When the inspection is completed, OSHA will hold a closing conference. At this conference, the CSHO will inform all attendees of all apparent violations that were found during the inspection.
22. Immediately after the inspection, begin documenting the point of view in regard to any alleged violations. Take additional pictures from different angles and get written statements from employees. Every employee who was interviewed by OSHA should be re-interviewed after the inspection.
23. Expect a follow-up inspection if there is a serious, repeat, failure to abate or willful citation. The CSHO may state there will be a referral to another CSHO to check on possible violations outside of the CSHO's normal expertise.
24. If a citation is issued, it must be posted on the job site conspicuously for employees to see for a period of three days or until the alleged violation is corrected, whichever is longer.
25. An informal conference may be requested after a citation is issued. The primary purpose of the informal conference is for OSHA to provide an explanation of each citation.
26. If the CSHO presents a document that requires a signature, send the document to Lauth Construction legal counsel for review prior to signing.
27. Always keep a copy of any documents received from the CSHO.
28. An employer is required to call OSHA within an 8 hour work shift if an accident results in the death of one (1) employee or hospitalization of three (3) or more employees.

The OSHA Inspection Form in Section 32 of this manual shall be completed by the Superintendent immediately after the inspection. The OSHA Inspection Form and all related photos and interviews

should be forwarded to the Safety Consultant, Ron Baker, project manager, and Matt Childress within 24 hours after the inspection.

SECTION 32.4
OSHA INSPECTION FORM

OFFICE LOCATION		
Job Name & Address:	**Job Number:**	**Date of Inspection:**
Supervisor:	**Project Manager:**	**Time (am/pm):**

PRE-INSPECTION	
Did inspector show his/her credentials? (yes/no) **Comments:**	**COLLECT & ATTACH BUSINESS CARD**
Name of OSHA inspector(s) and their area office:	**What was the reason for the inspection? (employee complaint – scheduled – other (explain))**
Did OSHA review the Lauth Construction Safety Manual? (yes/no)	**Did OSHA review project meeting documents? (yes/no)**
Did OSHA review Subcontractor safety policies? (yes/no)	**Did OSHA review other safety documents? (yes/no)**
Did OSHA review Form 300? (yes/no)	**Other:**

OPENING CONFERENCE
Was an opening conference held? (yes/no) Briefly document what was discussed during the opening conference.
Provide names of subcontractor representatives who attended the opening conference. (or attach list)

INSPECTION TOUR	
Who from Lauth Construction accompanied the OSHA inspector?	
Who else joined the OSHA inspection group? (Subcontractor names, etc.)	
Did the OSHA inspector take any photographs? (yes/no)	**Did Lauth Construction take the same photographs? (yes/no)**
Were safety hazards and unsafe acts observed? (yes/no) If yes, describe the acts. (attach additional sheets if necessary)	**Was immediate corrective action taken? (yes/no) If no, provide reason why. If yes, what actions were taken? (attach additional sheets if necessary)**

Special comments regarding the inspection:

CLOSING CONFERENCE	
Did OSHA hold a closing conference with Lauth Construction? (yes/no)	**With other Subcontractors? (yes/no)**
Provide names of subcontractor representatives who attended the closing conference: (or attach list)	
What alleged OSHA violations were discussed and with whom were they discussed? (or attach list)	
List any statements made during the closing conference:	
Note: At the Closing Conference, it is very important to establish which citations rightfully belong to Lauth Construction and which citations belong to Subcontractors.	

Report completed by (print name):	**Title:**	**Phone number:**
Signature:		**Date:**

This form must be completed in full and sent to the Project Manager, Ron Baker, Safety Consultant and Matt Childress within 24 hours of inspection and must be signed by the Superintendent.

SECTION 32.5
INCIDENT INVESTIGATION

Report Prepared By: _____ Phone Number: _____

Date of Report: _____ ☐ Contacted Safety Coordinator/Safety Consultant

PROJECT INFORMATION

Jobsite Name: _____ Job Number: _____
Address: _____
Contractor: _____ Contractor Superintendent(s): _____
Contractor Foreman: _____ Lauth Superintendent(s): _____
Lauth Safety Coordinator/Consultant: _____

EMPLOYEE / INCIDENT INFORMATION

Employee Name: _____ SS#: ___ - ___ - ____ DOB: ___/___/___
Address: _____
Phone Number: (___) _____
Date of Hire: ___/___/___ Job Title: _____ Wage $_____ per hour
Years in Occupation: _____ Shift Start Time: _____ am pm End Time: _____ am pm
Exact location of incident (Bldg / Level / Area): _____
General activity at time of incident (i.e., Concrete): _____
Specific task at time of incident (i.e., Finishing): _____

