Site-Specific Safety Plan

Anchorage Museum Expansion

#15-423

Davis Constructors & Engineers, Inc.

November 2015
Safety Policy and Procedures

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1.0 Introduction

1.1 General Information
A Site-Specific Safety Plan is a requirement of the OSHA Standard for Construction 29 CFR 1926. This plan is designed to identify, evaluate, and control health and safety hazards for the purpose of protecting employees. The plan provides for emergency response activities at the jobsite as well as covering site hazard analysis, training requirements, engineering controls, materials handling, and safe construction operations.

This Site-Specific Plan is intended to provide guidance and information in dealing with the hazards that may be faced on the job by Davis Constructors & Engineers Inc. (Davis) employees. This plan is a site specific document. Technical, Contract and/or Operational Managers are responsible for ensuring all aspects of employee safety are addressed in this plan. Health and safety personnel are available to assist management with the contents of the plan. The health and safety personnel help ensure the plan complies with all applicable federal, state, and corporate regulations and policy. The Health and Safety Department has final authority for this plan’s contents and provisions.

1.2 Policy
Davis has a strong commitment to providing a safe and productive workplace. To this end Davis seeks to establish policies promoting high standards of employee health and safety while delivering to our customer the highest quality product. In keeping with this commitment Davis intends to maintain a positive Safety Program and a Substance-Abuse Program. Our employees conduct themselves and work in a safe manner with good construction practices.

Effective safety demands cooperation on everyone’s part. It’s important communication is kept open at all times. For this reason, Davis management practices an open-door policy. Employees who notice hazards or other safety problems or feel they need additional training must notify their supervisor. Supervisors and management address these concerns and take corrective action when warranted.
Responsibility for achieving our safety goals belongs to the site superintendent, supervisors, foreman, employees, and the safety office with the support of Davis management. Everyone is obligated to know the safety requirements and standards for their areas or job and abide by them. Supervisors must instill a positive attitude and awareness of the “safety culture” in their workers through personal adherence, training, personal contact, and regularly scheduled safety meetings. It’s the duty of all employees to perform their work with maximum regard for their safety and co-workers’ safety.

Our safety policies are an integral part of the Davis personnel policies. This means compliance with the policies is a condition of employment and must be taken seriously. Failure to comply with the Safety Program and Policy is grounds for disciplinary action up to and including termination.

1.3 **Purpose**

The purpose of this Site-Specific Safety Plan is to illustrate safety issues specific to the Anchorage Museum Expansion jobsite. This site safety plan is consistent with the Safety Program and Policies located in the Davis Corporate Safety Plan.

This plan is intended to maintain a safe work environment and effectively reduce the number of accidents resulting in personal injury, property damage, and damage to Davis equipment.

This policy applies to all Davis employees. By contract, all subcontractors are required to comply with this policy in addition to their own safety program and policy.

This policy complies with applicable local, state, and federal laws concerning safety including 29 CFR 1926 and 29 CFR 1910. In the event a discrepancy exists between this policy and any applicable law, the provisions of that law govern.

This policy is made available in the following ways:

- A copy of this revised policy is made available to each newly hired employee in his/her new hire packet.
- A copy of this revised policy is available in the job site office.
• A copy of this revised policy is available upon request to the supervisor.

2.0 **Scope of Project**

2.1 **Scope of the Work**

The scope of work for the project consists of an expansion addition to the existing structure, 2 stories and approximately 30,150 square feet. Phases of work will include demolition of existing structures, export of demolition debris, export and import of fill for foundation, slab on grade footings and pile caps, installation of structural steel, metal studs, roof system, metal panels, second floor concrete, sheetrock, electrical and mechanical, and interior finishes.

2.2 **Site Location**

Project/Site Name: Anchorage Museum Expansion
Project Street/Location: 625 C Street
City: Anchorage    State: Alaska    Zip Code: 99501
Borough or Subdivision: Municipality of Anchorage

2.3 **Site Access/Traffic**

Construction entrance is located off 6th Ave. Project lay down yard will be off site as materials will be brought on site as needed.

2.4 **Temporary Facilities**

Temporary facilities on site will include a job office and tool trailers.

2.5 **Utilities and Power**

Power will be supplied from the existing electrical to a temporary panel. All other utilities will not be connected or used until the final stages of the project.

3.0 **Health and Safety Responsibilities**

The effectiveness and success of the safety program depends upon the active participation and cooperation of all employees. Duties and responsibilities of all employees under this policy are the following:
3.1 Safety Coordinator

- Coordinate health and safety training for management and supervisors.

- Coordinate monthly supervisor safety meetings.

- Coordinate jobsite safety audits.


- Maintain the jobsite postings and notices required by law.

- Ensure the proper filing of paperwork relating to accidents.

- Participate in post-accident investigations.

- Assist in formulating policy matters.

- Implement Davis Safety Program and Policy.

3.2 Project Manager/Project Engineer

- Prepare the Site-Specific Safety Plan.

- Direct and coordinate health and safety regulations related to his/her area of responsibility.

- Participate in post-accident investigations.

- Assist in formulating policy matters.

- Implement Davis Safety Program and Policy.

3.3 Superintendent/Site Safety Representative

- Be familiar with the health and safety regulations related to area or responsibility.

- Direct and coordinate health and safety activities within area of responsibility.

- Ensure arrangements for prompt medical attention in case of serious injury. These arrangements include, at
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the very least: transportation, communication, and emergency telephone numbers.

- Ensure all supervised employees use required personal protective equipment (PPE) and safety devices.

- Ensure safety equipment is available, maintained, used, and stored correctly.

- Instruct and train all employees within area of responsibility in job health and safety requirements.

- Direct correction of unsafe conditions.

- Conduct weekly safety meetings.

- In the case of an accident complete the Report of Occupational Injury or Illness.

- Participate in post-accident investigation.

- Review all accidents/incidents with foremen and employees involved. Ensure corrective action is taken immediately to eliminate the cause of the accident.

- Ensure foremen are aware of and comply with requirements for safe practices.

- Require all subcontractors to comply with health and safety regulations as well as Davis Safety Program and Policy.

- Maintain copies of applicable programs and OSHA forms on site, in accordance with Davis practices and policies.

- Implement Davis Safety Program and Policy.

3.4 Foreman/Front Line Supervisor

- Be familiar with, explain, and enforce health and safety regulations applying to Davis operations within areas of responsibility.

- Direct and coordinate health and safety activities within area or responsibility.
• Ensure safety devices and proper PPE are used by employees under supervision.

• Instruct and train all employees within area of responsibility in job health and safety requirements, including (but, not limited to) hazard recognition and avoidance. Also, foreman/front line supervisors must require compliance by employees with the established safety rules.

• Direct the correction of unsafe conditions.

• Ensure safety equipment is available, maintained, used, and stored correctly.

• Ensure injuries are treated promptly and reported properly.

• Participate in post-accident investigations.

• Coordinate daily jobsite inspection.

• Implement Davis Safety Program and Policy.

3.5 All Employees

• Be familiar with and comply with proper health and safety practices.

• Use the required safety devices and proper PPE.

• Notify the supervisor immediately of unsafe conditions/acts, accidents, and injuries.

• Implement the Davis Safety Program and Policy.

3.6 Subcontractors

By contract subcontractors comply with and ensure the compliance of their employees with the provisions of this policy as well as their own safety program. Failure to fulfill this requirement is a failure to meet the conditions of the subcontract.
3.7 **Key Personnel**

Key employees for this jobsite.

- **Project Manager:** Nicole Mitchell
- **Superintendent:** Dean Cagle
- **Foreman/Site Safety:** TBD
- **Safety Coordinator:** Kirk Waggoner

4.0 **General Safety Procedures**

4.1 **Personal Protective Equipment (PPE)**

Davis provides Personal Protective Equipment (PPE) to all employees. Hard hats, safety glasses, and safety work boots are required to be worn at all times when on the jobsite. Reflective vests are required when working outside around equipment or traffic. Exceptions may be made to this PPE requirement only under an approved Davis work plan. Employees learn where to get PPE during their new-hire orientation and are responsible for wearing and maintaining the required PPE. Additional PPE may be required depending on the task and if there’s a potential for exposure to hazardous conditions. PPE requirements are reviewed by the foreman. Employees are expected to use reasonable judgment regarding whether additional PPE (beyond the required) are necessary for certain tasks. If employees are unsure of the type of PPE required for a specific task or job, they should ask the supervisor.

4.2 **Equipment Use and Operation**

Equipment is used only for its intended use and as recommended by the manufacturer. Using equipment for purposes other than what it’s designed for is prohibited.

Employees are prohibited from operating a vehicle in a reckless manner or at a speed greater than is reasonable and proper, with due regard for weather, traffic, character of roadway, load, type of vehicle, and any other conditions which may affect the safe operation of the vehicle. The vehicle must be kept under control at all times and special care is exercised when transporting personnel. Employees using Davis vehicles must sign and abide by Davis Vehicle Policy.

Employees may only ride equipment if there are seats or equal protection available for each person. Seatbelts are worn at all
times while operating equipment with seats. No cell phone or ear bud use while operating equipment.

Forklift policy and procedure are located in section L of this SSP binder.

4.3 Repairs
Employees are prohibited from making repairs, alterations, or attachments to equipment in the field except by the permission of the superintendent, foreman, or equipment mechanic. Only qualified personnel will perform repairs on equipment. Such repairs, alterations, or attachments are documented on the appropriate shop forms.

Employees are prohibited from removing a guard, safety device, or appliance from equipment or machinery except to make repairs as described in 4.1 first paragraph. While making repairs, employees use appropriate lockout/tagout procedures. When repairs are complete the guard, safety device, or appliance is replaced immediately.

4.4 Conduct
The following conduct is prohibited and may result in discipline up to and including termination:
♦ Horseplay and scuffling on the job.
♦ Making a false report or misrepresentation.
♦ Fighting.
♦ Violating the prohibitions of the Drug and Alcohol Policy (distributed to each employee in their new-hire packet).
♦ Dishonesty and theft of Davis property.
♦ Deliberate misuse of Davis equipment.
♦ Unnecessary risk taking.
♦ Violating or disobeying any instruction given by a supervisor.

4.5 Other Policy Violations
Employees committing policy violations other than those addressed in Section 4.0 may be subject to discipline up to and including immediate termination of employment.

4.6 Consequences for Policy Violations
The following consequences apply to all employees found to have violated this policy. Any foreman, supervisor, or official of
management, as soon as becoming aware of any such failure, ensures the following action is taken:

**Stage 1**
A formal verbal warning may be given to the employee by the immediate supervisor, along with a warning that this is the first stage in the disciplinary procedure and any repetition within one month will lead to the second stage in the procedure.

**Stage 2**
If the offense(s) addressed in Stage 1 is repeated and/or continued or a more serious offense committed, the employee may be given a formal written warning, setting out the details of the offense(s) and stating if the offense(s) is (are) repeated within one month the third stage in this procedure will be invoked. In addition to the written warning the employee is suspended—without pay—for a period of one day. Upon returning to work the employee must undergo additional formal training in the area of the offense(s) before being permitted to work. This is to prevent injury to the employee or co-worker.

**Stage 3**
If an offense written up under Stage 2 is repeated within three months, the employee may be terminated. An employee so terminated is ineligible for rehire for 24 months.

Depending on circumstances, Davis reserves the right to bypass, duplicate, or alter any stage of the recommended disciplinary procedures described above.

### 5.0 General Jobsite Procedures

#### 5.1 New-Hire Orientation
New-hire orientation may consist of, but is not limited to, the following:

A. Have the employee read the new-hire packet which includes this policy and the Drug and Alcohol Policy. Answer any questions the new hire may have about these policies and request a signature on the Statement of Understanding.

B. Return all forms to the Davis office as indicated on the first page of the new-hire packet.

C. Orient the employee to the jobsite indicating the location of the Safety Center, SDS book, emergency facilities, portable fire
extinguishers, first-aid station, emergency phone numbers, public notices, EEO, and any jobsite specific information.

D. Explain the injury and accident policy.

E. Review the written hazard communication program. Discuss hazards, container labeling, and the use of protective equipment.

F. Explain the emergency response plan for catastrophic events such as fire, explosion, etc.

G. Issue PPE as required for the job.

5.2 Training

Training and education are necessary for the success of this policy. Employees are trained to recognize jobsite hazards and the procedures to follow to minimize these hazards. Training may consist of (but is not limited to) the following:

- Weekly jobsite safety meetings.
- Orientation training for new hires.
- Individual job/task training, including the applicable regulations/standards for the specific job/task.

Supervisors and management receive ongoing safety training throughout the year as organized by the Safety Coordinator and as deemed necessary by Davis owners. Such training includes OSHA 10 and 30 Hour Construction Training and the maintenance of first-aid and CPR cards.

Training and competent person documents are located in section I of this SSSP binder.

5.3 Safety Meetings

Weekly safety meetings are held on the jobsite. All employees and subcontractors are required to attend. The meetings may cover a range of safety-related topics. The format and content of the meeting is up to the discretion of the superintendent.

Monthly safety meetings are held for all foremen, superintendents, project managers, project engineers, Davis owners, and other management personnel. These meetings are for the purpose of discussing companywide safety issues and providing continued safety training and education.

Safety meeting documents are located in section I of this SSSP binder.
5.4 Safety Inspections
The superintendent and foreman conduct an initial safety inspection at the beginning of each project, following the “Safety Inspection Guide” included in the site-specific safety plan.

In addition, a daily safety inspection of the jobsite is conducted by Davis employees, employees of a subcontractor, or some combination thereof. The inspection is rotated between all workers on the jobsite. Inspection sheets covering different aspects of safety were developed for each day of the week. The sheets are intended as a guide. Any safety concern found during the inspection is reported. If a worker is unclear about any item on the inspection sheet, a Davis foreman or safety officer helps. If the area being inspected requires a competent person\footnote{Areas requiring a competent person are hearing protection, rigging, hot work on preservative coatings, scaffolds, fall protection, cranes, hoists, excavations, concrete work requiring lift-slab operations, steel erection, underground construction, demolition, blasting, stairways and ladders, accident prevention responsibility, ionizing radiation, welding and cutting, tunnels and shafts, cessions, cofferdams, compressed air, bolting, riveting, fitting up and planking, lead, mechanical demolition, respiratory protection, slings, electrical, and asbestos.}, the employee conducts the inspection with the competent person. Also, if time allows, the foreman for the worker conducting the inspection is encouraged to walk through it with them.

Safety inspection documents are located in section H of this SSP binder.

5.5 Hazard Communication
Davis developed a written hazard communication plan. It’s explained to each employee during the new-hire orientation.

This plan is located in the site-specific safety plan appendices and is available upon request to the superintendent. The purpose of the hazard communication plan is to provide employees information on the chemical and physical hazards that may be present at the jobsite. Safety Data Sheets for all chemicals will be kept on site at the job office trailer.

The Hazard Communication Plan is detailed in section G of this SSSP binder.
5.6 **Job Hazard Analysis**

A job hazard analysis may be developed covering the major activities of construction, the hazards associated with these activities, and ways to mitigate these hazards.

The job hazard analysis procedures and forms are detailed in section F of this SSSP binder.

5.7 **Housekeeping**

Housekeeping is one of the most important factors for a safe jobsite. Form material should be scraped and all protruding nails pounded down. All other debris is cleared from work areas, passage ways, and stairs. Excess materials are stacked neatly out of the way. Tools should be stored in the tool van so they're available for all employees to use.

Combustible scrap and debris are removed at regular intervals during the course of construction. Containers with covers are provided for the collection and separation of waste, trash, oily and used rags, and other such refuse, which is removed safely and on a regular basis.

Foreign object and debris (FOD) is a significant concern in nearby occupied space and construction areas. It's extremely important to keep all trash and debris contained at this site. Housekeeping will be strictly enforced.

5.8 **Fall Protection**

Davis provides fall protection when employees are exposed to fall hazards beyond those permitted by federal and/or state regulations. A fall-protection work plan is prepared for all fall hazards associated with the work. Fall-protection work plan templates can be found in section J of this binder. Fall protection may consist of, but is not limited to, the following:

- A stairway or ladder is provided at any point of access where there’s a break in elevation of 19 inches or more.
- Guardrails are installed for all leading edge work. For loading bay locations fall-arrest system or fall-restraint systems are used.
- All stairways of four or more risers or greater than 30 inches high are guarded by a handrail or stair rails.
- A hole cover or safety guardrail is immediately installed for all floor holes or openings (greater than two inches in
its least dimension).

- Safety harnesses with approved lanyards and tie-off points are used for all other fall protection unless an appropriate procedure or device was approved in advance by a competent person.
- Stilts may be used on jobsites but work area floors must be clean/clear of all debris, materials, and equipment.

The fall-protection plan is detailed in section J of this SSSP binder.

5.9 Electrical Safety
Electrical safety may consist of, but is not limited to, the following:
- Live electrical parts are guarded against accidental contact by cabinets, enclosure, location, or guarding.
- All receptacles not part of the permanent wiring of the building are equipped with GFCI receptacles at the temporary service drop.
- Extension cords are kept in safe, working condition.
- All lamps for general illumination have the bulbs protected against breakage. All light sockets are filled with a working bulb.
- Employees will not work in such close (able to contact) proximity to any part of an electric power circuit unless the circuit is de-energized, grounded, or guarded by insulation.
- De-energized equipment or circuits are locked out and tagged out. The tags identify the equipment or circuits being worked on.
- When transferring flammable liquids from one storage container to another proper grounding and bonding shall be utilized. All generators used for temporary power shall be grounded according to manufacturers specifications.
- Equipment shall not be operated closer than 10 feet from power lines less than 50kV. Safe distance will increase near higher voltage power lines, (over 50kV).

Electrical Safety is detailed in section U of this SSSP binder.

5.10 Tools
Davis provides tools for employees to use. These tools meet applicable OSHA standards for safety. Only trained employees are allowed to use such tools. The safe use of tools may consist
of, but is not limited to the following:

- Unsafe or defective tools are removed from service and tagged out.
- Power tools are turned off and motion stopped before setting down.
- Tools are disconnected from the power source before changing drills, blades, or bits and before any repair or adjustment is made. Running tools are not left unattended.
- Power saws, table saws, and radial arm saws have operational blade guards installed and used.
- Portable abrasive grinders have guards installed covering the upper and back portions of the abrasive wheel.

Power tools, hand tools, and machine guarding are detailed in section T of this SSSP binder.

5.11 Scaffolds

Scaffolds are erected, moved, dismantled, or altered under the supervision of a competent person for scaffolding. Scaffold use consists of, but is not limited to, the following procedures:

- Standard guardrails are installed on all open sides and ends of scaffold platforms and/or work levels more than ten feet above the ground, floor, or lower level.
- Scaffolds four to ten feet in height with a minimum horizontal dimension in any direction less than 45 inches have standard railings installed on all open sides/ends.
- Platforms at all working levels are fully planked. Planking is laid tight with no more than one inch space between them, overlap at least 12 inches, and extends over end supports 6-12 inches unless cleats are used.
- The front edge of all platforms is no more than 14 inches from the face of the work, except plastering/lathing may be 18 inches.
- Mobile scaffolds are erected no more than a maximum height of four times their minimum base dimension.
- Scaffold casters/wheels are locked whenever platform is occupied.
- Scaffolds are not overloaded beyond their design loadings.
- Scaffold components are not used as tie-off/anchor points for fall-protection devices.
- Portable ladders, hook-on ladders, attachable ladders, integral prefabricated scaffold frames, walkways, or direct access from another scaffold or structure are used for
access when platforms are more than two feet above or below a point of access.

- Cross braces are not used as a means of access to scaffolds.
- Scaffolds are not erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come close to exposed and energized power lines than the following:
  - Three feet from insulated lines of less than 300 volts;
  - Ten feet plus for any other insulated or uninsulated lines.

Scaffold Safety is detailed in section X of this SSSP binder.

5.12 Excavation and Trenches

Excavation and trenching are done in the presence of a competent person and in compliance with, but not limited to, the following procedures:

- Any excavation or trench five feet or more in depth is provided cave-in protection through shoring, sloping, benching, or the use of hydraulic shoring, trench shields, or trench boxes. Trenches less than five feet in depth and showing potential of cave-in are also provided cave-in protection. Specific requirements of each system are dependent upon the soil classification as determined by a competent person.
- A competent person inspects each excavation/trench daily prior to the start of work, after every rainstorm or other hazard increasing occurrence, and as needed throughout the shift.
- An exit is provided in trenches four feet or more. The exit(s) is/are within 25 feet of any employee in the trench.
- Spoil piles and other equipment are kept at least two feet from the edge of the trench or excavation.

The Excavation Plan is detailed in section M of this SSSP binder.

5.13 Ladders

Ladders are inspected during the weekly inspections to identify any unsafe conditions. Any ladders found to be unsafe are taken out of service. Extension ladders extend three feet above the work surface and are 100 percent tied off. Step ladders are only
used in the open position. Ladders are stored lying down. No standing on the top step or first rung below the top of a step ladder.

Ladder Safety is detailed in section W of this SSSP binder.

5.14 Illumination
Construction areas, aisles, stairs, ramps, runways, corridors, offices, shops, and storage areas where work is in progress are lighted with either natural or artificial illumination. Lighting shall be in accordance with 29CFR Subpart D1926.56.

5.15 Motor Vehicles and Mechanized Equipment
Vehicles and equipment are only operated by qualified persons (training or experience). The Safety Department maintains equipment training logs. Employees operating Davis-owned vehicles must sign and abide by Davis Vehicle Policy.

All equipment operators are responsible for checking, on a daily basis, all fluid levels, drive components, and hydraulics. In addition, operators visually inspect the engine and look for structural breaks and cracks on the machine. Any and all deficiencies must be reported to a supervisor immediately. When equipment is stopped or parked, parking brakes are set and other safety precautions are taken as required for the type of equipment such as placing the forks flat on the ground. Keys shall be removed from equipment at the end of each shift.

5.16 Severe Weather
Outside construction operations including, but not limited to, steel erection, site work, and concrete work are suspended if severe wind or rain conditions present safety hazards at the worksite. Ice and snow hazards are evaluated and appropriate measures taken to abate potential hazards.

5.17 Accidents
All accidents and near misses must be reported immediately to the foreman or superintendent. An accident report is then filled out by the employee and the supervisor. Filling out an accident report does not require the delay of medical attention. Any injury is treated first. Employees file such reports without fear of reprisal by management.

The accident or incident may be discussed at weekly safety
meetings or in the Safety Alert to talk about how to avoid that sort of accident in the future.

Accident Prevention and Investigation Procedures and documents are located in section E of this SSSP binder.

5.18 First Aid
First-aid kits are available in the project office, at the safety center and other locations as indicated during orientation. In addition, foremen and superintendents maintain current first-aid and CPR cards.

CPR/First-Aid cards are located in section I of this SSSP binder.

5.19 Fire Protection
Davis maintains one or more fire extinguishers (rated not less than 2A) every 3000 square feet of building area, or every 100 feet. In multi-story buildings one or more fire extinguishers rated not less that 2A are provided on each floor and adjacent to the stairway(s). All hot work activities shall have a fire extinguisher at the task location. All trucks and equipment are fitted with portable fire extinguishers. Employees are instructed on the location and usage of these fire extinguishers. Emergency telephone numbers for fire protection and emergency medical services are posted on the field office bulletin board.

The Fire Prevention Plan is located in section C of this SSSP binder.

5.20 Emergency Action Plan
Each jobsite develops an emergency action plan that's reviewed with each employee during orientation. The emergency action plan covers emergency escape procedures, procedures followed by employees remaining to operate critical operations before they evacuate, procedures to account for all employees, rescue and medical duties, and how to report emergencies.

The Emergency Action Plan is located in section C of this SSSP binder.

5.21 Environmental Protection Plan
This Site Safety Plan contains an Environmental Protection Plan for the control, prevention, management, containment, cleanup, and disposal of petroleum products or other hazardous substances which may be generated on each project.
The Project Superintendent, Project Safety Manager or SWPPP Control Lead directs measures to control and prevent accidental discharge of petroleum products or other hazardous substances during storage and transfer on all jobsites. Any onsite storage is in approved containers. Absorbent pads and other recovery equipment shall be available to contain and recover any fuel accidentally spilled. Any spills and contaminated soils are cleaned and disposed of in accordance with applicable requirements of the State of Alaska Department of Environmental Conservation and the US Environmental Protection Agency.

The Environmental Protection Plan is located in section D of this SSSP binder.

5.22 Traffic and Pedestrian Control
A traffic control plan will be developed and put in place prior to beginning work on the project for the protection of workers and the general public.