INJURY / ILLNESS INFORMATION:

Date of Incident: ___/___/___ Day of Week: _____ Time of Incident: _____ am pm
Date reported to LPG: _____ to whom at LPG? _____
Type of Injury: _____ Part of body injured: _____
Was first aid given onsite: ☐ Yes ☐ No If Yes, by whom? _____
Was employee taken to a medical facility offsite? ☐ Yes ☐ No Date: ___/___/___
Treating Facility and Phone Number: _____ (___) _____
Transported by: ☐ Ambulance ☐ Company Vehicle ☐ Private Vehicle Name of Driver: _____
Employee returned to: ☐ Regular Work ☐ Modified Work
If not, estimated return date: ___/___/___
Working on a Crew? ☐ Yes ☐ No If yes, Crew size: _____
Employee's Supervisor: _____
Was a pretask plan made for the work being performed at the time of the incident? ☐ Yes ☐ No
If yes, Attach.

Incident Designation

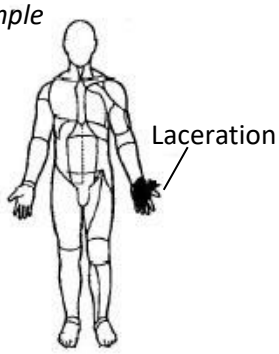
☐ Valid Claim ☐ Suspicious Claim ☐ Unknown Claim (Completely unaware of the incident)
Reasons why this is a suspicious claim: _____
☐ First Aid Incident ☐ Recordable Incident ☐ Lost Time Incident

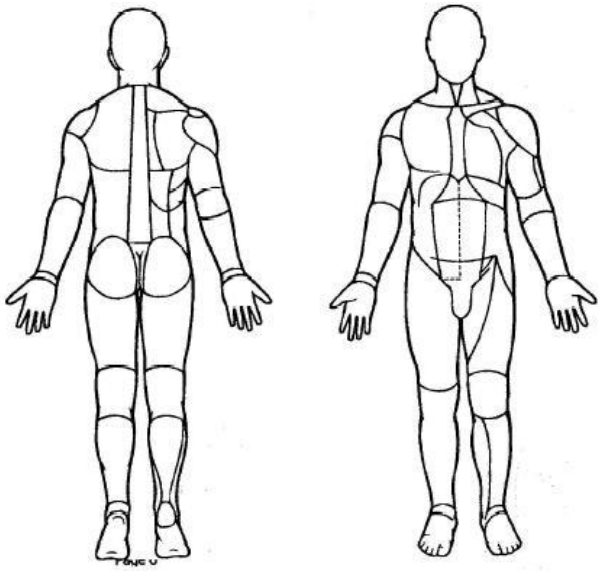
DESCRIPTION OF THE INCIDENT (NOT TO BE COMPLETED BY THE INJURED WORKER):

Describe in detail the circumstances of the incident (attach diagrams, drawings and/or photos of accident scene). Give a chronological sequence of events. If materials and/or equipment were involved, start before the materials/equipment were brought to the incident scene describing who, what, where, when, how: **Note: This does not take the place of a witness statement.**

Please indicate the location of all incurred injuries and describe the type of injury. For example, for a laceration to the right palm – shade the right hand palm and write laceration next to it connected by a line.

Example





ADDITIONAL INFORMATION

Name of witnesses and others working with injured worker (attach witness statements): _____

Object, substance, equipment involved in incident (desc/model/serial #): _____

List PPE worn at time of incident: _____
Safety equipment, PPE and training required for job: _____

Does employee normally operate this equipment?: ☐ Yes ☐ No
Was employee instructed in the safe use of this equipment?: ☐ Yes ☐ No
When/How? (Describe in detail below and attach copies of equipment certifications: _____

Was any defect with the equipment noted or reported prior to accident/incident? ☐ Yes ☐ No
Was any recent maintenance/service performed on this equipment?: ☐ Yes ☐ No
If yes, when/what – Describe in detail below and attach copies of invoices/work order: _____

Was standard work procedures followed? ☐ Yes ☐ No
If no, why not -- Describe in detail below, attach additional sheets if necessary & attach a copy of the rule/regulation:

When/How was this rule, regulation or specific instruction communicated to the injured worker(s)?: _____

When was the last safety meeting conducted?: _____
When was the last jobsite audit conducted?: _____

Attach copies of last safety meeting agenda with sign-in sheet and last jobsite audit, including corrective actions.

SIGNATURES OF INJURED WORKERS:

Signature	Signature
Printed Name	Printed Name
Date	Date
Signature	Signature
Printed Name	Printed Name
Date	Date

SECTION 32.6
INJURED WORKER'S STATEMENT

I _____ am submitting this statement made on _____
(Employee/Witness Name) (Date)
to _____ for Lauth Construction. I am submitting this statement of my own free will. I have
(Name)
not been coerced or threatened in any way to submit this statement.

Consider the following items in your statement and write them in the area provided below:

- What happened? Tell a story.
- Where were you when the incident took place?
- What activity was being performed prior to the incident/event?
- What do you believe happened?
- Any other information or details.

Date & Time of Accident: _____ Name of Other Person's Injured: _____
Statement: _____

_____
_____
_____
_____
_____
_____
_____
_____

If you were injured in the incident, have you ever injured this body part before? ☐ Yes ☐ No

I, _____, permit Lauth Construction, and it's agents to perform investigations, interviews, and any other activities necessary to process my claim. This authorization includes, but is not limited to: reviewing, requesting, and copying past and present medical and employment records to process my current Worker's Compensation claim.

Employee/Witness Signature: _____

Employee/Witness initials that they have received a copy of this statement: _____

Today's Date: _____

Employer: _____

Home Address: _____

_____

Foreman:	_____	_____
	Print Name	Signature
Safety Coordinator/Consultant:	_____	_____
	Print Name	Signature
Superintendent:	_____	_____
	Print Name	Signature

SECTION 32.7
SUPERVISOR STATEMENT

I _____ am submitting this statement made on _____
(Employee/Witness Name) (Date)

to _____ for Lauth Construction. I am submitting this statement of my own free will. I
(Name)

have not been coerced or threatened in any way to submit this statement.

Consider the following items in your statement and write them in the area provided below:

- What happened? Tell a story.
- Where were you when the incident took place?
- What activity was being performed prior to the incident/event?
- What do you believe happened?
- Any other information or details.

Date & Time of Accident: _____

Statement: _____

Employee/Witness Signature: _____

Employee/Witness initials that they have received a copy of this statement: _____

Today's Date: _____

Employer: _____

Home Address: _____

_____

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SECTION 32.8
VEHICLE ACCIDENT REPORT

Mail to: Robin Cornelius
Shepherd Insurance
111 Congressional Blvd., Suite 100
Carmel, IN 46032

P 317.573-3024
F 317.846.5444
E rcornelius@shepherdins.com

Insured: Lauth Construction Insurance Company Policy No.: _____
Person Making Report: _____ Telephone #: (___) _____
Project Name: _____ Project Number: _____

VEHICLE A (YOUR VEHICLE)

License No.: _____ DOB: __/__/____ Telephone No. (___) _____
Address: _____ City/State/Zip: _____
Make: _____ Year: _____ Type: _____
Plate No.: _____ VIN No.: _____
Owner of Vehicle: _____ Damage: _____

VEHICLE B (OTHER VEHICLE)

License No.: _____ DOB: __/__/____ Telephone No. (___) _____
Address: _____ City/State/Zip: _____
Make: _____ Year: _____ Type: _____
Plate No.: _____ VIN No.: _____
Owner of Vehicle: _____ Damage: _____

INJURIES

Were you injured? ☐ Yes ☐ No Was anyone else injured? ☐ Yes ☐ No

If so, answer the following:
Name: _____ Address: _____ Telephone No.: (___) _____
Describe injuries: _____
Medical treatment required: ☐ Yes ☐ No

Name: _____ Address: _____ Telephone No.: (___) _____
Describe injuries: _____
Medical treatment required: ☐ Yes ☐ No

FACTS OF ACCIDENT

Date of Accident: __/__/____ Time: _____ am pm
Location: _____ City/State: _____

Direction Car A was traveling? _____ What Street? _____ Speed: _____
Direction Car B was traveling? _____ What Street? _____ Speed: _____

Traffic violation: ☐ Yes ☐ No Which car? A B Explain: _____
Indication of intoxication? ☐ Yes ☐ No In which car? A B
Authority Contacted? ☐ Yes ☐ No What station/dept? _____ Case No.: _____
Citation Issued? ☐ Yes ☐ No To Whom? _____ Charges? ☐ Yes ☐ No
Weather Conditions: ☐ Raining ☐ Wet ☐ Dry ☐ Fog ☐ Snow ☐ Other

DRIVER'S DESCRIPTION OF ACCIDENT

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Please illustrate on this diagram how vehicles/witnesses/occupants accident occurred. Write in street names and, if possible, show northerly directions.