Barricades and signage must be placed around job site areas to reroute vehicle traffic and keep pedestrians out of the jobsite. Project Managers and Superintendents will evaluate the site before work starts to plan site control. Fencing, signage, and barricades shall be erected and secured as to keep pedestrians out.

Any time while performing work near or on a road way and a worker has a sense of traffic patterns not being controlled properly or speeds to extreme for conditions, the worker should remove themselves from the area and notify Supervisor. Job Superintendents shall stress and discuss at Job Safety Meetings for all workers to be aware of traffic hazards and pedestrians.

5.23 Steel Erection and Crane Operation
All steel erection work shall be performed in accordance with CFR 1926 Subpart R. All crane activities shall follow requirements of CFR 1926 Subpart CC.

Steel erection and crane operation will be performed by a qualified subcontractor selected by Project Management. As the Controlling Contractor, Davis Constructors will provide the following notifications to the Steel Erection Subcontractor:
• The concrete in the footings, piers and walls and the mortar in the masonry piers and walls has attained, on the basis of an appropriate ASTM standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.

• Any repairs, replacements and modifications to the anchor bolts were conducted in accordance with CFR 1926.755(b).

• Adequate access roads into and through the site for the safe delivery and movement of derricks, cranes, trucks, other necessary equipment, and the material to be erected and means and methods for pedestrian and vehicular control. Exception: this requirement does not apply to roads outside of the construction site.

• A firm, properly graded, drained area, readily accessible to the work with adequate space for the safe storage of materials and the safe operation of the erector’s equipment.

Pre-planning of overhead hoisting operations. All hoisting operations in steel erection shall be pre-planned to ensure that the requirements of CFR 1926.753(d) are met.

Site-specific erection plan. Where employers elect, due to conditions specific to the site, to develop alternate means and methods that provide employee protection in accordance with CFR 1926.753(c)(5), 1926.757(a)(4) or 1926.757(e)(4), a site-specific erection plan shall be developed by a qualified person and be available at the work site.

5.24 Concrete Work
The project involves extensive concrete removal and placement. There are many hazard associated with this work including but not limited to; Slips Trips, Falls, Strains and Sprains, Eye Injuries, Chemical Burns, and Cilica Exposure. Risk assessment shall be performed for all concrete work to minimize the associated hazards.
6.0 Safety Program and Policy Limitations

The provisions in this policy reflect decisions made by management and are not required to be approved by employees. It’s impossible to anticipate every circumstance or question about policy and include them all in this safety program and policy. Also, as time goes by, the need for revisions will arise and Davis reserves the right to revise, supplement, or rescind any portion of this policy at its discretion at any time with or without notice.

This revised policy replaces all prior Davis safety procedures and policies. To avoid confusion, please discard superseded copies.
Davis Constructors & Engineers, Inc.
Site-Specific Safety Plan

Anchorage Museum Expansion

#15-423

A. Policy and Procedures
B. Jobsite Map & Emergency Phone Numbers
C. Emergency Action, Evacuation, and Fire Plan
D. Environmental Protection Plan & Control of Hazardous Materials
E. Accident Prevention and Reporting Procedures
F. Job Hazard Analysis
G. Hazard Communication Plan
H. Jobsite and Equipment Inspections
I. Training & Safety Meeting Documents
J. Fall Prevention and Protection
K. Elevated Surface Work Emergency Action and Rescue Plan
L. Forklift Procedures and Training
M. Trenching and Excavation Procedures
N. Lockout/Tagout Policy
O. Confined Space Procedures
P. Respiratory Protection Plan
Q. Subcontractor Health and Safety Procedures
R. Aerial Lift and Scissor Lift Procedures
S. Personal Protective Equipment
T. Power Tools, Hand Tools and Machine Guarding

U. Electrical Safety

V. Welding and Cutting

W. Ladders and Stairs

X. Scaffolding Procedures
Job Site Map
Anchorage Museum Expansion
EMERGENCY PHONE NUMBERS

911
Address: 625 C Street

267-4950 ANCHORAGE FIRE DEPARTMENT
786-8500 ANCHORAGE POLICE DEPARTMENT
800 222-1222 STATE OF ALASKA POISON CONTROL
800 424-8802 SPILL RESPONSE (NRC)
800 478-9300 ADEC
269-7500 HAZARD MATERIALS EMERGENCY RESPONSE TEAM
TBD DAVIS JOBSITE OFFICE
440-8296 DAVIS SUPERINTENDENT (CELL) - Dean Cagle
952-3816 SAFETY CORDINATOR (CELL) - Kirk Waggoner
441-2820 DAVIS PROJECT MANAGER (CELL) - Nicole Mitchell
562-2336 DAVIS ANCHORAGE OFFICE
264-8363 AT&T / ALASCOM TROUBLE LINE
564-1611 ACS REPAIR
946-0140 GCI EMERGENCY
279-7671 ML&P POWER OUTAGE
563-3728 ENSTAR EMERGENCY
564-2762 AWWU EMERGENCY
269-5511 ANCHORAGE EMERGENCY OPS CENTER
Emergency Action, Evacuation, and Fire Prevention

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Emergency Action, Evacuation, and Fire Prevention

1.0 Purpose
The purpose of this Emergency Action Plan (EAP) is to ensure employee safety from fire and other emergencies. This written document is prepared to demonstrate compliance with 29 CFR 1910.38. It provides a written document detailing the actions and procedures to be followed in case of an emergency.

At the time of an emergency, employees should know what type of evacuation is necessary and their responsibilities in carrying out the plan. In some cases the emergency is grave requiring total and immediate evacuation of all employees in necessary. In other emergencies a partial evacuation of non-essential employees with a delayed evacuation of others may be necessary. In some cases, only employees in the immediate area of a fire may be expected to evacuate or move to a safe area such as when a local application of a fire suppression system discharge sounds the employee alarm. Employees must ensure they know what’s expected of them in all such emergency possibilities which were planned in order to provide assurance of their safety from fire or other emergencies. This plan contains the information required for employee knowledge.

2.0 Types of Emergency Evacuations
At this location the following types of potential emergencies exist:
1. Evacuation of seriously injured personnel.
2. Fire or explosion.
3. Earthquake
5. Encountering combustible or toxic gases.
6. Other emergencies.

3.0 Employee Training
All employees are trained in safe evacuation procedures and refresher training is conducted whenever the employee’s responsibilities or designated actions under the plan change and whenever the plan itself is changed. In addition, the employer must review with each employee (upon initial assignment) the parts of the plan the employee must know to protect the employee in the event of an emergency. Every individual is responsible for immediately correcting and/or
reporting any hazard or unusual condition that might lead to the development of a fire or emergency situation. All individuals are responsible for knowing:

1. In an emergency **call 911.**
2. Location of emergency phones and fire alarm
3. Location of emergency equipment.
4. Location of safe-briefing area for evacuation.

The training may include the use of floor plans and workplace maps which clearly show the emergency escape routes included in the Emergency Action Plan.

### 4.0 Floor Plans and Maps

Floor plans and workplace maps were developed for this location to show the emergency escape routes. Color coding aids employees to determine their escape route assignments. These floor plans and maps are available and posted at all times in the key areas of the jobsite to provide guidance in an emergency. A copy of the floor plans and map are located in Appendix 1. **Note:** Floor plans and maps may not be available at the beginning of this project.

### 5.0 Response to Accidents Involving Injuries

#### 5.1 Use of the acronym: SAVE.

The following steps should be followed to respond to injuries resulting from accidents:

**Situation:** Quickly assess the situation to determine if any hazards exist, the extent of the injury, and to decide the best mode of response.

**Activate:**

1. If the injured person has serious injuries or is not responding, immediately **call** or **direct** a person to call **911.** The caller needs to stay on the line and give responder pertinent information e.g. location and street address, nature of injury, conditions, number of persons involved. Jobsite identification hardhat stickers with job address and phone numbers are given to all new employees.
2. Notify site superintendent/management to start emergency action plan. Radio call is: **code RED.**
Site management:
- Management sends personnel to direct emergency responders to the accident scene: one person at the street and one at building entrance.
- Moves excess equipment out of the way.
- Secures the scene for an accident.

Verifying:
1. Verify the extent of injury.
2. Stabilize and prevent movement (if necessary).
3. Render first aid using proper PPE e.g. protective gloves, CPR, mouth shield.
4. Treat for shock (keep injured worker warm).
5. Stay with the injured worker until emergency services arrive.
6. Assist emergency personnel upon arrival.

Evaluating:
Investigate the accident. (See Accident Reporting in site safety manual.)

Note: Davis Safety Policy requires a post-accident/incident investigation be performed for all injuries beyond first aid. Drug testing is required when the injury:
1. Involved circumstances leading to a reasonable suspicion of the employee’s drug use.
2. Results in or causes the release of hazardous waste or materials, or
3. Involves an on-the-job injury or potentially serious accident, injury, or incident in which safety precautions were violated, equipment or property was damaged, or unusually careless acts were performed. Such testing is required of any employee directly involved in such an incident and whose action or inaction may have been a causative factor.

Supervisors must consult with corporate safety/risk management for guidance on drug screening.
6.0 Emergency Escape Procedures and Assignments

The following are the evacuation procedures for a fire, earthquake, building collapse, and/or any other emergency:

1. **Stay calm!** Your example can influence others and thereby aid the emergency response.

2. Employees proceed to the nearest available and safe exist and leave the building as quickly as possible in the event of a fire or other emergency requiring evacuation to achieve safety.

3. As a matter of general practice, corridors (if applicable) are the primary means for evacuation from a building.

4. Personnel operating moving machinery e.g. trucks, forklifts, etc. are to depress the closest emergency stop button (if applicable) or park the vehicle to the side immediately.

5. Personnel are to gather at a “refuge zone.” The refuge zones provide sufficient space to accommodate the employees. During evacuation procedures employees move away from the exit discharge doors of the building and avoid congregating close to the building(s) and/or main entrance area where they may hamper emergency operations.

6. The safe-briefing areas are equipped with first-aid equipment to treat any injured employees.

7. No one is allowed onto the jobsite during this time without consent from Davis supervisory personnel.

8. Once assembled no one is permitted to leave the safe-briefing site without consent from Davis supervisory personnel.

9. After the determination is made that re-entry is safe by the fire department or the evacuation coordinator employees may re-enter the building or jobsite.
The refuge/safety zones are as follows

<table>
<thead>
<tr>
<th>Location</th>
<th>Designated Refuge/Safety Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBD</td>
<td></td>
</tr>
</tbody>
</table>

7.0 **Critical Site Procedures**

Only in the event of an incipient fire will employees address the fire and care for critical site operations. If the fire exceeds the incipient fire stage, the employee is to evacuate the area immediately.

The procedures to be taken to care for essential jobsite operations until a total evacuation becomes absolutely necessary include:

- Monitoring the jobsite power and water supplies, and,

- Vehicle/utility operations which must be shut down in stages or steps to ensure the safe shut down procedures are completed including the following:

  Indicate procedures which must be shut down in stages/steps e.g. pick-up or delivery in process, filling of containers, etc:
  1. Equipment operations
  2. Material movement
  3. Subcontractor utility
  4. Fueling

8.0 **Evacuation Procedures**

The superintendent anticipates the effect of a major emergency or disaster for each specific jobsite and plans a course of action minimizing personal injury and property damage in the event of fire, industrial hazard, or natural disaster. If evacuation of the jobsite and/or building(s) is required, the following procedures are followed ensuring safe evacuation of all employees, contractors, and/or visitors.

1. The evacuation coordinator (default to superintendent or foreman) verifies an emergency situation truly exists. If so, the local fire department or emergency service is notified.

2. The evacuation coordinator utilizes the alarm system or a means of communication e.g. bull horn, public-address system,
Davis Constructors & Engineers, Inc.
Site-Specific Safety Plan

radio, etc. to effectively communicate that evacuation of the building and/or jobsite is required.

3. The evacuation coordinator verifies the visitor/subcontractor log is removed from the building/jobsite.

4. The evacuation coordinator conducts a head count to verify all employees, subcontractors, and/or visitors are safely evacuated.

5. The evacuation coordinator communicates to the fire department either that all personnel are safely evacuated or who remains unaccounted for.

6. No one may return to the building or jobsite until the evacuation coordinator or fire department authorizes such action.

9.0 Rescue and Medical Duty Assignments

If rescue is required, the local fire department responding to the emergency is responsible for performing any rescue.

Designated personnel (trained in first aid and cardiopulmonary resuscitation, CPR) provide medical assistance within their capabilities. Trained personnel are:

List trained employee’s names here:

Dean Cagle

Donavan Case

Professional emergency services responding to an emergency assist with and direct all rescue and medical duty assignment upon their arrival.

10.0 Fire and Emergency Reporting Procedures

In the event of a fire and/or any other type of emergency follow these reporting procedures:
1. When a fire is detected (seen, heard, smelled, etc.) alert everyone in the near vicinity and radio or otherwise inform the foreman/supervisor (if applicable).

   *List locations of alarm stations (if applicable):*

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

2. Jobsite personnel (supervisor/foreman, evacuation coordinator, employee if needed) are to verify the alarm is indicating an emergency. If so, they contact the local fire department to summon assistance.

3. The local fire department performs all emergency rescue and fire fighting duties. The evacuation coordinator meets with the fire department to notify them of any missing persons.

4. Employees are not to return to the jobsite or buildings until authorized by the evacuation coordinator or fire department.

**11.0 Earthquake Procedures**

If an earthquake warning is issued by local news services(s), the evacuation coordinator notifies all employees. If an employee notices earthquake indicators (shaking ground, swaying or falling objects) that employee evacuates to a pre-disclosed earthquake safety/shelter area. The area(s) designated to provide shelter/protection during an earthquake are:

   *List area(s) designated as earthquake shelter for personnel:*

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________
12.0 Evacuation Coordinator

Selected personnel are trained as evacuation coordinators conducting head counts of employees once evacuation is complete. At least one trained evacuation coordinator for every twenty employees on the jobsite is available to provide adequate guidance and instruction at the time of an evacuation. The employees selected are trained in the complete jobsite layout and various alternative escape routes from the jobsite.

All evacuation coordinators are made aware of:
- Any physically handicapped employees requiring additional assistance and of hazardous areas to be avoided during emergencies.
- Any visitors/subcontractors or personnel not permanently assigned to work at this jobsite.

Before leaving the jobsite evacuation coordinators ensure all personnel are evacuated from the jobsite and verify that all rooms and other enclosed spaces in the building are empty.

Evacuation coordinator(s) for this jobsite are:

<table>
<thead>
<tr>
<th>Job Title</th>
<th>Area</th>
<th>Work Shift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superintendent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site Safety Coordinator</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13.0 Fire Prevention Plan

The Fire Prevention Plan was established to control and reduce the possibility of a fire and to specify the type of equipment required to be available in case of a fire.

13.1 List of Workplace Fire Hazards and Procedures

The fire hazards in this location are:
<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>Location</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumber stock piles</td>
<td>Storage area</td>
<td>Keep covered and keep smoking area and hot running equipment at distance.</td>
</tr>
<tr>
<td>Paint, aerosol cans</td>
<td>Flammable storage cabinet</td>
<td>All flammable paint containers and aerosol cans are to be stored in “flammable storage.”</td>
</tr>
<tr>
<td>Office paper</td>
<td>Offices</td>
<td>Keep amount of paper on hand to a minimum. Ensure all trash containers are empties every day.</td>
</tr>
<tr>
<td>Office supplies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel: Gasoline, Diesel</td>
<td>Fuel storage area</td>
<td>Follow all OSHA regulations (keep stored upright, away from other fuel, in cool area, etc.)</td>
</tr>
<tr>
<td>Flammable material/chemicals</td>
<td>Specially designated storage area.</td>
<td>Keep separated and away from sources of heat. Otherwise follow above instructions.</td>
</tr>
<tr>
<td>Tools and other electrical equipment</td>
<td>Tool storage.</td>
<td>Keep closed when possible. Keep things up above floor so no water gets on them. Also, keep smoking area safely away.</td>
</tr>
</tbody>
</table>

13.2 **Housekeeping Procedures**

Accumulations of combustible waste materials must be controlled to ensure a fast-developing fire, a rapid spread of toxic vapors or gases, or an explosion does not occur.

Large accumulations of combustible waste materials can cause a large fire or generate dense smoke.

Good housekeeping in the workplace ensures hazardous accumulation of oil soaked rags and/or large accumulations of wastepaper, corrugated boxes, etc. do not pose a significant fire hazard.

13.3 **Equipment Maintenance (if applicable)**

Certain equipment is installed in a workplace to control heat sources or to detect combustible fuel leaks e.g. a temperature-limit switch, storage tank high level alarms, etc. If these
devices are not properly maintained or if they become inoperative, a definite fire hazard exists. Employees and supervisors are aware of the specific type of hazard-control devices utilized in the workplace and they ensure (through periodic inspection and/or testing) such devices are operable. The manufacturer's instructions are followed ensuring proper operation and maintenance procedures are followed.

### 13.4 Ignition Sources and Fire Protection

The ignition sources at this location and their control procedures at this location are:

<table>
<thead>
<tr>
<th>Ignition Source</th>
<th>Control Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Electrical</td>
<td>Periodic inspection of equipment. Dry, clean storage.</td>
</tr>
<tr>
<td>2. Flame Heaters</td>
<td>Safely distanced from everything around.</td>
</tr>
<tr>
<td>3. Welding</td>
<td>Observation and wetting of things around.</td>
</tr>
<tr>
<td>4. Cigarette butts</td>
<td>Smoke only in designated areas.</td>
</tr>
<tr>
<td>5. Hot-running equipment</td>
<td>Keep distance from other objects and observation.</td>
</tr>
</tbody>
</table>

Also, smoking is only allowed in designated smoking areas of this location. The designated smoking area(s) for this location are:

**Designated Smoking Area:**
- Area(s) assigned by site superintendent.

### 13.5 Fire Protection Equipment

The fire protection equipment utilized at this location includes various sizes of multipurpose dry chemical (aka, ABC) portable fire extinguishers to protect from the various types of fire hazards. Employees are trained on site with the location and usage of portable fire extinguishers.
Appendix 1

Floor plans and maps here.
Environmental Protection Plan &
Control of Hazardous Materials

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Appendices: 1.....Spill Report Form
  2.....Alaska DEC Spill Reporting Contacts
Environmental Protection Plan & Control of Hazardous Materials

1.0 Purpose
This is the written Hazardous Material Control Plan for the control, prevention, management, containment, cleanup, and disposal of petroleum products or other hazardous substances which may be generated on this project.

2.0 Identification of Hazardous Materials
2.1 Materials
The following material is assumed to be hazardous or to contain hazardous substances (toxic, corrosive, ignitable, explosive, or chemically reactive) and is subject to control:
- Petroleum products (including diesel fuel or fuel oil, gasoline, grease, motor oil, hydraulic oil, and gear lube)
- Petroleum-contaminated materials
- Solvents
- Paints
- Antifreeze
- Lead/acid batteries

2.2 Control Measures
Control measures include safe storage and containment, recovery of spills, and identification and accountability.

3.0 Storage, Containment, and Disposal
3.1 Diesel Fuel, Fuel, Oil, and Gasoline
The project Superintendent ensures control and prevents accidental discharge during storage and transfer. Any onsite storage is in approved containers. Absorbent pads and other recovery equipment is available to contain and recover any fuel accidentally spilled. Any spills and contaminated soils are cleaned and disposed of in accordance with applicable requirements of the State of Alaska Department of Environmental Conservation and the US Environmental Protection Agency.
3.2  **Petroleum-Contaminated Materials**
Petroleum-contaminated materials such as used oil filters and old hydraulic hoses are retained and safely stored until disposal in an area or container where discharge of petroleum is prevented or contained. Disposal is in accordance with regulations.

3.3  **Grease and Gear Lube (solidified)**
Solid lubricants are stored in a protected area where containers are not damaged. Spent containers are appropriately disposed of in accordance with regulations. Accidental discharges are recovered.

3.4  **Motor Oil, Hydraulic Oil, and Liquid Gear Lube**
Unused motor oil and other liquid lubricants are stored in protected areas where the containers are not damaged. Bulk containers are placed in a lined area. Spent containers are disposed of in accordance with regulations. Absorbent material is available and used to recover any oil accidentally discharged during transfer operations or at any other time.

Used oil is recovered, stored in the same manner as new oil, and disposed of in accordance with regulations. Used oil is not stored in open containers.

All equipment using hydraulic hoses and cylinders are inspected on a regular basis and furnished with absorbent pads and other spill recovery materials to mitigate discharges to the environment in case of equipment failure.

When equipment operating on or adjacent to waterways has a petroleum leak which cannot be immediately repaired or controlled, it’s removed from service until repairs are made.

3.5  **Solvent and Paints**
Solvent and paints are stored in a protected area where the containers are not damaged. Spent solvents are retained and disposed of in accordance with regulations, as are leftover paints. Accidental discharges are recovered.
3.6 Cement and Epoxies
Cement and epoxies are stored in dry protected areas. No discharge or diluted cement is allowed outside of concrete forms. Cleaning of ready mix trucks and disposal of leftover ready mix are only accomplished in an appropriate manner. Leftover epoxy is stored and disposed of in accordance with regulations.

3.7 Lead/Acid Batteries
Lead/acid batteries are stored in a protected area. Used batteries which cannot be recharged, are returned to the dealer or to a battery recycling facility.

3.8 Explosives
Explosives are securely stored and accounted for in accordance with regulations covering the storage and handling of explosives. Transport is only in approved equipment. Handling is by licensed explosive handlers. Surplus explosives are returned to the vendor.

3.9 Antifreeze
Antifreeze is stored in the same manner as liquid petroleum. Spent antifreeze is recovered and retained until proper disposal is accomplished. Antifreeze accidentally discharged is recovered with absorbent materials.

4.0 Emergency Response Procedures

4.1 Brief Jobsite Employees
All employees are briefed on emergency response procedures and the use of emergency response equipment and materials.

4.2 Phone Numbers
The contact phone numbers for spill reporting, spill, or hazardous material emergency response organizations, and the fire department are posted at the jobsite.

5.0 Equipment and Material

5.1 Equipment
Equipment is available on site for hazardous substance containment and cleanup.
5.2 Pads
Absorbent pads are carried in all maintenance vehicles readily available to clean any oil discharges.

5.3 Bags
Plastic bags are carried in all maintenance vehicles readily available for storage of absorbent pads and/or contaminated soil that must be removed from the jobsite.

5.4 Spill Recovery
Any spill recovery supplies used for spill cleanup are stored in a protected dry area until the materials are removed from the site and shipped to a proper disposal area.

6.0 Housekeeping

6.1 Housekeeping Practices
Good housekeeping practices are continually followed. Refueling and maintenance areas are kept clean and free of debris and are monitored daily for compliance. Additional housekeeping items are as follows:

- Hazardous and non-hazardous wastes are not mixed. This will keep the total volume of hazardous waste to a minimum. Waste oil is not mixed with non-hazardous material. It’s separated and properly labeled until it’s demobilized and disposed of offsite.
- Original containers of hazardous products are completely used before discarding the container.
- Excess amounts of hazardous products are not used; only enough for the job intended.
- Original product labels and Material Safety Data Sheets (MSDS) are kept onsite for each produce in use.

7.0 Reporting Requirements

7.1 Notification
Telephone notification to Davis Constructors & Engineers, Inc. (Davis) home office and to the State of Alaska Department of
Environmental Conservation of any discharge of oil or hazardous substances is required as follows:

- Discharge to water: as soon as discharge is noticed.
- Discharge to land: as soon as discharge is noticed, if in excess of 55 gallons. Within 48 hours if in excess of 10 gallons. Fifty-five gallons or less: maintenance of written record of any petroleum product discharge from one to ten gallons.

7.2 Written
Written notification is required within 15 days after the cleanup is completed or, if no cleanup occurs, within 15 days after the discharge.

7.3 Documentation
Written documentation in the form of the Oil and Hazardous Materials Incident Final Report must be submitted to the State of Alaska Department of Environmental Conservation.

Note: Environmental protection and hazardous materials control is also addressed in the site Storm Walter Pollution Prevention Plan (SWPPP).
Spill Report Form

Immediately report all spills to Project Supervisor and SWPPP Coordination personnel. Alaska Department of Environmental Conservation discharge notification and reporting requirements must be followed. See DEC notification document for requirements.