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SECTION 32.9
DAILY EXCAVATION INSPECTION

Location:	Date:	Time:
Weather Conditions:	Rainfall in last 24 hours? No ☐ Yes ☐	

Excavation/Trench Description (Check all that apply):

☐ Utility: ☐ Other:
Depth:_____ Width:_____ Length (excavation): _____ or ☐ digging and backfilling trench

Soils

Soil Type(s):

Classification Method (if other than type C):_____
Tested By (if other than type C):_____

Protective Systems (Check all that apply)

- ☐ Sloping per OSHA Appendix B
- ☐ Benching per OSHA Appendix B
- ☐ Trench Box per manufacturer specification
- ☐ Aluminum Hydraulic Shoring
- ☐ Sheeting per tabulated area
- ☐ Sloping per Registered Professional Engineer
- ☐ Benching per Registered Professional Engineer
- ☐ Manhole Box per manufacturer specifications
- ☐ Manufactured System (Type):
- ☐ Other

Utilities (Check all that apply)

- ☐ Locate completed and dig number valid
- ☐ Overhead Power lines in area
- ☐ Utilities have been stopped and located
- ☐ Hand dig utilities in trench/excavation
- ☐ Utilities supported, protected, shutdown
- ☐ Parallel utility trenches present
- ☐ Utility depths verified

Safety Procedures (Check all that apply)

- ☐ Obstructions supported
- ☐ Ladder used for access, 3’ above ground
- ☐ Bridge over trench used and maintained
- ☐ Equipment minimum of 10’ from power lines
- ☐ Barricades/signs
- ☐ Other hazards
- ☐ Surcharge loads do not exceed allowable limits
- ☐ Ramp used for access and maintained
- ☐ Backfilling progressing in timely manner
- ☐ Overhead power line signs in-place
- ☐ Vehicular traffic

Documentation covers additional inspections at the following times today:

Competent person completing inspection Print: Sign:

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SECTION 32.10
SCAFFOLD CHECKLIST

OFFICE LOCATION			
Job name and address:	**Job number:**	**Superintendent:**	
Date of inspection:	**Time of inspection: (am/pm)**	**Competent person's name:**	**Subcontractor name (if applicable):**
Location of scaffold:		**Type of scaffold:**	

GENERAL	Complete	Items to address	N/A
Was scaffolding constructed by a qualified person?			
Was scaffold constructed per manufacturer's instructions and does it meet the guidelines outlined in the OSHA standards?			
Are footings and anchors sound, rigid, and capable of carrying four times the maximum intended load without settling or displacement?			
Is scaffold setup on level ground with baseplates on mudsills, screw jacks, etc.?			
Are wheels for rolling scaffold locked?			
Are all connections pinned and fastened securely to prevent separation?			
Is scaffold tied off every 30' horizontally and 26' vertically or tied off if the height is more than four times the width of the base?			
Is cross bracing installed?			
Are scaffold planks free of splits, twists and bows?			
Are scaffold planks certified and stamped?			
Are planks overlapped no less than 6" and no more than 12"?			
Is the working surface of the scaffold fully planked?			
Are the planks secured to prevent slipping?			
Is the gap between planks less than 1" to prevent tools, etc. from falling through?			
Is the distance between the scaffold and working surface less than 14 inches? (if larger, scaffold must be removed closer to the work)			
Is the scaffold frame designed to be climbed and used for access? If not, ladders must be used to gain access. (masons frame is not designed to be climbed)			
If used as a ladder for access, is the maximum spacing between rungs 16-3/4"?			
Is the scaffold free of debris and material?			
Are all open sides and ends of platforms more than 6' above ground protected with top-rails, mid-rails and toe-boards?			
Are top-rails installed at 42" high (+/- 3") and mid-rails in place half way between work surface and top-rail?			
Are guardrails capable of withstanding 200 lbs. force anywhere along the top-rail?			
Are removable gates or removable guardrails in place at material access points?			
Suspended scaffolds – Are lifelines attached to structure and harnesses in use?			

COMMENTS