Please print or type all information.

| Circle one:                                                                 |
|---|---|---|---|
| Mass Excavation | Davis Constructors | Subcontractor | Company Name |
| Spill location   |                                                           |
| Date and time of spill | Date & time of discovery | Duration of release/spill |

<table>
<thead>
<tr>
<th>Type of incident:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Explosion</td>
</tr>
<tr>
<td>☐ Fire</td>
</tr>
<tr>
<td>☐ Leaking container</td>
</tr>
<tr>
<td>☐ Loading/unloading release</td>
</tr>
</tbody>
</table>

Material released (chemical or trade name):

☐ Check here if additional materials listed on an attached page.

Estimated quantity released: ___________________________

Physical state released: _____________________________

Factors contributing to release:

☐ Equipment failure        ☐ Training deficiencies
☐ Operator error           ☐ Unusual weather conditions
☐ Faulty process design    ☐ Other: ___________________________

Source of loss:

☐ Container     ☐ Pipeline
☐ Tank          ☐ Truck
☐ Other: ___________________________
Immediate actions taken:
- Containment
- Dilution
- Evacuation
- Hazard removal
- System shut down
- Diversion of release to treatment
- Decontamination of persons/equipment
- Monitoring
- Neutralization
- Other: ____________________________

Release reached:
- Surface waters (include name of river, lake, drain involved) ____________________________

Distance from spill location to surface water in feet: ____________________________
- Drain connected to sanitary sewer (include name of wastewater treatment plant and/or street drain, if known): ____________________________
- Drain connected to storm sewer (include name of drain or water body it discharges into, if known): ____________________________
- Groundwater (indicate if it’s a known or suspected drinking water source and include name of aquifer, if known): ____________________________
- Soils (include type e.g. clay, sand, loam, etc) ____________________________
- Ambient Air
- Spill contained on impervious surface.

Extent of injuries, if any: ____________________________

Was anyone hospitalized: □ Yes. Number: ________ □ No.

Total number of injuries treated onsite: ________

Describe the incident, the type of equipment involved in the release, how the volume of loss was determined, along with any resulting environmental damage caused by the release. Identify who immediately responded to the incident. Also, identify who did further cleanup activities, if performed or know when report submitted.

□ Check here if description or additional comments are included on an attached page.

________________________________________________________
________________________________________________________
________________________________________________________

_________________________ _____________________________
Name of person submitting report Phone Number

_________________________ _____________________________
Signature Date
REPORT ALL

OIL AND HAZARDOUS SUBSTANCE SPILLS

ALASKA LAW REQUIRES REPORTING OF ALL SPILLS

During normal business hours
contact the nearest DEC Area Response Team office:

<table>
<thead>
<tr>
<th>Central Area Response Team: Anchorage</th>
<th>269-3063</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>fax: 269-7648</td>
</tr>
<tr>
<td>Northern Area Response Team: Fairbanks</td>
<td>451-2121</td>
</tr>
<tr>
<td></td>
<td>fax: 451-2362</td>
</tr>
<tr>
<td>Southeast Area Response Team: Juneau</td>
<td>465-5340</td>
</tr>
<tr>
<td></td>
<td>fax: 465-2237</td>
</tr>
</tbody>
</table>

Outside normal business hours, call: 1-800-478-9300

Alaska Department of Environmental Conservation
Division of Spill Prevention and Response

rev. 8/99
Alaska Department of Environmental Conservation

Discharge Notification and Reporting Requirements
AS 46.03.755 and 18 AAC 75.300-.307

Notification of a discharge must be made to the nearest Area Response Team during working hours:

Anchorage: 269-3063
269-7648 (FAX)

Fairbanks: 451-2121
451-2362 (FAX)

Juneau: 465-5340
465-2237 (FAX)

OR

to the 24-Hour Emergency Reporting Number during non-working hours: 1-800-478-9300

Notification Requirements

Hazardous Substance Discharges

Any release of a hazardous substance must be reported as soon as the person has knowledge of the discharge.

Oil Discharges

- **TO WATER**
  - Any release of oil to water must be reported as soon as the person has knowledge of the discharge.

- **TO LAND**
  - Any release of oil in excess of 55 gallons must be reported as soon as the person has knowledge of the discharge.
  - Any release of oil in excess of 10 gallons but less than 55 gallons must be reported within 48 hours after the person has knowledge of the discharge.
  - A person in charge of a facility or operation shall maintain, and provide to the Department on a monthly basis, a written record of any discharges any discharge of oil from 1 to 10 gallons.

- **TO IMPERMEABLE SECONDARY CONTAINMENT AREAS**
  - Any release of oil in excess of 55 gallons must be reported within 48 hours after the person has knowledge of the discharge.

Special Requirements for Regulated Underground Storage Tank (UST) Facilities*

If your release detection system indicates a possible discharge, or if you notice unusual operating conditions that might indicate a release, you must notify the Storage Tank Program at the nearest DEC Office within 7 days:

Anchorage: (907) 269-7504
Juneau: (907) 465-5200

Fairbanks: (907) 451-2360
Seldotna: (907) 262-5210

*Regulated UST facilities are defined at 18 AAC 78.005 and do not include heating oil tanks.
Accident Prevention and Reporting Procedures

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Accident Prevention and Reporting Procedures

1.0 Introduction
Accidents are unplanned events sometimes resulting in injury or damage to property. Good companies learn from accidents especially those that don’t result in injury. This Accident and Loss Prevention Program is Davis Constructors & Engineers, Inc. (Davis) approach to reducing or eliminating accidents at the home office and jobsites. This plan can be used alone or in conjunction with other safety plans and programs.

2.0 Responsibility
Management at all levels and the Safety Department are responsible for implementation of this Program. Each Project Manager (with assistance from the Safety Department) is responsible for carrying out these provisions. Employees are responsible for understanding the safety aspects and hazard controls and using these controls properly throughout their workplace. This Site-Specific Safety Plans and/or activity hazard analysis is used to evaluate the hazards and identify suitable controls.

3.0 Communication
Project management and the Safety Department communicates with workers continually on health and safety matters including providing the incentive and mechanism for employees to report jobsite hazards, near misses, and accidents without fear of reprisal. The field crew is totally involved in all aspects of Davis Safety Programs, primarily through open communications. Anyone in our organization can call the corporate safety office (907-562-2336) for advice on a safety issue anytime, although supervisors should be aware of all communications.

4.0 Compliance
Davis makes available to all employees this Site-Specific Safety Plan and communicates requirements of each employee. Failure to comply
includes disciplinary action that may include the termination of employment.

5.0 Accident Investigation

Accident investigation and reporting is a systematic search and review for factual information on the cause, extent, and nature of an accident. The purpose of this investigation is to learn what caused an accident and how Davis can prevent similar accidents in the future throughout the company. This should be done for all near misses, property damage, and injuries.

Management and employees at all levels, plus the Safety Department are responsible for implementation of accident investigation and reporting as well as implementing follow-up recommendations.

5.1 Davis Safety Department Responsibilities

- Report injuries or illness to appropriate agencies, as required by law.
- Review all accident reports or forms, including near misses, accidents, and losses.
- Develop and coordinate report forms to ensure their current and applicable.
- Train supervisors in accident and loss responsibilities, report investigation, and recordkeeping.
- Conduct follow-up investigations when required.
- Review accident investigation policy and adjust as necessary.
- Ensure follow-up recommendations are implemented.

5.2 Supervisor/Project Manager Responsibilities

- Conduct accident investigations using appropriate forms and procedures (see forms in appendices at the end of this section). Report all:
  - Recordable occupational injuries
Near misses
Occupational illness or disease
Occupational deaths
Occupational accidents involving any of the above

- Train and encourage employees to report all work-related near misses, accidents, illnesses and injuries as they occur.
- Identify and take required corrective measures to prevent similar accidents.
- Report all serious accident and deaths immediately (or within reason) to Davis Safety Coordinator.

5.3 Employee Responsibilities
- Report immediately all occupational injuries, accident, illnesses and near misses.
- Communicate all factors surrounding an incident.
- When requested participate fully in an accident or injury investigation.

6.0 Accident Reporting Procedure

6.1 General Reporting
Standard OSHA Form 300 reporting classifications used are: Death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or a significant injury or illness diagnosed by a physician or other licensed health care professional, the reporting requirements are as follows:

Death:
You must record an injury or illness resulting in death by entering a check mark on the OSHA 300 Log in the space for cases resulting in death. You must also report any work-related
fatality to OSHA within eight (8) hours, as required by Part 1904.39.

**Days away from work:**
When an injury or illness involves one or more days away from work, record the injury or illness on the OSHA 300 Log with a check mark in the space for cases involving days away and an entry of the number of calendar days away from work in the number of days column. If the employee is out for an extended period of time, enter an estimate of the days the employee will be away and update the day count when the actual number of days is known.

**Restricted work or transfer to another job:**
When an injury or illness involves restricted work or job transfer but, does not involve death or days away from work, record the injury or illness on the OSHA 300 Log by placing a check mark in the space for job transfer or restriction and an entry of the number of restricted or transferred days in the restricted workdays column.

**Medical treatment beyond first aid:**
If a work-related injury or illness results in medical treatment beyond first aid, record it on the OSHA 300 Log. If the injury or illness did not involve death, one or more days away from work, one or more days of restricted work, or one or more days of job transfer, enter a check mark in the box for cases where the employee received medical treatment but remained at work and was not transferred or restricted.

Injuries requiring treatment beyond the care available on site requires evacuation to a facility capable of a higher level of care.

Emergency first-aid supplies are required at each work site. Minimum supplies required for worksites where a medical facility isn’t readily available include the following:

- **bandages**
- **antiseptic**
- **pain reliever**
6.2 **Employee Reporting**

All work-related accidents, injuries, and illnesses must be reported by employees as soon as they occur. In addition to verbal notification, employees complete a report of damage or an injury report form.

6.3 **Supervisors/Project Managers Reporting**

Supervisor reports all accidents to the Safety Coordinator immediately. The Safety Coordinator determines if the incident is work related and whether it’s recordable or lost-time. Enter each recordable injury or illness on the OSHA 300 Log and 301 Incident Report within seven (7) calendar days of receiving information of a recordable injury or illness has occurred, or an Alaska Worker’s Compensation Form, if applicable. OSHA Log of Occupational Injury, Form 300 is maintained at the Davis corporate office by the HR/Safety Administrator on a continuous basis from January to January of each year. For the month of February of the following year, the completed OSHA log is posted in a conspicuous location at the work place.

6.3.1 **Recordable Injuries**

An injury or illness must be considered to meet the general recording criteria, and therefore be recordable, if it results in any of the following:

- death,
- days away from work,
- restricted work or transfer to another job,
- medical treatment beyond first aid, or
- loss of consciousness.

Consider a case to meet the general recording criteria if it involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it doesn’t result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.

6.3.2 **First-aid Criteria**

For the purposes of part 1904, “first aid” means the following:

- Using a non-prescription medication at non-prescription strength (for medications available in both prescription and non-prescription; a
recommendation by a physician of other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes).

- Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment).

- Cleaning, flushing or soaking wounds on the surface of the skin.

- Using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc, are considered medical treatment).

- Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes).

- Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.).

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

- Using eye patches.

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

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

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

Drinking fluids for relief of heat stress.

This is a complete list of all treatments considered first aid for Part 1904 purposes.

6.4 Occupational Illness and Disease

Occupational illnesses for an employee is any abnormal condition or disorder, other than one resulting from an occupational injury caused by exposure to environmental factors associated with employment. Occupational illnesses include acute and chronic illnesses or diseases that may be caused by inhalation, absorption, ingestion, or direct contact with hazardous materials.

7.0 Reporting Losses and Accidents

All accidents, damage or near misses (no matter how trivial) are reported immediately to supervisors. Supervisors follow-up on each incident and report results to the Safety Coordinator and Davis management within 24 hrs of occurrence. Reportable incidents or lost-time accidents are recorded immediately on OSHA Form 300 and any required State Department of Labor forms. OSHA Form 300A is displayed at each main office from February 1 to April 30 of each year.

7.1 Procedure for Injuries

If an employee is injured and/or complains of illness or pain caused by work, follow these steps:

- Encourage the employee to go to a licensed health-care provider for treatment. A Doctor Visit Packet must go with employee to medical center. Stress to the employee that documents in the packet must be filled out before returning to work. Doctor Visit Packet and all related documents for injuries are found in the Accident Folder in jobsite office.

- Complete:
  - Employee Report of Occupational Injury or Illness to Employer, DOL form
7.2 Procedure for Serious Accidents
If it’s a serious accident, follow these steps:

- Call 911.
- Secure accident scene and don’t let anyone leave. Get witness names, company name, address, and phone number.
- Don’t talk to the media. Refer media to Josh.
- Notify family members of the location and condition of the injured employee(s)
- Call Josh at 529-8031
- Call Kirk at 952-3816

8.0 Accident and Loss Forms (See Appendices)

Post-Accident Procedures: When an employee is injured follow these steps:

Hazard Alert/Near Miss Report: All Davis employees on a job site are familiar with this form. This is intended to inform all employees, supervisors and safety personnel of near misses. Our intent is to learn from near misses and prevent accidents.

Damage to Property form: Needs to be completed by both supervisor and employee involved in an incident where damage to Davis property is done, whether it’s work related or not.
Report of Occupational Injury or Illness: The injured employee completes top portion of the form. Send form to Jacque at the corporate office within 24 hours. (This is the one page DOL form found in the jobsite accident folder.)

Davis Accident Investigation Form: This form is used to track the progress of previously reported injuries. Did they become lost time, etc?
Date:____________________

Project Name/Location:_____________________________________

Name of Injured Employee:_____________________________________

Superintendent:______________________________________________

Project Manager/Owner Signature:______________________________

Superintendent/Foremen Signature:______________________________

Employee Signature:__________________________________________

-----------------------------------------------------------------

1. Background Information:
   a. Where and when the accident occurred:

   b. Who and what were involved:

   c. Witnesses:

2. Account of the Accident (what happened?):
   a. Sequence of Events:
b. Extent of damage:

c. Personal or property:

3. Subsequent Remedial Measures:
   a. Causes (may include unsafe acts, conditions, management policies, personal, or environmental factors):

b. Remedial Recommendations (how do we prevent this from occurring in the future?):

c. Will there be additional training or discipline for the involved employee(s)?:

Attach additional notes and photos of scene and conditions (do not attach any photos that contain people).
Incident/Property Damage Report Form

Reported By _________________________________ Dept. ____________________

Date _______________________

Date of Incident ______________ Time of Incident _______ a.m. _________ p.m.

Location of Incident_____________________________________________________

Was Police Dept. Notified?  Yes ☐ No ☐ Fire Dept?  Yes ☐ No ☐

Incident Report

Please provide a brief description of the type of damage:

Injury to Person ________________________________________________________________

Damage to Property______________________________________________________________

Other (describe) _________________________________________________________________

Name of Party ________________________________ Phone____________________________

Address (include complete address, with street address, city, state and zip)
_________________________________________________________________________________

Driver’s License No. ______________________ Vehicle License No. ___________________

Briefly Describe What Happened:
_________________________________________________________________________________
_________________________________________________________________________________

Did party indicate intent to file a claim against agency?   Yes ☐ No ☐

Witnesses:
Name ______________________________  Address ________________________________

Phone ______________________________

Name ______________________________  Address ________________________________

Phone ______________________________
Hazard Alert/Near Miss Report

Employees may use this form to report a workplace hazard or provide safety suggestions.

Hazards posing an immediate danger to life or health should be reported immediately to your Supervisor.

**Date:** ________________  **Time:** _______________________________

Location of Hazard/Incident (building, room, area, and other description):
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

Description of Hazard/Incident (including whether it is Chemical, Biological, or Physical):
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

Your Recommendation for Correction: ___________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

Has this Hazard/Incident been reported to a Supervisor?  Yes ☐  No ☐

**Optional:**
**Date:** ____________

Employee Name: ________________________________

Remarks: _______________________________________________________________________
______________________________________________________________________________
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1.0 Purpose

One way to increase knowledge of hazards in the workplace is by conducting a job hazard analysis on individual tasks. A job hazard analysis (JHA) is a procedure which helps integrate accepted safety and health principles and practices into a particular operation. In a JHA each basic step of the job is examined to identify potential hazards and to determine the safest way to do the job. The analysis process may identify previously undetected hazards and increase the job knowledge of those participating.

2.0 Procedure

Four basic steps are used in conducting a job hazard analysis. The JHA is documented by using the appropriate JHA forms or tablets.

- Selecting the job to be analyzed.
- Breaking the job down into a sequence of steps.
- Identifying potential hazards.
- Determining preventive measures to overcome these hazards.

3.0 Job Selection

Ideally all jobs should be subjected to a JHA. In some cases practical constraints exist posed by the amount of time and effort required to do a JHA. Factors considered in assigning a priority for analysis of jobs include:

3.1 Accident frequency and severity

Jobs with frequent or infrequent accidents resulting in disabling injuries.

3.2 Potential for severe injuries or illnesses

The consequences of an accident, hazardous condition, or exposure to harmful substance are potentially severe.
3.3 Newly established jobs
Due to lack of experience hazards may not be evident or anticipated.

3.4 Modified jobs
New hazards may be associated with changes in job procedures.

3.5 Infrequently performed jobs
Workers may be at greater risk when undertaking non-routine jobs and a JHA provides a means of reviewing hazards.

4.0 Break the Job Into Steps
After the job is chosen for analysis the next stage is to break the job down into steps. A job step is defined as a segment of the sequence in the operation necessary to advance the work. An important point to remember is to keep the steps in correct sequence. Any “out of order” steps may miss potential hazards or introduce hazards which do not actually exist.

5.0 Identifying Potential Hazards
To help identify potential hazards the job analyst may use questions such as these (this is not a complete list):

- Could a body part be caught in or between objects?
- Do tools, machines, or equipment present any hazards?
- Could the worker make harmful contact with objects?
- Could the worker slip, trip, or fall?
- Could the worker suffer strain from lifting, pushing, or pulling?
- Is the worker exposed to extreme heat or cold?
- Is excessive noise or vibration a problem?
- Is there a danger of falling objects?
- Is lighting a problem?
- Could weather conditions affect safety?
- Is harmful radiation a possibility?
- Could contacts be made with hot, toxic, or caustic substances?
- Are there dusts, fumes, mists, or vapors in the air?
- Is there a confined space?
6.0 Determining Preventive Measures

The final stage in a JHA is to determine ways to eliminate or control the hazards. The generally accepted measures (in order of preference) are:

6.1 Eliminate the hazard

This is the most effective measure. These techniques should be used to eliminate the hazards:

- Choose a different process
- Modify an existing process
- Substitute with less hazardous substance
- Improve environment (ventilation)
- Modify or change equipment or tools

6.2 Contain the hazard

If the hazard cannot be eliminated, contact might be prevented by using enclosures, machine guards, worker booths, or similar devices.

6.3 Revise work procedures

Consideration might be given to modifying hazardous steps, changing the sequence of steps, or adding additional steps.

6.4 Reduce the exposure

These measures are the least effective and should only be used if no other solutions are possible. One way of minimizing exposure is to reduce the number of times the hazard is encountered. Personal protective equipment is a means of reducing exposures.

In listing the preventive measures use of general statements such as “be careful” or “use caution” are avoided. Specific statements which describe both what action is taken and how it’s performed are preferable.

7.0 Communication

JHA is a useful technique for identifying hazards so measures can be taken to eliminate or control them. Once the analysis is completed the results must be communicated to all workers performing that job. JHA can also be used for review when repetitive tasks are performed.
Appendices

JHA and SPA Template
<table>
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<th>Activity:</th>
<th>Spec Sections:</th>
<th>Analyzed by:</th>
<th>Date:</th>
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<td>Potential Safety/Health Hazards</td>
<td>Recommended Controls</td>
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<tr>
<th>Equipment to be used</th>
<th>Inspection Requirements</th>
<th>Training Requirements</th>
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</thead>
<tbody>
<tr>
<td>PPE:</td>
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</table>
# PLAN OF ACTION

**JOB/TASK** | **Work Area** | **DATE**
---|---|---

<table>
<thead>
<tr>
<th>Work Plan</th>
<th>Material Needed</th>
<th>Hazards</th>
<th>Safe Plan</th>
</tr>
</thead>
<tbody>
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</table>

**Crew Members**

| | | | |
| | | | |
| | | | |
| | | | |

The Supervisor certifies the completion of the Work Plan.

**Supervisor:** ____________________________  **Date:** ____________________________

*Instructions:* 1. Write the name of the job or task in the space provided. 2. In the 1st column, write the steps of the task. 3. In the 2nd column, list material needed to complete task at hand. 4. In the third column, identify the hazards that the crew will be exposed to. 5. In the Safe Plan column, provide the corrective actions that will be taken to prevent the hazards and injury from reaction to failure. 6. Review the Work Plan at the end of the task for improvements. (NOTE: THE WORK SHALL STOP IF CONDITIONS CHANGE, JOB CHANGES, OR DEFICIENCY IN PLAN IS NOTED.)
# SPA Checklist Review

Review the following after the Task Hazard Assessment has been completed to ensure all hazards have been identified and a safe plan has been noted.

## Permit Supplements

- High Work
- Hot Work
- Pipe Opening
- Confined Space
- Limited Lift
- Critical Lift
- Excavation
- Water Blasting

## Hazards

- Slips, Trips Falls
- Pinch Points
- Hand Hazards
- Working near Vehicle Traffic or Heavy Equip.
- Potential for Fire or Sparks
- Heavy Lifting
- Power Tools:
  - List:
  - Working on electrical Equip.
  - Heat Stress Potential
  - Cold Stress Potential
  - Lifting with Crane or Lifting Equipment
- Noise >85 Db
- Dust Mask
- Respirator
- SCBA

## PPE

- Cotton Coveralls
- Tyvek Suit
- Tychem Suit
- Overhead Utilities
- Additional Utilities

## Hand Protection:

- Cloth Gloves
- Leather Gloves
- Nytrel Gloves
- Cut Resistant Gloves
- Rubber Gloves
- Surgical Gloves

## Foot Protection:

- Safety Toe Boots
- Rubber Boots
- Neoprene Boots
- Metatarsal Guard

## Respiratory Protection:

- Dust Mask
- Respirator
- SCBA

## Face Protection:

- Safety Glasses
- Face Shield
- Chemical Goggles

## Eye Protection:

- Welding Hood
- Respiratory Protection:
  - Visual Protection:
  - Hearing Protection:

## Hand Protection:

- Cotton Gloves
- Leather Gloves
- Nytrel Gloves
- Cut Resistant Gloves
- Rubber Gloves
- Surgical Gloves

## Foot Protection:

- Safety Toe Boots
- Rubber Boots
- Neoprene Boots
- Metatarsal Guard

## Respiratory Protection:

- Dust Mask
- Respirator
- SCBA

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- Respirator
- SCBA
Hazard Communication Plan

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Hazard Communication Plan

1.0 Introduction

The Davis Constructors & Engineers, Inc. (Davis) Hazard Communication Program is designed to transmit information regarding the hazards of chemical and physical agents present in the workplace to those employees who may be affected.

This Hazard Communication Program was established in accordance with the Occupational Safety and Health Standards for General Industry (29 CRF 1910.1200 Hazard Communication) as regulated by the Occupational Safety and Health Administration (OSHA). In addition, this program was established in accordance with Title 8 of the Alaska Administrative Code (AAC) Chapter 61 Section 1110 (Additional Hazard Communication Standards) as regulated by the Alaska Department Labor and Workforce Development, Occupational Safety and Health Division.

2.0 Procedures

Employee exposures to hazardous chemicals and/or physical agents can lead to serious and permanent injuries and illnesses. Certain operations conducted by Davis require employees to handle hazardous chemicals and/or expose employees to physical agents.

This Hazard Communication Program provides guidelines and procedures for safe handling of hazardous chemicals and/or exposure to physical agents under normal use conditions as well as during foreseeable emergencies. It also includes areas of responsibility for Davis management, supervisors, and other employees.

This Hazard Communication Program affects all Davis employees exposed to hazardous chemicals and/or physical agents. Each Davis workplace institutes and maintains a Hazard Communication Program.
### 3.0 Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>Any element, chemical compound, or mixture of elements and/or compounds.</td>
</tr>
<tr>
<td>Combustible Liquid</td>
<td>A liquid having a flash point at or above 100 degrees Fahrenheit (°F) but below 200°F.</td>
</tr>
<tr>
<td>Compressed Gas</td>
<td>A gas or mixture of gases in a container having an absolute pressure exceeding 40 pounds per square inch (psi) at 70°F; or a gas or mixture of gases in a container having an absolute pressure exceeding 104 psi at 130°F regardless of the pressure at 70°F; or a liquid having a vapor pressure exceeding 40 psi at 100°F.</td>
</tr>
<tr>
<td>Container</td>
<td>Any bag, barrel, bottle, can, cylinder, drum, reaction vessel, storage tank, or the like containing a hazardous chemical.</td>
</tr>
<tr>
<td>Explosive</td>
<td>A chemical that when subjected to sudden shock, pressure, or high temperature causes a sudden, almost instantaneous release of pressure, gas, and heat.</td>
</tr>
<tr>
<td>Flammable Aerosol</td>
<td>An aerosol that yields a flame projection exceeding 18 inches at full valve opening or a flashback (a flame extending back to the valve) at any degree of valve opening.</td>
</tr>
<tr>
<td>Flammable Gas</td>
<td>A gas that at ambient temperature and pressure forms a flammable mixture with air at a concentration of 13% by volume or less; or, a gas at ambient temperature and pressure forms a range of flammable mixtures with air wider than 12% by volume regardless of the lower limit.</td>
</tr>
<tr>
<td>Flammable Liquid</td>
<td>A liquid having a flashpoint below 100°F.</td>
</tr>
<tr>
<td>Flammable Solid</td>
<td>A solid, other than a blasting agent or explosive, that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily. And, when ignited burns so vigorously and persistently it creates a serious hazard.</td>
</tr>
<tr>
<td>Flashpoint</td>
<td>The minimum temperature at which liquid gives off a vapor in sufficient concentration to ignite.</td>
</tr>
<tr>
<td>Hazardous Chemical</td>
<td>Any chemical that is a physical hazard or a health hazard.</td>
</tr>
<tr>
<td>Hazard Warning</td>
<td>Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning conveying the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s).</td>
</tr>
</tbody>
</table>
### Health Hazard
A chemical with statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. This term includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents that act upon the hematopoietic, and agents which damage the lungs, skin, eyes, or mucous membranes.

### Label
Any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

### Oxidizer
A chemical other than a blasting agent or explosive that initiates or promotes combustion in other materials thereby causing fire either of itself or through the release to oxygen of other gases.

### Physical Agent
Means heat stress, cold stress, hand-arm (segmental) vibration, ionizing, radiation, lasers, noise, radio frequency and microwave radiation, or ultraviolet radiation which exceeds the threshold established in the 1995-1996 edition of *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure indices in the Work Environment* published by the American Conference of Governmental Industrial Hygienists (ACGIH).

### Physical Agent Data Sheets (PADS)
Written or printed material concerning a physical agent prepared in accordance with the Alaska Department of Labor and Workforce Development Occupational Safety and Health Division requirements.

### Physical Hazard
A chemical with scientifically valid evidence that it’s a combustible liquid, compressed gas, explosive, flammable, and organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water-reactive.

### Pyrophoric
A chemical that will ignite spontaneously in air at temperatures of 130°F or below.

### Safety Data Sheet (SDS)
Written or printed material concerning a hazardous chemical prepared in accordance with OSHA Hazard Communication Standard requirements.

### Unstable ( Reactive)
A chemical in its pure state or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure, or temperature.

### Water-Reactive
A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

### Work Area
A room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

### Workplace
An establishment, jobsite, or project, at one geographical location containing one or more work areas.
4.0 Hazard Determination

Davis relies on information provided by chemical manufacturers and chemical importers for the purpose of hazard determination under this Hazard Communication Program. The information provided by chemical manufacturers and chemical importers is in the form of a safety data sheet (SDS).

4.1 Hazardous Chemical and Physical Agent Inventory List

Davis completes a hazardous chemical and physical agent inventory for each workplace. This inventory list is updated, if a new hazardous chemical or physical agent is introduced to a workplace. In addition, Davis performs (at a minimum) an annual inventory of hazardous chemicals and physical agents ensuring the inventory list is current and complete.

4.2 Safety Data Sheets

Davis obtains an SDS for each hazardous chemical present in a workplace. SDS is maintained at a central location at each workplace easily identified and readily accessible to all employees during their work shift. Davis requests SDS be supplied with shipments of hazardous chemicals to each workplace. Updated SDS (when made available by the chemical manufacturer or chemical importer) are incorporated into this Hazard Communication Program.

Davis evaluates each SDS received for completeness. At a minimum, SDS must include the following information:

- Product identification and manufacturer information.
- Hazard(s) identification.
- Composition/information on ingredients.
- First-aid measures.
- Fire fighting measures.
- Accidental release measures.
- Handling and storage
• Exposure controls / personal protection
• Physical and chemical properties
• Stability and reactivity
• Toxicological information.
• Ecological information
• Disposal considerations
• Transportation information
• Regulatory information
• Other information

4.3 Physical Agent Data Sheets
Davis obtains physical agent data sheets (PADS) for each physical agent present in a worksite. PADS are maintained at a central location at each workplace easily identified and readily accessible to all employees during their work shift. PADS are obtained from the Alaska Department of Labor and Workforce Development, Occupational Safety and Health Division at the following address:

Alaska Department of Labor
Labor Standards and Safety
3301 Eagle Street
Anchorage, Alaska 99510-7022

Phone: 907-269-4955

Internet Web Site:
http://www.labor.state.ak.us/lss/oshhome.htm
5.0 Container Labeling Procedures

Davis personnel ensure each container of an incoming shipment of hazardous chemicals is properly labeled with the following minimum information:

- Product Identifier.
- Supplier Identification.
- Precautionary Statements. (PPE, Fire, Storage, Exposure)
- Hazard Pictograms and Signal Words.
- Hazard Statement.
- Supplemental Information.

Labels supplied by the manufacturer are not defaced or removed from the containers. Labels are in English and prominently displayed on the containers.

If a Davis employee transfers a hazardous chemical from the manufacturer or importer, the employee ensures the secondary container is immediately labeled with the following minimum information:

- Product Identifier
- Supplier Identification
- Precautionary Statements
- Hazard Pictograms / Signal Words
- Hazard Statement
- Supplemental Information

Secondary container labels can include a photocopy of the original container label or any combination of words, pictures, or symbols that convey at least general information regarding the hazards of the material. SDS can be used to provide specific information to the employee when secondary container labels provide general information regarding material hazards. Employees are trained in the
specific labeling procedures for secondary containers used at each Davis worksites.

6.0 Performing Non-Routine Tasks

Davis informs affected employees of the hazards associated with the performance of non-routine tasks. Prior to initiating a non-routine task Davis management specifies the appropriate engineering controls, administrative controls, PPE, and the safe work practices required to complete a non-routine task. This information is reviewed with employees prior to performing the non-routine task.

7.0 Training Program

Davis requires all employees affected by this Hazard Communication Program attend a training program. Employee training is conducted at the time of initial assignment to a work area where hazardous chemicals and/or physical agents are present. Additional training is provided whenever a new hazardous chemical and/or physical agent is introduced to the work area for which an employee was not trained. Davis management and supervisors may require an employee repeat the training if that employee exhibits a lack of understanding regarding this Hazard Communication Program.

The contents of the training program will (at a minimum) include the following:

- The requirements of the OSHA Hazard Communication Standard.

- Additional hazard communication requirements of the Alaska Department of Labor and Workforce Development.

- Any operations in work area where hazardous chemicals and/or physical agents are present.

- The location and availability of this Hazard Communication Program including the hazardous chemical and physical agent inventory list, SDS, and PADS.

- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.
• The physical and chemical health hazards of chemicals and/or physical agents in the work area.

• The measures employees can take to protect themselves from the physical and chemical health hazards and/or physical agents (e.g., appropriate work practices, emergency procedures, and PPE).

• The details of this Hazard Communication Program including an explanation of the labeling system, SDS, and PADS, and how employees can obtain and use the appropriate hazard information.

When training about hazards associated with hazardous chemicals the information may be presented to cover categories of hazards such as flammable liquids, carcinogens, or compressed gases. However, chemical-specific information of each hazardous chemical must always be available through labels and SDS.

8.0 Subcontractor Requirements

Davis coordinates the implementation of this Hazard Communication Program in each workplace where subcontractors may be exposed to hazardous chemicals and/or physical agents. Davis provides a copy of this Hazard Communication Program and applicable SDS and PADS to the subcontractors. In addition, subcontractors are responsible for providing Davis with copies of SDS and PADS for hazardous chemicals or physical agents they intend introducing at a Davis worksite. Affected Davis and subcontractor employees are trained on the hazardous chemicals or physical agents for the new hazards they may be exposed to.

9.0 Posting Requirements

Davis ensures current state and federal labor law documents are posted at each workplace. This poster is designed to meet the requirements of Alaska Statute (AS) 18.60-065. An equivalent poster may be displayed, if it meets the requirements of AS 19.60-065 through 18.60-068.

In addition, Davis posts SDS, PADS or equivalent information for each hazardous chemical and physical agent to which an employee may be exposed. Instead of posting each SDS or PADS, Davis may instead
opt to post the hazardous chemical and physical agent inventory list at each workplace with an identification of a location where employees may access SDS and PADS at any time during the work shift.
Jobsite and Equipment Inspection

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1.0 Purpose ................................................................. 2
2.0 Responsibility .......................................................... 2
3.0 Types of Inspections .................................................. 2
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4.0 Reporting and Documentation ..................................... 3
Jobsite and Equipment Inspection

1.0 Purpose
Inspections are performed on all jobsite locations and equipment for prevention and identification of potential hazards. In most every section of this SSP there’re requirements for either daily or weekly inspections. Some inspections are performed informally (daily) and not documented, but other formal inspections (daily and weekly) may require documentation kept on site.

2.0 Responsibility
The Project Manager, Superintendent, and Foreman are all responsible for making sure all inspections are performed on the jobsite. Employees are responsible for performing daily informal inspections and may be assigned the task of performing and documenting formal inspections.

3.0 Types of Inspections
Ideally, all jobs and equipment are subjected to an inspection. The following is a list of inspections that should be performed. This list is non-inclusive; there may be other required inspections. Consult our Safety Coordinator.

3.1 Daily Inspections
- Work area
- Exits, corridors, pathways
- Site security
- Material storage
- Lighting
- Housekeeping
- Tools and guards
- Electrical cords and panels
- Non-powered mobile scaffold (baker, teletower)
- Fall-arrest equipment being used
- PPE
- Ladders
- Slip hazards
- Temp. heat
3.2 Daily

- All power equipment, forklift, aerial lift, scissor lift, cranes, etc.
- Erected scaffolding
- Swing stage scaffolding
- Excavations
- Confined space

3.3 Weekly (formal documented)

- Jobsitewide safety inspection: hazards and corrections
- Storm water pollution prevention

3.4 Monthly

- Fire extinguishers: documented on extinguisher tag.

4.0 Reporting and Documentation

- All employees are required to report all safety hazards to their supervisors.

- All employees are required to fix or correct all safety hazards noted during inspections in a timely manner regardless if the inspection was documented or not.

- Forms for inspection documentation can be found in the appendices of this section or in the appendices following a specific section of this SSSP.

**Note:** Various weekly inspections forms are in the appendices of this section. This will allow for jobsites to use the form that fits their needs best.
## Safety Inspection Report

**Jobsite:** _________________________________   **Date:** ____________________________________

**Company Name:** _______________________     **Representative:** _______________________

**S=Satisfactory, U=Unsatisfactory, N/A**

<table>
<thead>
<tr>
<th>Safety Item</th>
<th>Grade</th>
<th>Location and Corrections Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper PPE used for all tasks.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ladders used properly, no use of top 2 steps.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step ladders fully opened &amp; locked when in use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exits, corridors, &amp; pathways clear.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile scaffolds used properly, castors locked.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighting adequate in all work areas.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right tool being used for the job and guards in place.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extension cords in good condition and inspected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical panels clear and accessible.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFCI used in all connections.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire extinguishers inspected and accessible.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot work activities have extinguisher nearby.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp heating devices safe, no combustibles nearby.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work areas clear of construction debris.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Break areas clean and trash disposed properly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials storage neat and orderly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammable/combustible materials stored properly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tools stored properly when not in use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restroom facilities adequate and clean.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment inspections performed daily.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perimeter icy slip hazards controlled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site &amp; equipment secured at end of each day.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Inspection observations, findings, and comments:**

1. ___________________________________________________________________

2. ___________________________________________________________________

3. ___________________________________________________________________

4. ___________________________________________________________________

*Use the back of the sheet for additional notes.*
### Weekly Safety Inspection Guide

**Performed By:**

**Location:**

**Date:**

**S=Satisfactory, U=Unsatisfactory, N/A**

*Use the back of this sheet for additional notes*

<table>
<thead>
<tr>
<th>Safety Item</th>
<th>Grade</th>
<th>Date Corrected</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forklifts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspections performed and up to date.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check boom and forks for cracks.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check nylon straps for wear.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check steel chokers for kinks and fraying.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ladders</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ladders inspected and in good condition.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ladders properly secured top and bottom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extension ladders extend 3’ at top edge.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ladders used properly, no use of top two steps.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step ladders fully opened &amp; locked when in use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ladders used near guard rails worker using FAS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No metal ladders around electrical hazards</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ladder safety feet used properly.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Scaffolding/Mobile Scaffolding</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All structural members meet safety factors.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All connections secure.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foot sills and mud sills provided.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffold plumb and square with cross bracing.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guard rails, intermediate rails, toe boards.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate, sound planking provided.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffold equipment in good working order.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ropes and cables in good condition.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile scaffold wheels/casters locked when in use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rails use when working surface above six feet.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall Protection/Arrest Equipment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check body harnesses for wear problems.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check lanyards, wear and snap hooks.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check anchorages for holding strength (5,000 lbs).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check self-retracting lifelines for use and inspection.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check guardrails placed at heights.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Personal Protective Equipment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head protection--hard hats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hearing protection--noise monitoring on job.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foot protection.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety glasses.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubber gloves, aprons &amp; sleeves for chemicals.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proper PPE used for all activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricians rubber gloves and protectors.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety Item</td>
<td>Grade</td>
<td>Date Corrected</td>
<td>Notes</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-------</td>
<td>----------------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>FIRE PREVENTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire protection program developed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire instructions provided to personnel.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate fire extinguishers provided, identified, inspected and accessible at necessary locations.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone number of fire department posted.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrants clear, access open (not blocked).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good housekeeping in evidence.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temporary heating devices safe. Adequate ventilation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HOISTS AND CRANES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cables and sheaves regularly inspected.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slings and chains, hooks and eyes inspected</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment firmly supported.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outriggers used if needed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power lines inactivated, removed or at a safe distance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swing radius barricaded.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proper loading for capacity at lifting radius.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated load capacities posted.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All equipment properly lubricated and maintained.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signal workers where needed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signs posted, understood and observed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspection and maintenance logs maintained.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazard signs posted and visible to operator.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WELDING AND CUTTING, HOTWORK</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operators qualified.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screens and shields used when needed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goggles, welding helmets, gloves and clothing used.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment in safe operating condition.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical equipment grounded.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power cables and hoses protected and good repair.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire extinguishers of proper type nearby.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surrounding area inspected for fire hazards.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammable materials protected or removed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas cylinders secured upright.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder caps in use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OPENINGS IN FLOORS AND ROOFS</strong></td>
<td></td>
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<tr>
<td>Covered properly or guarded.</td>
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<tr>
<td>Covering material will hold 200 lbs.</td>
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</table>
Use the back of the sheet for additional notes

<table>
<thead>
<tr>
<th>Safety Item</th>
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<th>Date Corrected</th>
<th>Notes</th>
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<tbody>
<tr>
<td><strong>WORK METHODS &amp; ATMOSPHERE</strong></td>
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<tr>
<td>Proper Lifting Techniques used.</td>
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<td>No running on the jobsite</td>
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<tr>
<td>Adequate manpower for individual activities.</td>
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<tr>
<td>Workers aware of the their surroundings.</td>
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<tr>
<td>Slip, trip, or fall hazards identified and corrected.</td>
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<tr>
<td>Housekeeping.</td>
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<tr>
<td>Are JHA’s completed for each task.</td>
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<tr>
<td>Inspections documented for excavation/confined space.</td>
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<td>Proper lighting for outdoors and work area.</td>
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<tr>
<td><strong>JOB SITE INFORMATION</strong></td>
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<tr>
<td>All required posters posted.</td>
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<td>Safety Meetings Held and Documented.</td>
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<td>Medical services, first aid equipment.</td>
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<td>Emergency Telephone numbers posted.</td>
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<td>Haz-Com information posted.</td>
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<tr>
<td>MSDS collected and available.</td>
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<tr>
<td><strong>HEALTH INFORMATION PROGRAM</strong></td>
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<tr>
<td>Employees aware of any dangerous airborne hazards.</td>
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<td>Employees aware of any dangerous chemical hazards</td>
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<tr>
<td>PADS available to all employees.</td>
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<tr>
<td><strong>HAND TOOLS</strong></td>
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<tr>
<td>Proper tools being used for each job.</td>
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<tr>
<td>Safe carrying practices used (and on ladders).</td>
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<tr>
<td>Tools are regularly inspected and maintained.</td>
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<td><strong>POWER TOOLS</strong></td>
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<td>Good housekeeping where tools are used.</td>
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<td>Tools and cords in good condition.</td>
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<td>Proper grounding of all tools (3 prongs!).</td>
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<td>Proper instruction in use provided.</td>
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<tr>
<td>All mechanical safeguards in use.</td>
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<tr>
<td>Tools neatly stored when not in use.</td>
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<td>Right tool being used for the job at hand.</td>
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<td>Wiring properly installed.</td>
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<tr>
<td><strong>POWDER-ACTUATED TOOLS</strong></td>
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<td>All operators licensed.</td>
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<td>Tools used only on recommended materials.</td>
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<td>Safety glasses or face shields worn.</td>
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<td>Tools stored properly &amp; unloaded when not in use.</td>
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<td>Competent instruction and supervision provided.</td>
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<tr>
<td><strong>HEAVY EQUIPMENT</strong></td>
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<td>Inspection and maintenance records current.</td>
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<td>Lights, brakes and warning signals operative.</td>
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<td>Wheels chocked when necessary</td>
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<td>Haul roads well maintained and properly laid out.</td>
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<td>Equipment is properly secured when not in use.</td>
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<td>Noise arresters in use.</td>
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<td>Roll over protection devices in place.</td>
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<td>Fire extinguishers installed and inspected.</td>
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<td><strong>MOTORIZED VEHICLES &amp; LIFT TRUCKS</strong></td>
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<td>Barricades illuminated or reflectorized at night.</td>
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<td>Traffic control devices used when appropriate.</td>
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<td>Inspection and maintenance records up to date.</td>
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<td>Operators qualified for vehicle in use.</td>
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<td>Brakes, lights and warning devices operative.</td>
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<td>Weight limits and load sizes controlled.</td>
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<td>Personnel transported in safe manner.</td>
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<td>Fire extinguishers installed where required.</td>
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<td>Backup signals (visual and audible ) provided.</td>
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<td>Forks, masts, hydraulic lines, batteries, fuel lines, etc. in good shape.</td>
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<td><strong>FLAMMABLE GASES &amp; LIQUIDS (HAZ-MAT)</strong></td>
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<td>All containers approved and clearly identified.</td>
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<td>Proper storage practices observed.</td>
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<td>Fire hazards checked.</td>
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<td>Proper types and number of extinguishers nearby.</td>
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<td>Proper method for moving cylinders used.</td>
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<td>MSDS information available.</td>
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<tr>
<td><strong>HOUSEKEEPING</strong></td>
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<td>Sanitary facilities adequate and clear.</td>
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<td>Potable water available for drinking.</td>
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<td>Disposable drinking cups available/container for used cups.</td>
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<td>Working areas generally neat.</td>
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<td>Waste and trash regularly disposed.</td>
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<td>Enclosed chute provided when material dropped outside of building from over 20 feet.</td>
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<td>Lighting adequate for all work tasks.</td>
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<td>Projecting nails removed or bent over.</td>
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<tr>
<td>Oil &amp; Grease removed from all passageways</td>
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<tr>
<td>Waste containers provided and used.</td>
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<tr>
<td>Passageways and walkways clear.</td>
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<tr>
<td><strong>MATERIAL STORAGE/HANDLING</strong></td>
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<tr>
<td>Materials properly stored or stacked.</td>
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<tr>
<td>Passageways clear.</td>
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<tr>
<td>Stacks on firm footings, not too high.</td>
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<td>Materials protected against weather conditions.</td>
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<tr>
<td>Trash chutes safeguarded and properly used.</td>
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<tr>
<td>Dust protection observed.</td>
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<tr>
<td>Traffic controlled in storage area.</td>
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<tr>
<td><strong>AIR COMPRESSORS</strong></td>
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<tr>
<td>Equipped with pressure gauge.</td>
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<td>Safety valve provided.</td>
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<tr>
<td>Hoses secured to fittings</td>
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<tr>
<td>Reducer valve installed.</td>
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<tr>
<td><strong>IMPALEMENT HAZARDS</strong></td>
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<tr>
<td>Vertical hazards and exposed rebar capped.</td>
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<tr>
<td>Conduit and tubing capped or covered.</td>
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<tr>
<td>Horizontal hazards covered and marked.</td>
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<tr>
<td><strong>ELECTRICAL INSTALLATIONS</strong></td>
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<tr>
<td>Adequate wiring, insulated, grounded, protected</td>
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<tr>
<td>Ground fault circuit interrupters tested</td>
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<td>Electrical panels clear.</td>
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<tr>
<td>Terminal boxes equipped with required covers.</td>
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<tr>
<td>Extension cords in good condition.</td>
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<td>Time Observed:</td>
<td>Location:</td>
<td>Safety Deficiency:</td>
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The above safety deficiencies were observed on the jobsite as indicated. Please ensure the safety deficiencies are corrected and have the person verifying the correction sign and date where indicated.

Safety Officer: ___________________________ Date: ___________________________

Return Completed Form to Safety Officer
1. Site Safety Orientation Sheet
2. Site Safety Orientation Log
3. Weekly Safety Meeting Topic Sheet
4. Weekly Safety Meeting & Inspection Sheet – 24 Names
5. Weekly Safety Meeting Attendance Log
6. General Training Log
7. Training Records
**Policy for Safety Orientation**

Before a new employee or subcontractor may begin work they must participate in a Site Safety Orientation which explains the policies and mandatory safety requirements for working on a Davis construction project.

**The following information has been conveyed to me:**

1. Safety needs to be integrated into everything we do—**think safe**, don't do anything you feel is unsafe.
2. Attendance at daily or **weekly safety meetings** is required; Monday at 12:30.
3. How to obtain, use, and care for (PPE) personal protective equipment.
   - Appropriate clothing must be worn at all times on the jobsite.
   - Work boots, 4” sleeves, and long-legged pants (No tank tops or shorts).
   - **Hardhats and safety glasses must be worn at all times.** Exceptions must be approved.
   - Reflective vest will be worn when working around heavy equipment.
4. How to perform initial job assignments in a safe manner through job hazard analysis (JHA).
5. Hazard Communication (HAZCOMM), SDS, jobsite postings, and environmental issues (SWPPP).
6. Actions to take in an emergency, including exit routes from the site, and safe gathering areas. Employees are required to report to their supervisor immediately any and all unsafe conditions, injuries or illnesses, regardless of the degree of severity.
7. The location of first aid kits, fire extinguishers (hot work), and eyewash station.
8. Keep in mind that all employees are responsible for housekeeping.
9. **Inspect** all electrical equipment and cords daily before use. All power sources must be GFCI protected.
10. **Daily inspection** of all equipment prior to use. Equipment will be used according to manufacturer’s specifications.
11. **Accident and injury reporting** and employee rights and obligations regarding workers’ compensation.
12. Operation, qualifications, and lockout/tag out of equipment.
13. Davis Constructors employees must undergo required drug testing prior to the first day of employment.
14. **Profane language** will not be tolerated.
15. **Cell phone** policy.

**Site Specific Safety Procedures**

1. **Fall protection** is required for any activity that exposes an employee to a fall of **six or more feet**, if employees need to use fall protection they must attend specific training.
2. Emergency **phone numbers** are located on each safety station positioned at the site entrance points.
3. **No Smoking** except in authorized areas.
4. **SWPPP**, report all spills and any water or liquids flowing off site. Spill kit.
5. **Park** only in authorized areas and observer posted speed limits on site as these are strictly enforced.
6. Maintain the **security** of the jobsite by securing tools in locked gang boxes, locking doors and gates.
7. Working around the **public and traffic** considerations.
8. **Other** site issues as needed.

**Acts That Are Grounds For Immediate Dismissal**

1. The use of alcohol or narcotics on the job or arrival on the job under the influence of these substances.
2. No fighting, inciting riots, practical joking, horseplay, or sexual/racial harassment.
3. Carrying firearms or dangerous weapons to the job site.
4. Theft of material, equipment, or supplies.
5. Unauthorized use of company vehicles, reckless driving, and operating tagged out equipment.
6. Repeated minor, or a major violation of safety regulations.

**Employee or Subcontractor Signature**

This informational form provides an overview and is not intended to be an all-inclusive list. Davis Constructors reserves the right to revise any policy at its sole discretion, at any time, without prior notice. All information in this orientation checklist was explained to me, and I agree to comply with Davis Constructors Safety policies.

<table>
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<tr>
<th>Print Name</th>
<th>Company</th>
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<tbody>
<tr>
<td>Sign Name</td>
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</table>

**Supervisor or Briefer Signature**

I explained all items in this orientation checklist to the employee.

<table>
<thead>
<tr>
<th>Print Name</th>
<th>Kirk Waggoner</th>
<th>Title</th>
<th>Safety Coordinator</th>
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<tbody>
<tr>
<td>Sign Name</td>
<td>Date</td>
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<tr>
<td>Print Name</td>
<td>Signature</td>
<td>Company</td>
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# SAFETY ORIENTATION LOG

DAVIS CONSTRUCTORS

<table>
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# WEEKLY SAFETY MEETING

**Jobsite:**

**Job # :**

**Date:**

**Time:** 12:30

Meeting held by:

## Items to Discuss

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## Other Items of Discussion

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### Weekly Safety Meeting & Jobsite Inspection Report

**Jobsite:**

**Date:**

**Time:**

Meeting held by:

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**Items Discussed**

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**Action to be Taken**

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**Inspector:**

**Jobsite Inspection Title:**

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<td>Interior Housekeeping in Order</td>
<td>Hardhats Worn Where Necessary</td>
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<td>Exterior Housekeeping in Order</td>
<td>Flammable Materials Properly Stored</td>
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<td>Storage Yard Housekeeping in Order</td>
<td>Back-Up Alarms Operational</td>
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<tr>
<td>Ladders/Scaffolds Secured</td>
<td>Blankets &amp; Stretchers in Order</td>
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<td>Walkway &amp; Corridors Clear</td>
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<td>First-aid Kits Serviceable</td>
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## General Training Log

**Equipment Type:**

**Project Number:**
**Project Name:**

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<th>Instructor Printed Name</th>
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<th>Employee Name</th>
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**Notes:**

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Fall Prevention and Protection

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1.0 Introduction

The purpose of the Fall Prevention and Protection Plan (FPPP) is to establish minimum requirements for the use of fall protection and prevention devices for employees exposed to fall hazards.

The FPPP applies to all Davis Constructors & Engineers, Inc. (Davis) projects and activities when working within the scope of our Health and Safety Policies.

2.0 Policy

Anytime employees are working from an unprotected elevation of six (6) feet or more above the ground or next lower level, fall protection must be used. Working (as just described) means while traveling, stationary or at anytime exposed to a fall from a surface not protected by a standard guardrail or other approved fall prevention device.

3.0 References

- 29 CFR 1926.500-.503: Fall Protection
- 29 CRF 1910.66 Appendix C: Personal Fall Arrest System
- ANSI Z359.1 – 1992: Fall Protection in General Industry

4.0 Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Anchorage</td>
<td>A secure point of attachment to which the fall protection system is ultimately connected.</td>
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<tr>
<td>Competent Person</td>
<td>One who is capable of identifying hazardous and dangerous conditions regarding fall protection equipment, is knowledgeable in the application and the use of the equipment, and has the authority to take prompt corrective actions.</td>
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<td>Deceleration Device (Shock Absorber)</td>
<td>Any device which serves to dissipate a substantial amount of the energy during fall arrest or otherwise limits the energy imposed on the body during fall arrest.</td>
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<td>Designated Area</td>
<td>A fall prevention system composed of a warning line and stanchions erected 6’ or more from a fall hazard</td>
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<tr>
<td>Term</td>
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<tr>
<td>“D” Ring</td>
<td>An attachment point on the full-body harness for attaching a lanyard or other fall protection device.</td>
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<td>Fall Prevention</td>
<td>Installation of barriers or use of restraining devices physically preventing a person from being exposed to a fall hazard.</td>
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<td>Fall Protection</td>
<td>The use of passive equipment designed to stop and/or control the free fall once a fall is initiated.</td>
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<td>Free Fall</td>
<td>Distance the D-ring travels from the onset of a fall to the time when the fall arrest system is activated (excludes deceleration distance and any system elongation).</td>
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<td>Full-body Harness</td>
<td>A personal fall-protection device secured around the body, and a lanyard device attached. It’s designed to distribute fall-arresting forces primarily over the buttocks and thighs.</td>
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<td>Lanyard</td>
<td>A flexible strap connected to the full-body harness at one end and an anchorage or anchorage connector at the other end.</td>
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<td>Lifeline</td>
<td>A flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection at both ends to stretch horizontally (horizontal lifeline) and to which other elements of a fall-arrest system are attached.</td>
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<td>Low-sloped Roof</td>
<td>A roof having a slope of less than or equal to 4 on 12 (vertical to horizontal).</td>
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<td>Qualified Person</td>
<td>Recognized professional with an extensive knowledge of fall-prevention system who is capable in design, analysis, evaluation, and specification of fall-protection equipment.</td>
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<td>Restraint Line</td>
<td>A line from a fixed anchorage to which an employee is secured in such a way as to prevent the employee from reach an identified fall hazard.</td>
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<td>Self-retracting Lifeline</td>
<td>A fall-protection device that eliminates slack automatically as the worker moves. These units have a braking mechanism which senses and arrests free falls.</td>
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<td>Snap Hook</td>
<td>A self-closing, self-locking connector used for attaching lanyard devices to the full-body harness D-ring and to the anchorage.</td>
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5.0 Responsibilities

5.1 Site Management
Site management is (superintendent, foreman, line supervisors) responsible for ensuring the overall implementation of and compliance with Davis fall-protection policies and procedures. They must be familiar with the fall-protection policy and utilize the expertise at their disposal to ensure employees are protected from fall hazards.

5.2 Site Supervision
Supervisors responsible for employees performing work covered by the Davis Fall-Protection policy must:
- Continuously monitor the work to assure compliance with this procedure.
- Confirm each job is properly evaluated for fall hazards and confirm that these hazards are properly eliminated or controlled.
- Ensure employees are aware of any hazards associated with their work.
- Ensure employees receive proper training on fall hazard recognition and use of fall-protection/prevention equipment.
- Ensure employees adhere to all requirements of the fall-protection policy.

5.3 Employees
Employees performing work tasks covered by this procedure must:
- Be aware of potential fall hazards associated with their work and ensure these hazards are properly addressed prior to the work beginning.
- Know the uses and limitations of fall-protection equipment.
- Inspect fall-protection equipment prior to each use and remove any defective equipment from service.
• Report any fall or close call to supervisor and remove from service any fall-protection equipment subjected to a fall.

5.4 Corporate Health and Safety Department
The Safety Department assists site management and supervision in the implementation, training, monitoring, and documentation associated with the fall protection program. It’s also a responsibility of the Safety Department to provide the expertise and guidance necessary to help ensure employees are adequately protected from fall hazards.

5.5 Competent Persons
Competent persons are responsible for ensuring:
• Thorough, in-depth inspections of fall-protection equipment was performed.

• Fall-protection equipment is used in compliance with this procedure and all manufacturers’ and regulatory requirements.

6.0 Training
Employees are trained in the proper use, care, and limitations of fall-protection equipment prior to using the equipment.

At a minimum, training must address the following areas:

• Davis Fall Protection Policy and Procedures.

• Evaluating fall hazards.

• Fall prevention.

• Equipment use, care, and limitations.

• Proper fitting and wearing of fall-protection equipment.

• Requirements and proper use of anchor points.

• Inspections.

Training is documented, signed, dated by the employee and instructor, and maintained in the employee’s safety training file.
Re-training is required if a lack of proficiency is observed or when new equipment or new hazards are introduced.

7.0 Inspection and Storage

7.1 Storage
Fall-protection equipment is stored in a clean dry location away from exposure to abrasive cutting tools and equipment, corrosive materials, excessive heat, and other sources of damage.

Full-body harnesses are hung by the D-ring for storage.

7.2 Inspections
Prior to each use the employee/user inspects all fall-protection equipment.

Inspection consists of an evaluation of the following areas:

- Harness components:
  - Stitching
  - Rivets
  - Buckle tabs
  - Snap hooks
- “D” Rings
- Lanyards and lifelines
- Connectors
- No tears or cuts
- No burns
- No abrasion
- No rust or corrosion
- No mildew

Defective equipment is immediately removed from service, tagged as defective, then repaired or destroyed and replaced.

7.3 **In-depth Inspections**

Designated Competent Persons must conduct in-depth inspections of all jobsite fall-protection equipment prior to job start up and periodically (at least annually).

These in-depth fall protection inspections are documented using **Appendix 1-4** or an equivalent.

The Competent Person utilizes the specific fall-protection equipment manufacturer’s inspection instructions to perform the in-depth inspections. Or, at a minimum for harnesses and lanyards, utilize the items outlined in 7.2 of this Section.

Fall-protection equipment passing the in-depth inspection is documented and the documentation is kept on file at the jobsite.

Care is taken not to cover with tape or markers any equipment component vital to inspection or performance. Do not cover stitching, grommets, adjusting mechanisms, labels, etc.

Some types of fall-protection equipment (such as self-retracting lifelines) require periodic recertification by the manufacturer at scheduled intervals. The Competent Person is familiar with these requirements and has recertification performed and documented.

Defective fall-protection equipment subjected to fall forces must be immediately removed from service, destroyed and replaced, or recertified by the manufacturer.

### 8.0 Procedure

8.1 **Fall Hazards: General Discussion/Information**

The key factor in protecting against falls is the recognition of the hazard. Falls are generally a result of inadequate planning,
poor work practices, poor work conditions, or a combination of these.

A fall-protection work plan is developed for high risk work activities requiring fall protection using Appendix 5 or equivalent. Planning begins prior to the start of a project or task and consists of:

- Layout and arrangement of tools and equipment.
- Identifying aisles, passageways, entrances, exits, and ensuring these are maintained free of obstruction and trip hazards.
- Ensuring proper illumination.
- Addressing inclement weather conditions (wind, rain, sleet, snow, ice and mud).
- Use of personnel hoisting equipment (aerial lifts, personnel baskets, etc.)

The Competent Person determines whether walking and working surfaces are structurally capable of supporting workers safely.

Employees on the edge of excavations deeper than six feet must be protected from falling by guardrails, fences, or barricades when the excavations are not easily visible.

Employees working from elevated positions with less than a six-foot fall hazard, but above dangerous equipment or conditions, must be protected from falling onto the hazard by fall prevention, fall protection or equipment guards.

8.2 Same-Level Fall Hazards

- Good housekeeping is the key to preventing same-level falls.
- Material are stored in designated areas out of passageways and not allowed to accumulate in the work area or around worktables, desks, threading machines, etc. causing a hazard.
• Surfaces are kept free of slipping hazards (ice, grease, oil, chemicals, metal shavings etc.)

• Floor holes and openings are covered and secured to not create tripping hazards.

• Attempts must be made to maintain even floor surfaces.

• Electrical cords, welding leads, hoses, etc. must be elevated or positioned so they don’t create tripping hazards.

### 8.3 Falls From Elevation

A momentary loss of balance resulting from a slip or trip can often lead to an elevated fall. Grabbing on to something to catch oneself after balance is lost rarely succeeds. Fall prevention or protection is required to protect employees from injuries due to falls from elevation.

The objective of elevated fall “protection” is to stop or control the free fall once a fall is initiated, therefore reducing the potential for injury.

Fall hazard distance begins and is measured from the level of a workstation on which an employee must initially step and where a fall hazard exists. It ends with the greatest distance of possible continuous fall, including steps, openings, projections, roofs, and direction of fall (interior or exterior).

### 8.4 Fall Prevention

Fall “prevention” as defined, eliminates potential for exposure to a fall. For this reason, it’s preferred over fall-protection devices and should be the first choice for eliminating exposure to fall hazards.

Examples of fall-prevention devices include:

• **Guardrails**: Approved guardrails are used to form a barrier at a fall exposure. It consists of a top rail, mid-rail, and a toe board.

• **Hole Covers**: Hole or floor opening covers must be strong enough to support at least twice the maximum intended load and must be installed and secured in a manner
which prevents their accidental displacement or removal. They must also be clearly marked: “Danger, Hole Cover. Do Not Remove” or “Hole” or “Cover.”

- **Restraint Lines**: Restraint lines are designed to limit travel so no physical hazard is reachable in any direction of movement. Restraint lines and their anchorage points must be capable of supporting at least 3,000 lbs. tensile load.

### 8.5 Standard Protection

Standard protection against falls is the assurance of adequate guardrails, handrails, mid-rails, and toe boards are installed on all work surfaces including platforms, scaffolds, etc.

Attempts are made to either install permanent guardrails or install temporary guardrails on or around surfaces four feet above the floor level.

Scaffolds, ladders, aerial lifts, or other work platforms are used in compliance with all Davis, manufacturer, and regulatory requirements.

### 8.6 Fall Protection

Only fall-protection equipment approved for use by a Davis Competent Person is allowed.

All fall-protection equipment is inspected prior to each use and is maintained in good working order at all times. Equipment or components found to be defective must be immediately removed from service and replaced or repaired by qualified repair personnel.

Fall-protection equipment is for fall protection use only and is not to be used for any other purpose such as positioning or hoisting.

All components of personal protection; e.g. harnesses, lanyards, anchorage, lifelines and connectors must have a minimum break strength of 5,000 pounds.

Any equipment designated for a fall-protection system, but useable for other activities (i.e. slings, choker, carabineers, etc.) must be tagged, identified, or otherwise controlled for use only
for fall protection. The Competent Person, prior to incorporation into a fall-protection system, approves equipment manufactured for use other than fall protection.

All fall-protection equipment is designed, purchased and used in accordance with this procedure and all applicable manufacturer and regulatory requirements.

Fall-protection equipment is designed and/or protected from “hot-work” operations, chemicals or other damaging conditions.

8.6.1 Distance Requirements
A fall-protection must not allow for more than a six-foot free fall.

The fall-protection system is used and secured in a fashion so the user cannot contact the next lower level—if a fall occurs. This includes all of the following:

- Free-fall distance, plus
- System elongation, plus
- Deceleration device/shock absorbers, plus
- Employee height (distance from anchor point to D-ring).

Site management uses provisions in the “Elevated Surface Work Emergency Action and Rescue Plan” for prompt rescue of employees in the event of a fall.

8.7 Use of Fall-Protection Equipment

8.7.1 Full-body Harness
An approved full-body harness is used as protection against falls to a lower level when guardrails or other approved fall prevention cannot be utilized.

Full-body harnesses must also be worn and properly anchored when employees are working from aerial lifts, scissor lifts, personnel baskets, and similar equipment.
Full-body harnesses must fit and be worn properly with straps tucked so they don’t catch on equipment or cause a hazard. Chest straps are worn between the chest and collarbone, with the D-ring worn between the shoulder blades.

Full-body harnesses used on Davis projects must, at a minimum, be equipped with various “D-rings” with use based on location:

- Back: general fall protection use
- Front: used with climbing system
- Side: positioning device only, not to be used as fall protection
- Shoulder: rescue line attachment.

8.7.2 Snaphooks
Only self-closing, self-locking snap-hooks are allowed for fall protection use on Davis projects.

Snap-hooks must open and close properly and be fully closed around their anchorage point.

8.7.3 Anchorage Points
Anchorage points must be capable of supporting at least a 5000 lb. load per person or a safety factor of two designed by a qualified person. The points are independent of the work surface when possible.

The anchorage point is at least as high as the harness D-ring and preferably higher, to minimize free-fall distance with no more than a six-foot free fall.

8.7.4 Deceleration Devices (Shock Absorbers)
- Shock absorbers are required as part of an overall fall-protection system.
- At a minimum shock absorbers are required as part of fall-protection lanyards.
8.7.5 Lanyards

- The shortest length lanyard possible should always be used.

- Lanyards must have a maximum length to provide for a free-fall distance of no more than six feet.

- Lanyards are used in conjunction with a shock absorber or shock-absorbing agent.

- Do not attach more than one person to a lanyard.

- Dual or “Y” lanyards may be required to achieve 100 percent fall protection in some work situations.

- When not in use lanyards are secured in a manner not causing tripping hazards or becoming entangled in equipment.

- Flexible steel cable lanyards are not used by personnel performing work on or in close proximity to electrical equipment. A non-conductive lanyard must be used when near electrical equipment.

8.7.6 Retractable Devices

- Retractable devices are designed to arrest fall within two feet.

- Tag lines are used to prevent the uncontrolled retracting of these devices.

- Retractable devices are used with the person at less than a 45-degree angle from the device to prevent the hazards of a swing fall.

- Only retractable devices bearing current manufacturers certification are used.

8.7.7 Vertical Lifelines

- Only one employee may use a vertical lifeline at a time. Separate vertical lifelines are required for each employee when multiple users are required.
• Vertical lifelines are equipped with a formed eye termination at one end for suspension from the anchorage point and must extend below the lowest level of travel.

• The lower end is either attached to a second anchor point or weighted down to provide stability.

• Grab devices are compatible with the type and size of rope or cable used and remain above the shoulder of the user.

• Manufacturers specify maximum lanyard length for use on their vertical lifelines (usually nine inches). Standard six-foot lanyards are generally not permitted.

8.7.8 Horizontal Lifelines
Horizontal lifelines are either designed by a qualified person with a safety factor of at least two, or manufactured components erected by competent persons and used in compliance with all manufacturer requirements and safety factors.

8.7.9 Safety Nets
Only safety nets designed by the manufacturer as fall-protection nets are used. These are installed in accordance with all manufacturer requirements, as close to work level as possible and extend outward from the surface. (See OSHA 29 CFR 1926.502 (c) for distances).

Nets may have maximum 6” by 6” openings and are either certified by a qualified person or pass a 400 lb. drop test at the following intervals: prior to use, whenever relocated, after repair, and every six months if left in place.

Nets in use are inspected by a competent person at least weekly for wear, damage, and deterioration. Inspections are documented.

8.8 Work on Rooftop Equipment
When performing work on equipment located on low-sloped rooftops, fall prevention or fall protection is required only if the
work demands the employee be within six feet of the roof edge, not including access to and egress from the roof.

Fall prevention or fall protection is required at all times when performing work on equipment located on any roof other than a low-sloped roof.

8.9 Roofing Work
Persons involved in roofing work are protected by either a fall-prevention or fall-protection system.

A designated area is acceptable for work on low-sloped roofs (4 on 12 vertical to horizontal) as long as employees are not required to be within six feet of the edge. If employees are within six feet of the edge, then the following is required: guardrails, restraint lines, or fall protection must be provided within six feet of the edge.

A designated area is not acceptable fall prevention for work on steep roofs (greater than 4 on 12 vertical to horizontal).

9.0 Minimum Specifications for Fall-Prevention Systems

9.1 Guardrails
Must be constructed and surfaced in a way to prevent punctures, lacerations, and snags.

9.1.1 Top Rails
- Capable of 200 lbs. with less than 3” deflection with no permanent deformation;
- Should be 42” high, but can be no less than 39” high and no more than 45” high.

9.1.2 Mid-rails
- Capable of 150 lbs. with no permanent deformation.
- Maximum opening of 19 inches between rails.

9.1.3 Wood Rails
- At least 2” by 4” top rail.
- At least 1” by 6” mid rail.
- On 8’ maximum centers.
• Minimum 1500 psi construction grade lumber.

9.1.4 Pipe Rails
• 1.5” outside diameter on 8’ maximum centers.

9.1.5 Steel Rails
• 2” by 2” by 3/8” angle iron on 8’ maximum centers.

9.1.6 Wire Rope Rails
• ¼” diameter cable stretched taunt; less than 3” deflection.
• Flagged at 6’ intervals with high visibility materials.

9.2 Restraint Lines
• Capable of 3000 lb. tensile load.
• Limit travel so no fall hazard is reachable in ANY direction.

9.3 Designated Areas
• Used only if low sloped area (less than or equal to 4 on 12; vertical on horizontal),
• Area must be designated six feet or more from the unprotected edge.
• Access path with warning lines to ladders, storage areas, etc.

9.3.1 Stanchions
• Capable of 16 lbs. tipping strength horizontally.

9.3.2 Line/Rope
• Capable of 500 lbs. break or tensile strength between 34” and 39” above the work surface.
• Flagged at 6’ intervals with high visibility materials.

10.0 Fall-Protection Work and Rescue Plan
A fall-protection work plan is created for each situation that fall-protection or fall-arrest systems are used. Incorporated within this plan are details of rescue procedures used in the event of an accident or fall. Jobsites will use Appendix 5 for this procedure.
Davis Constructors & Engineers, Inc.
Site-Specific Safety Plan

Appendix 1-4 FPS inspection documents

Appendix 5 FPS work plan document
# Fall Protection Work Plan

**Note:** Employees review the requirements of this fall protection work plan prior to starting work. This plan is available at the jobsite during work activities. Also, employees are trained and instructed in accordance with 29 CFR 1926 Subpart M, Fall Protection.

## Job Location Description:

1. Identify all fall hazards 1.83 m (6 ft) or more in the work area:
   - [ ] Leading edge
   - [ ] Stairways
   - [ ] Floor openings
   - [ ] Perimeter edge
   - [ ] Ladders
   - [ ] Steel erection
   - [ ] Scaffold erection/disassembly
   - [ ] Through a roof
   - [ ] Other (describe):

2. Method of fall protection to be provided:
   - [ ] Fall restraint
   - [ ] Guardrails
   - [ ] Warning line
   - [ ] Fall arrest
   - [ ] Catch platform
   - [ ] Safety monitor
   
   Describe:

3. Describe the correct procedure for assembly, maintenance, inspection, and disassembly of the fall protection system to be used:

4. Describe the correct procedure for handling, storage, and securing of tools and material:

5. Describe the method of providing overhead protection for workers who may be in, or pass through, the area below the work site:
   - [ ] Barricading
   - [ ] Toeboards on scaffolds and floor openings
   - [ ] Hard hats required
   - [ ] Warning signs
   
   Describe:

6. Describe the method for prompt, safe removal of injured workers:
   - [ ] Initiate emergency response (911)
   - [ ] Use drop lines or retraction devices
   - [ ] Use ladders
   - [ ] Utilize lift truck or personnel platform
   - [ ] Utilize scaffolds
**Fall Protection Work Plan**

<table>
<thead>
<tr>
<th>7. Describe the method used to determine the adequacy of attachment points:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Manufacturer’s data</td>
</tr>
<tr>
<td>☐ Evaluation by qualified engineer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Identify the employees working at/near a “leading edge.”</th>
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<tbody>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Identify the safety monitor(s) (if used – or N/A):</th>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>10. Justify selecting controlled access zone and/or safety monitor (if used – or N/A):</th>
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<tbody>
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</table>

**Approvals**

<table>
<thead>
<tr>
<th>Fall Protection Plan Completed By:</th>
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<tr>
<th>Approved By:</th>
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</table>

<table>
<thead>
<tr>
<th>Responsible Supervisor</th>
<th>Date</th>
<th>Project Safety</th>
<th>Date</th>
</tr>
</thead>
</table>
# Full-Body Harness
## Annual Inspection Checklist

Harness Model/Name: _____________________________________________________________

Serial Number: ____________________________  Lot Number: __________________________

Date of Manufacture: ______________________  Date of Purchase: _________________

Comments: _______________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

---

<table>
<thead>
<tr>
<th>General Factors</th>
<th>Accepted/Rejected</th>
<th>Supportive Details/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Hardware:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>includes D-rings,</td>
<td>Accepted</td>
<td></td>
</tr>
<tr>
<td>buckles, keepers</td>
<td>Rejected</td>
<td></td>
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<tr>
<td>and back pads.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect for damage,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>distortion,</td>
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</tr>
<tr>
<td>sharp edges,</td>
<td></td>
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<tr>
<td>burrs, cracks and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>corrosion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. <strong>Webbing:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect for cuts,</td>
<td>Accepted</td>
<td></td>
</tr>
<tr>
<td>burns, tears,</td>
<td>Rejected</td>
<td></td>
</tr>
<tr>
<td>abrasions, frays,</td>
<td></td>
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<tr>
<td>excessive soiling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and discoloration.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. <strong>Stitching:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect for pulled</td>
<td>Accepted</td>
<td></td>
</tr>
<tr>
<td>or cut stitches.</td>
<td>Rejected</td>
<td></td>
</tr>
<tr>
<td>4. <strong>Labels:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect, making</td>
<td>Accepted</td>
<td></td>
</tr>
<tr>
<td>certain all labels</td>
<td>Rejected</td>
<td></td>
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<tr>
<td>are securely held</td>
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<tr>
<td>in place and are</td>
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<td>legible.</td>
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<tr>
<td>5. <strong>Other:</strong></td>
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<td></td>
<td>Accepted</td>
<td></td>
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<td></td>
<td>Rejected</td>
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<tr>
<td>6. <strong>Other:</strong></td>
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<tr>
<td></td>
<td>Accepted</td>
<td></td>
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<td></td>
<td>Rejected</td>
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<tr>
<td>7. **Overall</td>
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<tr>
<td>Disposition:**</td>
<td>Accepted</td>
<td>Inspected by: ______________</td>
</tr>
<tr>
<td></td>
<td>Rejected</td>
<td>Date Inspected: __________</td>
</tr>
</tbody>
</table>
# Lanyards
## Annual Inspection Checklist

**Lanyard Model/Name:** ______________________________________________________

**Serial Number:** _____________________ **Lot Number:** ______________

**Date of Manufacture:** _____________________ **Date of Purchase:** __________

**Comments:** ________________________________________________________________

<table>
<thead>
<tr>
<th>General Factors</th>
<th>Accepted/Rejected</th>
<th>Supportive Details/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) <strong>Hardware:</strong> (includes snaphooks, carabiners, adjusters, keepers, thimbles, and D-rings) Inspect for damage, distortion, sharp edges, burrs, cracks, corrosion, and proper operation.</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
<tr>
<td>2) <strong>Webbing:</strong> Inspect for cuts, burns, tears, abrasions, frays, excessive soiling and discoloration.</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
<tr>
<td>3) <strong>Stitching:</strong> Inspect for pulled or cut stitches.</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
<tr>
<td>4) <strong>Synthetic Rope:</strong> Inspect for pulled or cut yarns, burrs, abrasions, knots, excessive soiling and discoloration.</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
<tr>
<td>5) <strong>Energy Absorbing Component:</strong> Inspect for elongation, tears, and excessive soiling.</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
<tr>
<td>6) <strong>Labels:</strong> Inspect, making certain all labels are securely held in place and are legible.</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
</tbody>
</table>
| 7) **Overall Disposition:** | Accepted | **Inspected by:** ____________

**Date inspected:** ____________
# Snaphooks/Carabiners
## Annual Inspection Checklist

Hook/Carabiner Model Name: _______________________________________________

Serial Number: _____________________________ Lot Number: _______________

Date of Manufacture: _______________________ Date of Purchase: ___________

Comments: _________________________________________________________________

_______________________________________________________________________

_______________________________________________________________________

<table>
<thead>
<tr>
<th>General Factors</th>
<th>Accepted/Rejected</th>
<th>Supportive Details/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) <strong>Physical Damage:</strong> Inspect for cracks, sharp edges, burrs, deformities and locking operations.</td>
<td>Accepted</td>
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<tr>
<td></td>
<td>Rejected</td>
<td></td>
</tr>
<tr>
<td>2) <strong>Excessive Corrosion:</strong> Inspect for corrosion, which affects the operation and/or the strength.</td>
<td>Accepted</td>
<td></td>
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<tr>
<td></td>
<td>Rejected</td>
<td></td>
</tr>
<tr>
<td>3) <strong>Markings:</strong> Inspect and make certain marking(s) are legible.</td>
<td>Accepted</td>
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<td></td>
<td>Rejected</td>
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<tr>
<td>4) <strong>Other:</strong></td>
<td>Accepted</td>
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<td></td>
<td>Rejected</td>
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<tr>
<td>5) <strong>Other:</strong></td>
<td>Accepted</td>
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<td></td>
<td>Rejected</td>
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<tr>
<td>6) <strong>Other:</strong></td>
<td>Accepted</td>
<td></td>
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<td></td>
<td>Rejected</td>
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<tr>
<td>7) <strong>Overall Disposition:</strong></td>
<td>Accepted</td>
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<td></td>
<td>Rejected</td>
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</table>

Inspected by: ____________

Date inspected: ____________
Self-Retracting Lanyard/Lifeline
Annual Inspection Checklist

Self-retracting Lanyard/Lifeline Model Name: ________________________________

Serial Number: _________________________ Lot Number: ______________________

Date of Manufacture: _______________ Date of Purchase: _______________

Department/Location: ______________________________________________________

Comments: __________________________________________________________________
____________________________________________________________________________

<table>
<thead>
<tr>
<th>General Factors</th>
<th>Accepted/Rejected</th>
<th>Supportive Details/Comments</th>
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<tbody>
<tr>
<td>1) Impact Indicator:</td>
<td></td>
<td></td>
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<tr>
<td>2) Screws/Fasteners:</td>
<td></td>
<td></td>
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<tr>
<td>3) Housing:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Laynard/Lifeline:</td>
<td></td>
<td></td>
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<tr>
<td>5) Locking Action:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Retraction/Extension:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Hooks/Carabiners:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Labels:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9) Overall Disposition:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inspected by: ____________

Date inspected: ___________
<table>
<thead>
<tr>
<th>Harness Model / Name</th>
<th>Date of Manufacture</th>
<th>Date of Purchase</th>
<th>Serial Number</th>
<th>Comments</th>
<th>Hardware</th>
<th>Webbing</th>
<th>Stitching</th>
<th>Lables</th>
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<td>Accepted</td>
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<td>Accepted</td>
<td>Rejected</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

**Full-body Harness Reports**

- **Hardware**: Includes D-Rings, buckles, keepers and back pads.
- **Webbing**: Inspect for cuts, burns, tears, abrasions, frays, etc.
- **Stitching**: Inspect for pulled or cut stitching or stitches.
- **Lables**: Inspect; make sure all labels are securely held in place.

*Inspect for pulled or cut stitching or stitches.*
*Inspect; make sure all labels are securely held in place.*
# Elevated Surface Work

## Emergency Action and Rescue Plan

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</tr>
<tr>
<td>2.0 Types of Fall Rescues</td>
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<tr>
<td>3.0 Employee Training</td>
<td>2</td>
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<td>4.0 Communication</td>
<td>2</td>
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<tr>
<td>5.0 Emergency Rescue Procedures and Medical-duty Assignments</td>
<td>3</td>
</tr>
<tr>
<td>6.0 Rescue Plan</td>
<td>3</td>
</tr>
</tbody>
</table>
1.0 Purpose

The purpose of this Emergency Action and Rescue Plan (EARP) is to ensure employee safety whenever fall-arrest systems are in use and when personnel may not be able to self-rescue, if a fall occur. This written document is prepared to demonstrate compliance with 29 CFR 1926.500. It provides a written document detailing the actions and procedures to be followed in case of a fall emergency.

Employees must know what’s expected of them in all such rescue situations in order to provide assurance of their safety (from injury or fall) as well as the safety of the person being rescued. This plan contains the required information for employee knowledge.

2.0 Types of Fall Rescues

At this location, the following types of fall hazards exist while using fall-arrest systems:

1. Fall from a platform or walking/working surface.
2. Fall from an articulating boom lift.
3. Fall from a scaffold.

3.0 Employee Training

All employees involved in emergency rescues are trained in safe rescue procedures and refresher training is conducted whenever the employee’s responsibilities or designated actions under the plan change and whenever the plan itself is changed. In addition, the employer must review with each employee upon initial assignment the parts of the plan which the employee must know to protect the employee in the event of a rescue emergency. The training includes the communication process and the use of equipment to rescue workers should a fall occur.

4.0 Communication

In the event of a fall the Emergency Activation Plan or Man Down Procedure is initiated. Evaluate the emergency to decide whether the emergency responders should be contacted (911). If emergency
responders are called (911) all foremen in the EAP should immediately proceed to the locations assigned to guide responders to the emergency site. The foremen assigned to the work area where the fall occurred are in charge of rescue coordination.

5.0 Emergency Rescue Procedures and Medical-duty Assignments

The following are the rescue procedures in the event of a fall:

If needed, immediately call 911 emergency responders. Professional emergency services responding to an emergency will assist with and direct all rescue and medical-duty assignments upon their arrival.

1. If fall victim is stable, in good condition, and can communicate, evaluate the scene and decide if job personnel can rescue victim.

2. If rescue is required and incident foreman believes rescue actions by personnel are unsafe; the local fire department responding to the emergency is responsible for performing any rescue.

3. If any of the following conditions arise, activate rescue plan:
   - Fall victim becomes unstable.
   - Fall victim has pain from hanging in the harness.
   - Fall victim was suspended for more than 10 minutes and emergency responders have not arrived.
   - Fall victim is at a height that fire department cannot reach.

6.0 Rescue Plan

Evaluate the scene and best means available for rescue. All rescue personnel must have fall-protection systems in place before attempting a rescue.

1. Can you safely gain access with ladders, man lifts, crane basket or hoists? If yes, move equipment into place and carefully secure and rescue victim. If no, go to next option.

2. Can victim be accessed through an opening or window in the building by pulling into opening and securing? If yes, gather personnel to support operation. Secure rescue positioning
device (RPD) to secure anchor point and have enough personnel at access point to connect and secure victim. If no, go to next option.

3. Is there’s an access point for lowering or raising the victim from an above elevation? If yes, gather enough personnel to raise or lower victim. Secure RPD to an anchor point above victim. Attach the RPD to the victim. If no, wait for responders.

NOTE: If a victim is lowered or raised, rescuers must attach a secondary line (RPD) to victim. Responder must have approved RPD system to perform this rescue.

4. If victim is removed from arrest situation, evaluate victim’s condition to decide if medical treatment is necessary.

5. Designated personnel trained in first aid and cardiopulmonary resuscitation (CPR) are to provide medical assistance within their capacities.
# Forklift Procedures and Training

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3.0 Hazards ......................................................................................... 3  
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5.0 Pre-qualification .......................................................................... 4  
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2. Forklift Training Class Outline  
3. Forklift Operator Evaluation  
4. Forklift Inspection Log
Forklift Procedures and Training

1.0 Introduction

Material handling is a significant safety concern. Numerous possibilities for personal injury and property damage exist when moving products and materials, if proper procedures and cautions are not used. This information applies to all forklifts, powered-industrial trucks, hoists, and lifting gear. This information is for training prospective industrial-truck operators and for providing the basis for refresher and annual retraining. OSHA reference for Powered-Industrial Trucks is 1910.178.

2.0 Responsibilities

2.1 Management

- Provide adequate training in safe operation of all equipment used to move or access materials.
- Provide safe equipment to operate.
- Implement an “Out of Service” program for damaged equipment.
- Prohibit modification of equipment except those authorized in writing by the equipment manufacturer.
- Establish safe operating rules and procedures.

2.2 Superintendents

- Monitor safe operations of material-handling equipment.
- Ensure all equipment is safety checked daily.
- Tag “Out of Service” any damaged equipment.
• Ensure all subcontractors using our equipment are trained (show documentation) and evaluated by Davis Constructors and Engineers, Inc. (Davis) personnel.

2.3 Employees
• Employees operate only equipment they're specifically trained and authorized to operate.
• Conduct required daily pre-use inspections.
• Report any equipment damage or missing safety gear.
• Follow all safety rules and operating procedures.

3.0 Hazards
• Falling loads.
• Overloading of equipment.
• Impact with equipment.
• Piercing of containers.
• Loading dock roll off.
• Chemical contact, battery acid.
• Fires during refueling.

4.0 Hazard Controls
• Control of equipment keys.
• Planning tasks.
• Authorized fueling and recharge areas
• Proper palletizing and stabilizing of material.
• Ensure routes of travel.
• Equipment warning lights.
• Seat belts.

• Mounted fire extinguishers.

5.0 Pre-qualification
All candidates for powered-industrial truck (PIT) operators must meet the following basic requirements prior to starting initial or annual refresher training:

• Must have no adverse vision problems that cannot be corrected by glasses or contacts.

• No adverse hearing loss that cannot be corrected with hearing aids.

• No physical impairments that would impair safe operation of the PIT.

• No neurological disorders affecting balance or consciousness.

• Not taking any medication affecting perception, vision, or physical abilities.

6.0 Training

6.1 Training for Forklifts and PITs
Training is conducted by an experienced operator selected by management. All operational training is conducted under close supervision. All training and evaluation is completed before an operator is permitted to use a powered-industrial truck (forklift, etc) without continual and close supervision. See Appendix 1-3 for Training Program, Training Outline and Operator Evaluation.

6.2 Powered-Industrial Truck Operating Requirements
Trainees may operate a powered-industrial truck only:

• Under the direct supervision of persons, selected by management, with knowledge, training, and experience to train operators and evaluate their competence.
6.3 Training Content
Training consists of a combination of formal instruction, practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator’s performance in the workplace.

6.4 Initial Training
Powered-industrial truck operators receive initial training in the following topics:

- Operating instructions, warning, and precautions for the types of truck the operator will be authorized to operate.
- Differences between the truck and an automobile.
- Truck controls and instrumentation, location of controls, what they do, and how they work.
- Engine or motor operation.
- Steering and maneuvering.
- Visibility (including restrictions due to loading).
- Fork and attachment adaptation, operation, and use limitations.
- Vehicle capacity.
- Vehicle stability.
- Any vehicle inspection and maintenance the operator is required to perform.
- Refueling and/or charging and recharging of batteries.
- Operating limitations.
- Any other operating instructions, warnings, or precautions listed in the operator’s manual for the types of vehicle the employee is being trained to operate.
6.5 Workplace-related Topics

- Surface conditions where the vehicle will operate.
- Composition of loads to be carried and load stability.
- Load manipulation, stacking and unstacking.
- Pedestrian traffic in areas where the vehicle will be operated.
- Narrow aisles and other restricted places where the vehicle will be operated.
- Hazardous (classified) locations where the vehicle will be operated.
- Ramps and other sloped surfaces that could affect the vehicle's stability.
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a build up of carbon monoxide or diesel exhaust.
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

6.6 Refresher Training and Evaluation

Refresher training, including an evaluation of the effectiveness of that training, is conducted to ensure the operator has knowledge and skills needed to operate the powered-industrial truck safely. Refresher training in relevant topics is provided to the operator when:

- The operator is observed operating the vehicle in an unsafe manner.
- The operator is involved in an accident or near-miss incident.
- The operator receives an evaluation revealing the operator is not operating the truck safely.
- The operator is assigned to drive a different type of truck.
7.0 Safe Operating Procedures (SOP) and Rules

- Only authorized and trained personnel will operate PITs.

- All PITs are equipped with a headache rack, fire extinguisher, rotating beacon, back-up alarm, and seat belts. Seat belts are worn at all times by the operator.

- The operator performs daily pre- and post-trip inspections.

- Any safety defects (such as hydraulic fluid leaks, defective brakes, steering, lights, or horn, and/or missing fire extinguisher, lights, seat belt, or back-up alarm) is reported for immediate repair or have the PIT taken “Out of Service.”

- Operators follow the proper recharging or refueling safety procedures.

- **Loads are tilted back and carried not more than six inches from the ground. Loads restricting operator’s vision are transported backwards.**

- PITs travel no faster than 5 mph or faster than a normal walk.

- Hard hats are worn by PIT operators at all times.

- Operators sound the horn and use extreme caution when meeting pedestrians, making turns, and cornering.

- Passengers may not ride on any portion of a PIT. Only the operator rides PITs.

- If PITs are used as a man lift, an appropriate man-lift platform (care with standard rails and toe-boards) is used.

- Aisles are maintained free from obstructions, marked, and wide enough (six foot minimum) for vehicle operation.
• Lift capacity is marked on all PITs. Operator assures load does not exceed rated weight limits.

• When unattended PITs are turned off, forks lowered to the ground, and parking brake applied.

• All PITs (with exception of pallet jacks) are equipped with a multi-purpose dry chemical fire extinguisher (minimum rating is 2A:10B:C).

• Operators are instructed to report all accidents, regardless of fault or severity, to management. Management conducts an accident investigation.

7.1 Changing and Charging Storage Batteries

• Battery charging installations are located in areas designated for the purpose.

• Facilities are provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks and for adequate ventilation for dispersal of fumes from gassing batteries.

• A conveyor, overhead hoist, or equivalent material handling equipment is provided for handling batteries.

• Reinstalled batteries are properly positioned and secured in the truck.

• A carboy tilter or siphon is provided for handling electrolyte.

• When charging batteries, acid is poured into water; water is not poured into acid.

• Trucks are properly positioned and brake applied before attempting to change or charge batteries.

• Care is taken to assure vent caps are functioning. The battery (or compartment) cover(s) is open to dissipate heat.
• Smoking is prohibited in charging areas.

• Precautions are taken to prevent open flames, sparks, or electric arcs in battery charging areas.

• Tool and other metallic objects are kept away from the top of uncovered batteries.

7.2 Operations

• If at anytime a powered-industrial truck is found to need repair, is defective, or in any way unsafe, the truck is taken out of service until it’s restored to safe operating condition.

• Trucks are not driven up to anyone standing in front of a bench or other fixed object.

• No person is allowed to stand or pass under the elevated portion of any truck—whether loaded or empty.

• Unauthorized personnel are not permitted to ride on powered-industrial trucks.

• Arms or legs are not placed between the uprights of the mast or outside the running lines of the truck.

• When a powered-industrial truck is left unattended, load engaging means are fully lowered, controls are neutralized, power shut off, and brakes set. Wheels are blocked, if the truck is parked on an incline.

• A safe distance is maintained from the edge of ramps or platforms while on any elevated dock, or platform, or freight car. Trucks are not used for any activity other than what it was designed for. Follow manufacturer’s procedures.

• There’s sufficient headroom under overhead installation, lights, pipes, sprinkler systems, etc.

• An overhead guard is 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.

- A load backrest extension is used whenever necessary to minimize the possibility of the load (or part of it) falling backwards.

- Trucks are not parked in a way to block fire aisles, access to stairways, or fire equipment.

### 7.3 Traveling

- All traffic regulations are observed including authorized speed limits. A safe distance is maintained approximately three truck lengths from the truck ahead, and the truck is kept under control at all times.

- The right of way is yielded to ambulances, fire trucks, or other vehicles in emergency situations.

- Other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations are not passed.

- The driver is required to slow down and sound the horn at cross aisle and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver is required to travel with the load trailing.

- Railroad tracks are crossed diagonally wherever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited.

- The driver is required to look in the direction of and keep a clear view of the path of travel.

- Grades are ascended and descended slowly. When ascending or descending grades in excess of 10 percent loaded trucks are driven with the load upgrade. On all grades the load and load-engaging means are tilted back if applicable, and raised only as far as necessary to clear the road surface.
Davis Constructors & Engineers, Inc.

Site-Specific Safety Plan

- Under all travel conditions the truck is operated at a speed permitting it to be brought to a stop in a safe manner.

- Stunt driving and horseplay are not permitted.

- The driver is required to slow down for wet and slippery floors.

- Dock board or bridge plates are properly secured before driven over. Dock board or bridge plates are driven over carefully and slowly and their rated capacity never exceeded.

- Running over loose objects on the roadway is avoided.

- While negotiating turns speed is reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at very low speed, the hand steering wheel is turned at a moderate, even rate.

7.4 Loading

- Only stable or safely arranged loads are handled. Caution is exercised when handling off-center loads which cannot be centered.

- Only loads within the rated capacity of the truck are handled.

- The long or high (multiple-tiered) loads which may affect capacity are adjusted.

- Trucks equipped with attachments are operated as partially loaded trucks when not handling a load.

- A load engaging means is placed under the load as far as possible; the mast is carefully tilted backward to stabilize the load.

- Extreme care is used when tilting the load forward or backward particularly when high tiering. Tilting forward with load engaging means elevated is prohibited except to
pick up a load. An elevated load is not 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 is used.

7.5 Fueling Safety

- Fuel tanks are not filled while the engine is running. Spillage is avoided.
- Spillage of oil or fuel is carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.
- No truck operates with a leak in the fuel system!
- Open flames are not used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.

7.6 Maintenance of Powered-Industrial Trucks

- Any power-operated industrial truck not in safe operating condition is removed from service. All repairs are made by authorized personnel.
- Those repairs to the fuel and ignition system of industrial trucks which involve fire hazards are conducted only in locations designated for such repairs.
- Trucks needing repair to the electrical system have the battery disconnected prior to such repairs.
- All industrial truck parts are replaced only with parts equivalent to those used in the original design so safety is maintained.
- Industrial trucks are not altered in ways changing the relative positions of the various parts from what they were when originally received from the manufacturer. Nor, are they altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts. Additional counter-weighting of fork trucks is not done unless approved by the truck manufacturer.
Industrial trucks are examined before placing in service, and are not placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examinations are made at least daily. Where industrial trucks are used on a round-the-clock basis, they’re examined prior to each shift. Defects found are immediately reported and corrected.

When the temperature of any part of any truck is found to be in excess of its normal operating temperature (creating a hazardous condition) the vehicle is removed from service and not returned until the cause for overheating is eliminated.

Industrial trucks are kept in a clean condition, free of lint, excess oil, and grease. Non-combustible agents are used for cleaning trucks. Low flash point (below 100 deg. F.) solvents are not used. High flash point (at or above 100 deg. F.) solvents may be used.

8.0 Safe Operation Procedure for Charging LPG Tank

• No smoking.

• Move LPG PIT outside for refueling.

• Turn off PIT.

• LPG tanks are removed in following order:
  1. Shut off service valve.
  2. Disconnect tank from hose.
  3. Unbuckle and remove tank from bracket.

• LPG tanks are replaced in to following order:
  1. Place tanks in bracket and re-buckle.
  2. Reconnect hose to tank and tighten firmly.
  3. Open valve slowly and assure proper seal.
NOTE: Federal law prohibits dispensing an improper fuel type into any vehicle or into a non-approved fuel container.

8.1 In Case of LPG Leaks or Tank Rupture

• DO NOT start or move the PIT.

• If fuel hose is leaking, close valve immediately and place PIT “Out of Service” until repaired.

• If tank ruptures, warn others to immediately leave the area (at least 50 feet), and notify management. Do not re-enter the area until cleared by management.

9.0 Powered-Industrial Truck Pre-use Checklist

A check of the following items (as applicable) is conducted by the operator prior to use each shift:

• Lights
• Horn
• Brakes
• Leaks
• Warning beacon
• Back-up warning alarm
• Fire extinguisher

If any deficiencies are noted, the unit is placed “Out of Service” until the problem is corrected. Additionally, it’s the operator’s responsibility to notify the immediate supervisor and fill out a maintenance request. See Appendix 4 for inspection checklist.
Forklift Training Class Outline

I. AGC Forklift Video

II. Power Point Presentation
   a. OSHA Regulations
      1. What is the requirement
      2. Why is it necessary
      3. Who is authorized/qualified
      4. What must be done to become authorized/qualified
      5. What is considered a forklift
   b. Davis Forklift Policies
   c. Types of Forklifts
   d. Operators Responsibility
      1. Qualified
      2. Functions properly/inspection
   e. Pre- Operation Inspection
      1. Procedure
      2. Defective items
      3. Reporting
   f. Forklift Inspection Form
   g. Nameplate/Warning Signs
      1. Capacity
      2. Load center
      3. Modifications
      4. Operator controls
      5. Hand signals
      6. Signal words
   h. Load Characteristics
      1. Ratings/capacity
      2. Estimation
      3. Loads to avoid
   i. Forklift Physics
      1. Center of gravity
      2. Load center
      3. Stability triangle
      4. Combined actions
5. Load charts

j. Forklift Attachments

k. Operational Hazards
   1. Surface working conditions
   2. Obstacles
   3. Paths
   4. Congestion
   5. Environmental factors
   6. Closed environments
   7. Blind spots

l. Operational Conditions
   1. Static
      a) Load
      b) Fork position
      c) Lift height
      d) Tilt
      e) Tire pressure
   2. Dynamic
      a) Acceleration
      b) Speed
      c) Braking
      d) Ramps/slopes
      e) Raising/lowering loads

m. Operational Knowledge
   1. Controls
   2. Gauges, lights, and dials
   3. Load capacities
   4. Speed and gear ranges
   5. Differences between forklift and autos
   6. Braking and steering
   7. Turn radius and clearance

n. Fueling
o. Seatbelts
p. Rules of Operation
q. Review

III. Test
IV. Inspection Performance
V. Operational Evaluation
VI. Issue certification
VII.
Davis Constructors & Engineers, Inc. (Davis) ensures each powered-industrial truck (forklift) operator is competent to operate. Prior to permitting an employee to operate a forklift, Davis ensures the employee successfully completes the training outlined below.

**Trainers**
Training and evaluation of forklift operators is conducted by persons with the knowledge, training, and experience to train forklift operators and evaluate their competence.

**Initial Training**
Forklift operators receive initial training, are evaluated, and found competent in the following topics:

1. **Forklift related topics:**
   a. Operating instructions, warnings, and precautions for the types of forklift the operator will be authorized to operate,
   b. Differences between the forklift and an automobile,
   c. Forklift controls and instrumentation: where they are, what they do, and how they work,
   d. Engine or motor operation,
   e. Steering and maneuvering,
   f. Visibility (including restrictions due to loading),
   g. Fork and attachment adaptation, operation, and use limitations,
   h. Vehicle capacity,
   i. Vehicle stability,
   j. Any vehicle inspection and maintenance the operator is required to perform,
   k. Refueling and/or charging of batteries,
   l. Operating limitations,
   m. Any other operating instructions, warnings, or precautions listed in the operator’s manual for the types of vehicle the employee is being trained to operate.

2. **Workplace-related topics:**
   a. Surface conditions where the vehicle operates,
   b. Composition of loads carried and load stability,
   c. Load manipulation, stacking, and unstacking,
d. Pedestrian traffic in areas where the vehicle operates,
e. Narrow aisles and other restricted places where the vehicle operates,
f. Hazardous (classified) locations where the vehicle operates,
g. Ramps and other sloped surfaces that could affect the vehicle’s stability,
h. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust,
i. Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

Refresher Training and Evaluation
Refresher training in relevant topics is provided to the operator when:

1. The operator is observed operating the forklift in an unsafe manner,
2. The operator is involved in an accident or near-miss incident,
3. The operator received an evaluation revealing he/she isn’t operating the forklift safely,
4. The operator is assigned to drive a different type of forklift, or
5. A condition in the workplace changes in a manner that could affect safe operation of the truck.

Additionally, an evaluation of each forklift operator’s performance is conducted at least once every three (3) years.

Avoid Duplicate Training
If an operator previously received training meeting the requirements outlined above and can show proof of that training, then additional training is not required. Instead, such operator must be evaluated and found competent to operate the forklift safely.

Subcontractor Training and Evaluation
A subcontractor’s employee driving a Davis forklift must be competent to do so. If the subcontractor’s employee has not had forklift training, Davis may provide the training. If a subcontractor employee gives Davis documentation showing he/she received forklift training on the type of forklift to be operated, the employee may operate Davis equipment without further training. However, Davis may choose to evaluate the employee’s capabilities first. Documentation will be maintained in the jobsite safety files.
Recordkeeping
Davis will certify each forklift operator is trained and evaluated as required by this program.

Each jobsite maintains a:
1. List of approved forklift trainers/evaluators including the:
   a. name of the trainer,
   b. type of equipment authorized,
   c. date approved.

2. General training log for classes held,

3. List of approved forklift operators including the:
   a. Name of the operator,
   b. Name of the evaluator,
   c. Date of evaluation,
   d. Type of forklift the operator is authorized to operate.

These lists are forwarded periodically to the Safety Coordinator for the master training log.
**Davis Constructors**  
**Forklift Operator**  
**Performance Evaluation**

Employee: ______________________________

Types of forklifts this employee was trained on, skills evaluated and approved to operate on Davis projects:

1. ____________________________________  2. ____________________________________  3. ____________________________________

<table>
<thead>
<tr>
<th>Evaluator</th>
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“Categories that were Evaluated”:  
NO SEAT BELT USED = FAILED!

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<tr>
<th>Eval. #1</th>
<th>Eval. #2</th>
<th>Eval. #3</th>
<th>Eval. #4</th>
<th>Eval. #5</th>
<th>Eval. #6</th>
<th>Task Description</th>
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<td>Performed operator’s inspection before driving the vehicle.</td>
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<td>Showed familiarity with control levers.</td>
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<td>_</td>
<td>_</td>
<td>Gave proper signals when turning.</td>
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<td>_</td>
<td>Slowed down and sounded horn at blind corners.</td>
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<td>Obeyed signs and spotters’ hand signals.</td>
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<td>Maintained a clear view in the direction of travel.</td>
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<td>Yielded to pedestrians.</td>
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<td>Turned corners correctly &amp; looked for rear-end swing in confined areas.</td>
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<td>Vehicle under control at all times.</td>
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<td>Properly approached loads squarely and stopped ahead of load.</td>
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<td>Lifted load properly.</td>
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<td>Load balanced properly. Operator understands combined CG.</td>
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<td>Traveled with load at proper height.</td>
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<td>_</td>
<td>Stopped smoothly and completely, lowered load smoothly and slowly.</td>
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<td>Placed loads correctly.</td>
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<td>_</td>
<td>_</td>
<td>Drove backward when required.</td>
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<td>Checked load weights and charts before lifting heavy loads.</td>
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<td>Grounded forks when parked, controls neutralized, brakes set, power off.</td>
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<td>_</td>
<td>Fuel/Propane refill procedures explained and followed.</td>
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</tbody>
</table>

**Note:** A check in the box indicated that the operator passed that specific task.  
If any discrepancies were noted, the operator was briefed and re-evaluated performing that specific task.
Davis Constructors

FORKLIFT OPERATORS

DAILY INSPECTION LOG
FORKLIFT OPERATORS DAILY CHECKLIST
(COMPLETE BEFORE THE START OF EACH SHIFT)

FORKLIFT Make: ____________________ Model: ____________________

Location: ______________________________________________________

(Check any defective item with an x and give details)

WALK AROUND
__ STRUCTURE, (cleanliness, physical condition, window, mirrors) ____________
__ TIRES, (lug nuts, cuts, gouges, pressure) _________________________________
__ FORKS / BACKREST, (bent, cracked, pins) ______________________________
__ BOOM / MAST, (broken welds, rollers, chains) __________________________
__ BATTERY (corroded cables, fluid level) _________________________________
__ HYDRAULIC HOSES AND CYLINDERS, (leaks / wear) ____________________
__ FIRE EXTINGUISHER ________________________________________________
__ CAPACITY NAME PLATE _____________________________________________
__ OVERHEAD GUARD, (welds, bolts) _________________________________
__ FLUIDS, (levels, hoses, leaks)
  Fuel, Coolant, Hydraulic, Brake, Transmission, _______________________

CAB / START ENGINE
__ GAUGES, (hour meter, fuel, oil pressure) ______________________________
__ ACCELERATOR, (sticking) ___________________________________________
__ LIGHTS, (head, tail, warning, back-up) _________________________________
__ SEAT BELT ______________________________________________________
__ HORN _________________________________________________________
__ BACK-UP ALARM _________________________________________________
__ BRAKES – PARKING AND SERVICE, (holding) __________________________
__ SWAY CONTROLS / LEVELERS / OUTRIGGERS, (operable) ______________
__ HYDRAULIC CONTROLS, (lift, tilt, extend) ____________________________
__ STEERING, (excessive play) _________________________________________
__ UNUSUAL NOISE _________________________________________________
__ OTHER (propane connection / hoses if applicable) _____________________

Details of problem marked above: ______________________________________

_______________________________________________________________

Davis Constructors Forklift Daily Inspection Log
# FORKLIFT INSPECTION

Month ____________________ Year _____

<table>
<thead>
<tr>
<th>Day</th>
<th>Operator</th>
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<tr>
<td>31</td>
<td>________________________</td>
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<td>__________________________</td>
</tr>
</tbody>
</table>

Any additional comments concerning the operation of the forklift:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

**Note:** Defects found must be repaired prior to use. If equipment fails inspection notify your supervisor immediately. Store this inspection form in the equipment until end of month, and then file in project office. If equipment fails, fill out appropriate repair forms.

Davis Constructors Forklift Daily Inspection Log
# Trenching and Excavation Procedures

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## Appendices:

- **Appendix 1**  Daily Excavation Inspection  
- **Appendix 2**  Soil Analysis Checklist
Trenching and Excavation Procedures

1.0 Introduction
Anytime Davis Constructors & Engineers, Inc. (Davis) or Mass Excavation (Mass X) employees are working near or in an excavation it’s considered a trenching and excavation activity. An excavation is a trench, hole, pit, or other circumstance where an engulfment or cave-in hazard may exist. This program provides the safety requirements for activities involving excavations in accordance with 29 CFR 1926, Subpart P – Excavations.

2.0 Scope
The purpose of the Trenching and Excavation Procedures (TEP) is to establish basic criteria for safe trenching and excavation during earth moving operations. Variances in site conditions, project scope, and design features may warrant alterations to these general safety procedures. The TEP will apply to all Davis and Mass X projects and activities when working within the scope of our Health and Safety Policies.

3.0 Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benching</td>
<td>Is a method of protecting employees from cave-ins by excavating the sides of an excavation forming one set of horizontal levels or steps usually vertical or near vertical surfaces between levels.</td>
</tr>
<tr>
<td>Competent Person</td>
<td>A competent person is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate hazards.</td>
</tr>
<tr>
<td>Excavation</td>
<td>Any man-made cut, cavity, trench, or depression in an earth surface formed by earth removal.</td>
</tr>
<tr>
<td>Hazardous Atmosphere</td>
<td>An atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic or otherwise harmful, may cause death, illness, or injury.</td>
</tr>
<tr>
<td>Protective Systems</td>
<td>A method of protecting employees from cave-ins from material that could fall or roll from an excavation or from the collapse of adjacent structures. Protective systems include support</td>
</tr>
</tbody>
</table>
systems, sloping and benching systems, shield systems, and other systems providing the necessary protection.

Sloping

A method of protecting employees from cave-ins by excavation to form sides of an excavation inclined away from the excavation preventing cave-ins. The angle of incline required to prevent a cave-in varies with differences in factors as well as the soil type, environmental conditions of exposure, and application of surcharge loads.

Support System

A structure such as underpinning, bracing, or shoring, providing support to an adjacent structure, underground installation, or the sides of an excavation.

Trench

A narrow excavation made below the surface of the ground. In general the depth is greater than the width, but the width of a trench measured at the bottom is not greater than 15’. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation of 15’ or less, the excavation is also considered to be a trench.

### 4.0 Responsibilities

#### 4.1 Competent Person

The competent person(s) is responsible for:

- Day-to-day oversight of open excavations and trenches.
- Conducting soil classifications.
- Selection of protective systems.
- Conducting daily inspections of open excavations and trenches.
- Providing the Safety Coordinator with all required documentation on a daily basis.

#### 4.2 Line Management

The superintendent is responsible for:

- Ensuring compliance with this procedure.
- Providing the necessary resources for compliance with this procedure.
• Designating competent personnel in consultation with the Health and Safety Coordinator.

4.3 Safety Coordinator
The Safety Coordinator (SC) is responsible for:
• Providing oversight on the implementation of the requirements contained in this procedure.
• Conducting periodic review of open trenches and excavations.
• Consulting with the superintendent and competent person on excavation issues.
• Maintaining required records.

5.0 Procedures
The following sections provide general requirements governing activities in and around open excavations and trenches as well as the requirements for the selection and use of protective systems. The requirements are presented in Section 5.1 and 5.2 respectively.

5.1 Designation of Competent Person
Prior to starting any excavation work the superintendent designates a competent person to fulfill the requirements of this procedure.

5.2 General Requirements
• Surfaces surrounding open trenches and excavations have all surface hazards removed.
• All utilities are located and cleared prior to initiating digging, public or facility utility groups are utilized where possible for this purpose. In the absence of either, the Davis or Mass X Superintendent specifies the procedure to use to clear utilities in consultation with the Competent Person. When the excavation is open utilities are supported and protected from damage.
• Where structural ramps are used for egress, they’re installed in accordance with 1926.651 (c) (1).
• Stairways, ladders, or ramps are provided as means of egress in all trenches 4 feet or more in depth. Travel distance is no more than 25 feet between means of exit.

• Employees exposed to vehicular traffic wear traffic vests.

• No employee is permitted under loads being lifted or under loads being unloaded from vehicles.

• When vehicles and machinery are operating adjacent to excavations, warning systems such as stop logs or barricades should be used to prevent vehicles from entering the excavation or trench.

• Scaling or barricades are used to prevent rock and soils from falling on employees.

• Excavated and loose material is kept at least 2 feet from the edge of excavations.

• Walkways or bridges with standard railing are provided at points employees cross over excavations or trenches.

5.3 **Hazardous Atmospheres**

Where atmospheres containing less than 19.5 percent oxygen or other types of hazardous atmospheres may exist the following requirements are implemented:

• Atmospheric testing is done prior to employees entering excavations 4 feet or greater in depth.

• Testing methods are listed on the daily inspection checklist and results documented daily in field logs.

• Control measures such as ventilation and PPE are used to control employee exposure to hazardous atmospheres below published exposure limits.

• Ventilation is used to control flammable and combustible vapors to below 10 percent of their lower explosive limit.
• Testing is repeated as often as necessary to ensure safe levels of airborne contaminants.

• Emergency equipment is provided and present when the potential for a hazardous atmosphere exists. This equipment includes (but, is not limited to) an emergency breathing apparatus, harnesses, lifelines, and basket stretchers. Required equipment is listed on the daily inspection checklist and reviewed daily.

5.4 Protection From Water Hazard
When water collects in excavations and trenches the following is required:

• Employees do not work in excavations in which water has, or is, accumulating without the use of additional protection such as special support systems or water removal.

• Water removal is monitored by a competent person.

• Barriers such as ditches and dikes are used to divert runoff from excavations and trenches.

• Trenches are re-inspected prior to re-entry after water accumulation due to heavy rainfall or seepage.

5.5 Stability of Adjacent Structures
When excavating or trenching near an adjacent structure the following practices are implemented:

• Support systems such as shoring, bracing, or underpinning are provided when the stability of buildings, walls, or other such structures is endangered by excavation.

• Excavations at bases or footings of foundations that could be reasonably expected to pose a hazard to employees are prohibited unless:
  o support systems are used,
  o the excavation is in stable rock,
  o a professional engineer (PE) determines the structure sufficiently removed from the site does not pose a hazard,
  o or the PE determines the excavation does not pose a hazard to employees due to the structure.
• Support systems are used when it’s necessary to undermine sidewalks, pavements, and appurtenant structures.

• Surcharge load sources and adjacent encumbrances are listed with their evaluation date on the daily inspection checklist.

5.6 Daily Inspections
Inspections are performed daily on all excavations, adjacent areas, and protective systems before personnel enter the trench.

5.7 Soil Classifications
To perform soil classifications, the competent person uses a thumb test, pocket penetrometer, or shear vane to determine the unconfined compressive strength of the soils being excavated. In soils with changing properties (i.e. one soil type mixed with another within a given area) several tests may be necessary. When different soil types are present, the overall classification is that of the type with the loosest unconfined compressive strength. Classifications result in a soil rating of Stable Rock, Type A, Type B, or Type C in daily inspection checklist. The soil analysis checklist provided in Appendix 2 or equivalent is used for soil classifications.

5.8 Sloping and Benching
All sloping and benching is done in accordance with 29CFR 1926.652, Appendix B. Selection of the sloping method and evaluation of the surface surcharge loads is made by a competent person familiar with the requirements of 29CFR 1926.652, Appendix B. Sloping and benching methods and specifications are listed on the daily inspection checklist.

5.9 Protective Systems
Protective systems are required on all excavations over 5 feet in depth or in excavations less than 5 feet when examination of the ground by a competent person reveals conditions may result in cave-ins.

6.0 Training
Competent person has an adequate combination of experience and training to classify soil types and select protective systems as outlined in 29 CFR 1926.652. Training and experience pertaining to
qualification as a competent person is documented and include the following:

- General safety practices related to working in or near open excavations.
- Inspection requirements and techniques.
- Classifications of soils in accordance with 29 CFR 1926.652.
- Uses, limitations, and specifications of protective systems in accordance with 29 CFR 1926.652.

7.0 References

OSHA (U.S. Department of Labor, Occupational Safety and Health Administration) 29 CFR 1926, subpart P, Excavations.
Daily Trench/Excavation Inspection

Site Name: __________________________________________   Date: _________   Time: _______
Excavation Location_________________________________________________________________

Site Evaluation

<table>
<thead>
<tr>
<th>Ok</th>
<th>Unsafe</th>
<th>Ok</th>
<th>Unsafe</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>___</td>
<td>Surface encumbrances</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>___</td>
<td>Underground installations</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>___</td>
<td>Access and egress</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>___</td>
<td>Exposure to vehicular traffic</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>___</td>
<td>Exposure to falling loads</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>___</td>
<td>Hazardous atmospheres</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>___</td>
<td>% Oxygen (O2)</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

Warning system for mobile equipment
Protection from water accumulation
Stability of adjacent structures
Employee protection - loose rock/soil
Inspections
Fall protection

Note: The air is tested in excavations deeper than 4 feet and in areas where oxygen deficiency or gaseous conditions. Air samples are taken prior to each shift or more often if required. A log is maintained on site. Samples are taken for oxygen deficiency, toxicity and explosive environment.

Soil Classification

Soil classification is made based on the results of at least one visual, and one manual test.

<table>
<thead>
<tr>
<th></th>
<th>Stable rock</th>
<th>Type A</th>
<th>Type B</th>
<th>Type C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Tests</td>
<td>Inspect worksite for:</td>
<td>Analyze soil for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fissured ground</td>
<td>Plasticity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Layered soil</td>
<td>Dry strength</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Previously disturbed earth</td>
<td>Thumb penetration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seepage</td>
<td>Pocket penetrometer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vibration</td>
<td>Sherevane</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor drainage</td>
<td>Drying test</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Protective Support Systems

<table>
<thead>
<tr>
<th>Sloping &amp; Benching</th>
<th>Shoring &amp; Shielding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable rock: 90 degrees</td>
<td>Timber or hydraulic</td>
</tr>
<tr>
<td>Type A: 53 degrees</td>
<td>Trench boxes, trench shields</td>
</tr>
<tr>
<td>Type B: 45 degrees</td>
<td>Design using tabulated data</td>
</tr>
<tr>
<td>Type C: 34 degrees</td>
<td>RPE design</td>
</tr>
</tbody>
</table>

Additional Comments or Information: ________________________________________________________________

Inspection performed by: __________________________________________    Authorized Competent Person
Trenching and Excavation Procedures

Excavation Inspection Checklist
("Competent Person" completes this form.)

| Site location: ____________________________________________ | Date: ________________ |
| Time: ________________ | Competent Person: ______________________________________ |
| Soil Type(s): ____________________________________________ |
| Soil Classification(s): ________________ | Excavation Depth: ________________ |
| Excavation Width: ________ | Type of protective system used: _________________________ |

For each item indicate by circling Y (Yes), N (No). Address in the Comments section items marked N/A.

I. General Inspection of Jobsite:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Surface encumbrances removed or supported?</td>
<td>Y N N/A</td>
</tr>
<tr>
<td>B.</td>
<td>Employees protected from loose rock or soil that could pose a hazard by falling or rolling into the excavation?</td>
<td>Y N N/A</td>
</tr>
<tr>
<td>C.</td>
<td>Hard hats worn by all employees?</td>
<td>Y N N/A</td>
</tr>
<tr>
<td>D.</td>
<td>Spoils, materials, and equipment set back at least 3’ from edge of the excavation?</td>
<td>Y N N/A</td>
</tr>
<tr>
<td>E.</td>
<td>Barriers provided at all remotely located excavations, wells, pits, shafts, etc?</td>
<td>Y N N/A</td>
</tr>
<tr>
<td>F.</td>
<td>Walkways and bridges over excavations of 4’ or more in depth are equipped with standard guardrails?</td>
<td>Y N N/A</td>
</tr>
<tr>
<td>G.</td>
<td>Warning vests or other highly visible clothing provided and worn by all employees exposed to public vehicular traffic?</td>
<td>Y N N/A</td>
</tr>
</tbody>
</table>
**Davis Constructors & Engineers, Inc.**  
*Site-Specific Safety Plan*

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>H.</strong> Warning system established and utilized when mobile equipment is operated near the edge of the excavation?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>I.</strong> Employees prohibited from working on the faces of sloped or benched excavations above other employees?</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

**II. Utilities:**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>A.</strong> Utility companies contacted and/or located?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>B.</strong> Exact location of utilities marked when approaching the utilities?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>C.</strong> Underground installations protected, supported, or removed when excavation is open?</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

**III. Means of Access and Egress:**

<p>| | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>A.</strong> Lateral travel to means of egress no greater than 25’ in excavations 4’ or more in depth?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>B.</strong> Ladders used in excavation secured and extended 3’ above the edge of the trench?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>C.</strong> Structural ramps used by employees designated by a competent person?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>D.</strong> Structural ramps used for equipment designed by a Registered Professional Engineer (RPE)?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>E.</strong> Ramps constructed of materials of uniform thickness, cleated together on the bottom, and equipped with a no-slip surface?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>F.</strong> Employees protected from cave-ins when entering or exiting the excavation?</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

**IV. Wet Conditions:**

<p>| | | |</p>
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A.</strong> Precautions taken to protect employees from the accumulation of water?</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>
B. Water removal equipment monitored by competent person? \( Y \ N \ N/A \\
C. Surface water or runoff diverted or controlled to prevent accumulation in the excavation? \( Y \ N \ N/A \\
D. Inspections made after every rainstorm or other hazard increasing occurrence? \( Y \ N \ N/A \\

V. Hazardous Atmosphere:

A. Atmosphere within the excavation tested where there’s a reasonable possibility of an oxygen deficiency, combustible, or other harmful contaminant exposing employees to a hazard? \( Y \ N \ N/A \\
B. Ventilation? \( Y \ N \ N/A \\
C. Testing conducted often to ensure the atmosphere remains safe? \( Y \ N \ N/A \\
D. Emergency equipment such as breathing apparatus, safety harness and line, and basket stretcher readily available where hazardous atmospheres could or do exist? \( Y \ N \ N/A \\
E. Safety harness and life line used and individually attended when entering deep confined excavations? \( Y \ N \ N/A \\

VI. Support Systems:

A. Materials and/or equipment for support systems selected based on soil analysis, trench depth, and expected loads? \( Y \ N \ N/A \\
B. Materials and equipment used for protective systems inspected and in good condition? \( Y \ N \ N/A \\
C. Materials and equipment not in good condition were removed from service? \( Y \ N \ N/A \\
D. Damaged materials and equipment used for protective systems inspected by a RPE after repairs and before being placed back into service? \( Y \ N \ N/A
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Protective systems installed without exposing employees to the hazards of cave-ins, collapses, or from being struck by materials or equipment?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>F. Members of support system securely fastened to prevent failure?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>G. Support system provided to insure stability of adjacent structures, buildings, roadways, sidewalks, walls, etc?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>H. Excavations below the level of the base or footing approved by the RPE?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>I. Removal of support systems progresses from the bottom and members are released slowly to observe any indication of possible failure?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>J. Backfilling progresses with removal of support system?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>K. Excavation of material to a level no greater than 2’ below the bottom of the support system and only if the system is designed to support the loads calculated for the full depth?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>L. Shield system placed to prevent lateral movement?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>M. Employees are prohibited from remaining in shield system during vertical movement?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
</tr>
</tbody>
</table>
VII. Comments:

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
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# Appendix 2
## Soil Analysis Checklist

A **competent person** completes this form.

This checklist must be completed when soil analysis is made to determine the soil type(s) present in the excavation. A separate analysis is performed on each layer of soil in excavation walls. A separate analysis is also performed, if the excavation (trench) is stretched over a distance where soil type may change.

Site location: _______________________________  Date: _______________________

Time: ___________  Name of Comp. Person: _________________________________

Where was the sample taken?

### VISUAL TEST

<table>
<thead>
<tr>
<th>Description</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particle type:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Fine Grained (cohesive)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Coarse grained (sand or gravel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water conditions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Wet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Dry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Surface water present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Submerged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previously disturbed soils?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underground utilities?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layered soils?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layered soil dipping into excavation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excavation exposed to vibrations?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crack-like openings or spallings observed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditions that may create a hazardous atmosphere?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If yes, identify condition and source:

______________________________________________________________________

<table>
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<tr>
<th>Description</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
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<td>Surface encumbrances?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work to be performed near public vehicular traffic?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possible confined space exposure?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MANUAL TEST

Plasticity:  □ Cohesive  □ Non-cohesive
Dry Strength:  □ Granular (crumbles easily)  □ Cohesive (broken with difficulty)

NOTE: The following unconfined compressive strength tests should be performed on undisturbed soil.

THUMB TEST

(Used to estimate unconfined compressive strength of cohesive soil)
Test Performed:  _____ Yes _____ No
_____  Type A (soil indented by thumb with very great effort)
_____  Type B (soil indented by thumb with some effort)
_____  Type C (soil with unconfined compressive strength of 1.5 tsf or less). Soil is submerged, seeping water, subject to surface water, runoff, exposed to wetting.

WET SHAKING TEST

(Used to determine percentage of granular and cohesive materials) Compare _____ to soil textural classification chart to determine soil type.
Test performed:  _____ Yes _____ No

□  Type A (clay, silty clay, sandy clay, clay loam, and in some cases silty clay, loam and silty clay loam)
□  Type B (angular gravel [similar to crushed rock], silt, silt loam, sandy loam, and in some cases clay loam and sandy clay loam)
□  Type C (granular soil including gravel, sand and loamy sand)

_____ % granular  _____ % cohesive  _____ % silt

NOTE about Type A: No soil is Type “A” if soil is fissured, subject to vibration, previously disturbed, layered, dipping into the excavation on a slope of 4H:1V.
Soil Classification:

- Type A
- Type B
- Type C

Selection of Protective System:

- Sloping, Specify angle: _____
- Timber Shoring
- Aluminum Hydraulic Shoring

**NOTE:** Although Federal OSHA accepts the above tests in most cases, some states do not. Check Alaska’s safety requirements for trenching regulations.
Lockout/Tagout Policy

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1
Lockout/Tagout Policy

1.0 Purpose
Davis Constructors & Engineers, Inc. (Davis) and Mass Excavation, Inc. (Mass X) have a safety control system policy for lockout and tagout to prevent the unexpected release or transmission of equipment energy. This policy is instituted to protect employees from inadvertent operation or energized equipment and to comply with all applicable standards. This policy applies to activities such as, but not limited to, erecting, installing, constructing, repairing, adjusting, inspecting, cleaning, operating, or maintaining equipment. It also applies to energy sources such as, but not limited, to electrical, mechanical hydraulic, pneumatic, chemical, radiation, thermal, compressed air, energy stored in springs and potential energy from suspended parts.

2.0 Definitions

<table>
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<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Power</td>
<td>Types of energy that can operate equipment such as electricity, air, oil, water, under pressure and steam. The use of steam under pressure for heating does not remove it from this requirement because it’s capable of causing an injury and/or material/equipment damage and is subject to lockout procedure.</td>
</tr>
<tr>
<td>Lock</td>
<td>The device used to securely fasten the disconnecting means of the source of power and energy.</td>
</tr>
<tr>
<td>Block</td>
<td>One solid piece of substantial material placed under a suspended load or machine part completely immobilizing all potential vertical movement. Most equipment manufacturers supply an engineered block as part of the maintenance equipment.</td>
</tr>
<tr>
<td>Chock</td>
<td>One solid piece of substantial material placed between horizontal pieces or on both the downward and upward slope of inclined equipment to immobilize all potential lateral movement. Most equipment manufacturers supply an engineered chock as part of the maintenance equipment.</td>
</tr>
<tr>
<td>Disconnect Device</td>
<td>A pipe valve, electrical switch, or other mechanical device which will cut off the source of power or</td>
</tr>
</tbody>
</table>
3.0 Lock and Tag Control

3.1 Distribution
Locks and tags are assigned to and used by all foremen, journeyman, and other persons designated by the project superintendent. Sub-journeymen and helpers use locks in conjunction with the foreman or journeyman’s lock and tag. Designees are referred to as foreman/journeyman in this procedure.

3.2 Type
The locks provided are mastered. Locks and master keys are controlled by the safety supervisor or designee.

3.3 Issuance
One lock and one key are issued by the safety supervisor. Additional locks and keys may be temporarily checked out from the Safety Department for jobs requiring more than one lock.

3.4 Identification
The safety supervisor or designee records the employee’s name and number on the lock record when locks and keys are issued.

4.0 Application
When employees adjust, re-energize, repair, service, or work near machines or equipment where unexpected movement could cause injury or material damage they apply a tag, lock, block, or chock device to the source of power which controls such movement. The ignition key must be removed from all equipment prior to repairs or service. Such circumstances include employees exposing themselves directly to:

- Parts under power,
- Suspended, inclined, or jammed parts or equipment,
- Lines carrying hazardous substances, pressure, or energy.

Basic Rule: Lock out all main disconnecting switches, valves, and devices so only the employees exposed (by removing their own lock) can allow the power to be re-applied.
Procedure: An employee controls the source of power through the following actions as applicable to the work the employee is performing.

5.0 **Parts Under Power**

Obtain approval to de-energize and lockout from the superintendent/foreman (supt./foreman).

Arrange with the supt./foreman to do a “walk around” of the jobsite.

Have the supt./foreman first de-energize the system with the Davis or Mass X lockout and tagout to follow.

Before lockout, make certain the circuit control at the starting switch is the correct one for the equipment involved.

Make certain all power at its source was disconnected by turning off the main disconnect.

Press the starter button to ensure all electrical power is shut off or have an electrician test the circuit load side of the disconnect device to be sure all ungrounded current-carrying conductors are open.

The supt./foreman inserts a multi-lock device on the main breaker and inserts the operator’s lock to secure it. The supt./foreman hangs a properly completed danger tag on the lock. Any Davis or Mass X employee working on this equipment wanting it to remain inoperative inserts a Davis or Mass X lock in the same lockout device. The employee also hangs a properly completed orange danger tag on the lock.

**Caution:** Employees don’t pull any disconnect switches or handles, or shut off any operation equipment without first obtaining proper authorizing from Davis supervision.

6.0 **Suspended, Inclined or Jammed Parts or Equipment**

- Remove ignition key when applicable.
- Shut off the main source of any power in accordance with instructions outlined in “Parts Under Power.”
- Mechanically block any load or machine part before working under or in it. For example: presses, dump-truck beds, lift cylinders, or forklifts.
- Mechanically chock any inclined equipment on both sides of the slope before working on or between pieces of equipment.
- To place turbines, pumps, and compressors in their zero mechanical state all procedures must be followed with a Davis representative present.

7.0 Lines Carrying Hazardous Substances, Pressure, or Energy

- Be sure line is blocked closed.
- Bleed off or otherwise dissipate residual pressure or contents in steam, air, and hydraulic or chemical systems.
- Flush, back flush, or “blind” lines as applicable prior to locking valve in required positions.

Note: These steps are checked by a Davis or Mass X employee prior to installing lock tag.

8.0 Removing an Abandoned Lock or Tag

If a lock and/or tag is left on equipment and the employee left the jobsite, the locks and tags may be removed by the following methods—if the equipment is imperative for the jobsite operation:

- The employee may be called in to remove the lock and tag.
- The foreman of the employee’s work group may remove the lock and tag only after checking the equipment and ensuring all employees are clear of the equipment and it’s safe for restart.
- The safety supervisor may remove the lock or tag, if the above removal steps are not available.
- The employee whose lock/tag was removed must be notified by the foreman of the removal before being released for work.

Note: The master key is available in the safety office.

9.0 Loss of Lock and/or Key

If an employee loses his key to an assigned lock, the employee immediately advises the foreman and returns the lock to the safety officer. If the lock is in service, it’s removed by the safety supervisor using the master key when the job is completed.
10.0 Supervisor’s Responsibility
It’s the responsibility of all supervisors to enforce the lockout procedure.

11.0 Fuses
Pulling of fuses is not a substitute for locking out electrical switches.

12.0 Availability of Locks
Each person with an assigned lock uses it for lockout only. It’s not used on toolboxes or anything else.

13.0 Equipment
- Valves can be locked out with a combination of chain and lock.
- Where a disconnect switch or control energizes more than one machine the supervisor is notified before any work is started to determine if a modification is required to enable each machine to be locked out separately.

14.0 Identifying Danger Tags
- All employees sign and attach “danger tags” to each lockout point to identify owner of the lock.
- Only one person signs the Danger Tag.
- The tag is legibly marked showing the employee’s name, date, company name, and defect.
- The tag is not used as a substitute for a lock.

15.0 Multiple Lockout
- If two or more employees are working on a job, a separate lock and tag is attached by each employee so controls cannot be operated until all locks are removed.
- If the location of the controls allows the attachment of only one lock, then a special hoop holding several locks is used.

16.0 Complex Lockout Procedures
Equipment requiring the installation of ten or more lockout locks and tags is locked out using the following procedures:
• The initial supervisor and journeyman assigned to the project contacts the supt./foreman to begin lockout procedures. The supt./foreman assumes the responsibility of Lockout Coordinator for the project.

• The Davis or Mass X Lockout Coordinators walk the system with the foreman and install the required number of contractor lockout locks and tags to ensure 100 percent zero-mechanical state is achieved.

The key(s) for these locks are placed in a “satellite” lock box and secured with the supervisor’s (or Lockout Coordinator’s) personal lockout lock and orange contractor tag properly filled out.

As assigned all employees attach their individual lock/tag to the lock box system while work is performed; and remove each employee’s lock/tag as work is completed.

17.0 Removal of Locks and Tags
See the following “Abandoned Lock and Tag:”

  o Locks and tags remain on equipment until the job is finished. Then removed only by the individual whose name appears on the respective locks and tags.

  o If equipment is down for an extended period of time with no work being done, the lockout lock is removed and arrangements made to place a security lockout lock on the equipment. When work resumes the security lock is removed and replaced with the appropriate lockout lock. A tag remains attached to the lockout at all times.

  o Under no circumstances is equipment operated until all locks and tags are removed.

18.0 Transfer of Locks and Tags
When it becomes necessary for a foreman or journeyman to transfer the job to another foreman or journeyman the transferring employee removed his own lock and tag. The successor applies his lock and tag.

19.0 Transfer Between Shifts
If a new work shift comes on, a “tie-in” between shifts takes place with the oncoming employees placing new locks and tags on the system and the off-going employees removing theirs.
It’s the responsibility of the oncoming employees performing the work to determine that the piece of equipment is locked out properly before starting work.

20.0 Sub-journeyman and Helpers

When a job is completed the foreman and journeyman check that:

- work is complete,
- sub-journeyman and helpers are clear,
- locks are removed.

Only then do they remove their locks and tags.

21.0 Review

All employees review the lockout procedures. Documentation of names and dates of attendance are kept on file.

22.0 Discipline

Violators of this procedure are subject to strict disciplinary action up to and including termination.
# Confined Space Procedures

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Confined Space Procedures

1.0 Introduction

Davis Constructors & Engineers, Inc. (Davis) established control procedures to protect all personnel entering a permit-required confined space (PRCS) and to comply with applicable regulatory standards. (29CFR 1926.1207) These include planning, general precautions, evaluations of hazards, ventilation requirements, personal protection and isolation responsibilities.

2.0 Definitions

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<tr>
<td>Acceptable entry conditions</td>
<td>The conditions that must exist in a permit space, before an employee may enter that space, to ensure that employees can safely enter into, and safely work within, the space.</td>
</tr>
<tr>
<td>Attendant</td>
<td>An individual stationed outside one or more permit spaces who assesses the status of authorized entrants and who must perform the duties specified in § 1926.1209.</td>
</tr>
<tr>
<td>Authorized entrant</td>
<td>An employee who is authorized by the entry supervisor to enter a permit space. <em>Barrier</em> means a physical obstruction that blocks or limits access.</td>
</tr>
<tr>
<td>Blanking or blinding</td>
<td>The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate. a spectacle blind or a skillet blind) that</td>
</tr>
<tr>
<td>Competent person</td>
<td>One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Confined Space</td>
<td>Any space with a limited means of entry and egress, is large enough to enter and perform work, and is not intended for human occupancy or, has unfavorable natural ventilation.</td>
</tr>
<tr>
<td>Control</td>
<td>The action taken to reduce the level of any hazard inside a confined space using engineering methods (for example, by ventilation), and then using these methods to maintain the reduced hazard level. Control also refers to the engineering methods used for this purpose. Personal protective equipment is not a control.</td>
</tr>
<tr>
<td>Controlling Contractor</td>
<td>The employer that has overall responsibility for construction at the worksite.</td>
</tr>
<tr>
<td>Double block and bleed</td>
<td>The closure of a line, duct, or pipe by closing and locking or tagging two inline valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.</td>
</tr>
<tr>
<td>Early-warning system</td>
<td>The method used to alert authorized entrants and attendants that an engulfment hazard may be developing. Examples of early-warning systems include, but are not limited to: Alarms activated by remote sensors; and lookouts with equipment for immediately communicating with the authorized entrants and attendants.</td>
</tr>
<tr>
<td>Emergency</td>
<td>Any occurrence (including any failure of power, hazard control or monitoring equipment) or event, internal or external, to the permit space that could endanger entrants.</td>
</tr>
<tr>
<td>Engulfment</td>
<td>The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, crushing, or suffocation.</td>
</tr>
</tbody>
</table>
| Entry                         | The action by which any part of a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the space, whether or not such action is intentional or any
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</thead>
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<td>Entry Employer</td>
<td>Any employer who decides that an employee it directs will enter a permit space.</td>
</tr>
<tr>
<td>Entry permit (permit)</td>
<td>The written or printed document that is provided by the employer who designated the space a permit space to allow and control entry into a permit space and that contains the information specified in § 1926.1206.</td>
</tr>
<tr>
<td>Entry rescue</td>
<td>Occurs when a rescue service enters a permit space to rescue one or more employees.</td>
</tr>
<tr>
<td>Entry supervisor</td>
<td>The qualified person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this standard.</td>
</tr>
<tr>
<td>Hazard</td>
<td>A physical hazard or hazardous atmosphere. See definitions below.</td>
</tr>
<tr>
<td>Hazardous atmosphere</td>
<td>An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self rescue (that is, escape unaided from a permit space), injury, or acute illness.</td>
</tr>
<tr>
<td>Host employer</td>
<td>The employer that owns or manages the property where the construction work is taking place.</td>
</tr>
<tr>
<td>Hot work</td>
<td>Operations capable of providing a source of ignition (for example, riveting, welding, cutting, burning, and heating).</td>
</tr>
<tr>
<td>Immediately dangerous to life or health (IDLH)</td>
<td>Any condition that would interfere with an individual’s ability to escape unaided from a permit space and that poses a threat to life or that would cause irreversible adverse health effects.</td>
</tr>
<tr>
<td>Inerting</td>
<td>Displacing the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.</td>
</tr>
<tr>
<td>Isolate or isolation</td>
<td>The process by which employees in a confined space are completely protected against the release of energy and material into the space, and contact with a physical hazard, by such means as: Blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block...</td>
</tr>
</tbody>
</table>
and bleed system; lockout or tagout of all sources of energy; blocking or disconnecting all mechanical linkages; or placement of barriers to eliminate the potential for employee contact with a physical hazard.

<table>
<thead>
<tr>
<th>Limited or restricted means for entry or exit</th>
<th>A condition that has a potential to impede an employee’s movement into or out of a confined space. Such conditions include, but are not limited to, trip hazards, poor illumination, slippery floors, inclining surfaces and ladders.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line breaking</td>
<td>The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.</td>
</tr>
<tr>
<td>Lockout</td>
<td>The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.</td>
</tr>
<tr>
<td>Lower flammable limit or lower explosive limit</td>
<td>The minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion.</td>
</tr>
<tr>
<td>Monitor or monitoring</td>
<td>The process used to identify and evaluate the hazards after an authorized entrant enters the space. This is a process of checking for changes that is performed in a periodic or continuous manner after the completion of the initial testing or evaluation of that space.</td>
</tr>
<tr>
<td>Non-entry rescue</td>
<td>Occurs when a rescue service, usually the attendant, retrieves employees in a permit space without entering the permit space.</td>
</tr>
<tr>
<td>Non-permit confined space</td>
<td>A confined space that meets the definition of a confined space but does not meet the requirements for a permit-required confined space, as defined in this subpart.</td>
</tr>
<tr>
<td>Oxygen deficient atmosphere</td>
<td>An atmosphere containing less than 19.5 percent oxygen by volume.</td>
</tr>
<tr>
<td>Oxygen-Enriched</td>
<td>Oxygen enriched atmospheres are deemed to exist if the atmospheres contain more than 23% oxygen</td>
</tr>
<tr>
<td>Atmospheres</td>
<td>by volume.</td>
</tr>
<tr>
<td>-------------</td>
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</tr>
</tbody>
</table>

**Permit-required confined space (permit space)**

A confined space that has one or more of the following characteristics:
1. Contains or has a potential to contain a hazardous atmosphere;
2. Contains a material that has the potential for engulfing an entrant;
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller crosssection; or
4. Contains any other recognized serious safety or health hazard.

**Permit-required confined space program (permit space program)**

The employer’s overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

**Physical hazard**

An existing or potential hazard that can cause death or serious physical damage.

**Prohibited condition**

Any condition in a permit space that is not allowed by the permit during the period when entry is authorized. A hazardous atmosphere is a prohibited condition unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee.

**Qualified person**

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

**Representative permit space**

A mock-up of a confined space that has entrance openings that are similar to, and is of similar size, configuration, and accessibility to, the permit space that authorized entrants enter.

**Rescue**

Retrieving, and providing medical assistance to, one or more employees who are in a permit space.

**Rescue service**

The personnel designated to rescue employees from
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit spaces.</td>
<td>The equipment (including a retrieval line, chest or full body harness, wristlets or anklets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.</td>
</tr>
<tr>
<td>Retrieval system</td>
<td></td>
</tr>
<tr>
<td>Tagout</td>
<td>(1) Placement of a tagout device on a circuit or equipment that has been deenergized, in accordance with an established procedure, to indicate that the circuit or equipment being controlled may not be operated until the tagout device is removed; and (2) The employer ensures that: (i) Tagout provides equivalent protection to lockout; or (ii) That lockout is infeasible and the employer has relieved, disconnected, restrained and otherwise rendered safe stored (residual) energy.</td>
</tr>
<tr>
<td>Test or testing</td>
<td>the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.</td>
</tr>
<tr>
<td>Ventilate or ventilation</td>
<td>Controlling a hazardous atmosphere using continuous forced-air mechanical systems that meet the requirements of § 1926.57 (Ventilation).</td>
</tr>
</tbody>
</table>
3.0 General Requirements

1. Before work begins at a jobsite, the designated competent person must identify 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.

2. If the jobsite contains one or more permit spaces, the acting Supervisor or designee must:

   a. Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space.

   “DANGER—PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER”

   b. In a timely manner and in a manner other than posting, its employees’ authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.

3. Supervisor or designee who identifies, or receives notice of, a permit space and has not authorized employees it directs to work in that space must take effective measures to prevent those employees from entering that permit space, in addition to complying with all other applicable requirements of this procedure.

4. If any Supervisor or designee decides that employees it directs will enter a permit space, their company must have a written permit space program that complies with § 1926.1204 implemented at the construction site. The written program must be made available prior to and during entry operations for inspection by employees and their authorized representatives.

5. Supervisor or designee may use the alternate procedures if they can demonstrate:
a. That all physical hazards in the space are eliminated or isolated through engineering controls so that the only hazard posed by the permit space is an actual or potential hazardous atmosphere.

b. Can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry, and that, in the event the ventilation system stops working, entrants can exit the space safely.

c. Develops monitoring and inspection data that supports the demonstrations.

6. Additional requirements apply to entry into permit spaces that meet the conditions set forth for alternate entry.

a. Any conditions making it unsafe to remove an entrance cover must be eliminated before the cover is removed.

b. When entrance covers are removed, the opening must be immediately guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.

c. Before an employee enters the space, the internal atmosphere must be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee’s authorized representative, must be provided an opportunity to observe the pre-entry testing required by the standard.

d. No hazardous atmosphere is permitted within the space whenever any employee is inside the space.

e. Continuous forced air ventilation must be used, as follows:
• An employee must not enter the space until the forced air ventilation has eliminated any hazardous atmosphere.

• The forced air ventilation must be so directed as to ventilate the immediate areas where an employee is or will be present within the space and must continue until all employees have left the space.

• The air supply for the forced air ventilation must be from a clean source and must not increase the hazards in the space.

• The atmosphere within the space must be continuously monitored unless the entry employer can demonstrate that equipment for continuous monitoring is not commercially available or periodic monitoring is sufficient. If continuous monitoring is used, the employer must ensure that the monitoring equipment has an alarm that will notify all entrants if a specified atmospheric threshold is achieved, or that an employee will check the monitor with sufficient frequency to ensure that entrants have adequate time to escape. If continuous monitoring is not used, periodic monitoring is required. All monitoring must ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee’s authorized representative, must be provided with an opportunity to observe the testing required by this paragraph.

f. If a hazard is detected during entry:

• Each employee must leave the space immediately.
• The space must be evaluated to determine how the hazard developed.

• The Supervisor or designee must implement measures to protect employees from the hazard before any subsequent entry takes place.

g. The Supervisor or designee must ensure a safe method of entering and exiting the space. If a hoisting system is used, it must be designed and manufactured for personnel hoisting; however, a job-made hoisting system is permissible if it is approved for personnel hoisting by a registered professional engineer, in writing, prior to use.

h. The Supervisor or designee must verify that the space is safe for entry and that the pre-entry measures required by paragraph (e) of this section have been taken, through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification must be made before entry and must be made available to each employee entering the space or to that employee’s authorized representative.

7. When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, or some indication that the initial evaluation of the space may not have been adequate, the competent person must reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

8. A space classified as a permit-required confined space may only be reclassified as a non-permit confined space when a competent person determines that all of the applicable requirements have been met:

   a. If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated or isolated without entry into the space (unless the employer can demonstrate that
b. doing so without entry is infeasible), the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated or isolated;

c. The entry personnel must eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit space to eliminate or isolate hazards, such entry must be performed under §§ 1926.1204 through 1926.1211. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated;

**Note** - Control of atmospheric hazards through forced air ventilation does not constitute elimination or isolation of the hazards. Paragraph (e) of this section covers permit space entry where the employer can demonstrate that forced air ventilation alone will control all hazards in the space.

d. Employees must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification must be made available to each employee entering the space or to that employee’s authorized representative.

e. If hazards arise within a permit space that has been reclassified as a non-permit space, each employee in the space must exit the space. The entry Supervisor must then reevaluate the space and reclassify it as a permit space as appropriate in accordance with all other applicable provisions.
9. Permit space entry communication and coordination.

   a. Before entry operations begin, all Subcontractors must provide the following information, if it has it, to the Site Supervisor:

      • The location of each known permit space.

      • The hazards or potential hazards in each space or the reason it is a permit space.

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

   b. Before entry operations begin, the Site Supervisor must:

      • Obtain the Subcontractor’s information about the permit space hazards and previous entry operations.

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

        ➢ The information received from the Subcontractor;

        ➢ Any additional information the controlling Supervisor has about the subjects listed in paragraph (9)(a) of this section; and

        ➢ The precautions that the Subcontractor, controlling Supervisor, or other entry employers implemented for the protection of employees in the permit spaces.
c. Before entry operations begin each entry employer must:

- Obtain all of the controlling Supervisor’s information regarding permit space hazards and entry operations;

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

d. The controlling Supervisor and entry employer(s) must coordinate entry operations when:

- More than one entity performs permit space entry at the same time; or
- 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.

e. After entry operations:

- The controlling Supervisor must debrief each entity that entered a permit space regarding the permit space program followed and any hazards confronted or created in the permit space(s) during entry operations.

- The entry employer must inform the controlling Supervisor in a timely manner of the permit space program followed and of any hazards confronted or created in the permit space(s) during entry operations.

- The controlling Supervisor must apprise the host Subcontractor of the information exchanged with the entry entities pursuant to this subparagraph.
4.0 Permit- Required Confined Space

Each entry employer must:
1. Implement the measures necessary to prevent unauthorized entry;

2. Identify and evaluate the hazards of permit spaces before employees enter them;

3. Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:
   a. Specifying acceptable entry conditions;
   
   b. Providing each authorized entrant or that employee’s authorized representative with the opportunity to observe any monitoring or testing of permit spaces;
   
   c. Isolating the permit space and physical hazard(s) within the space;
   
   d. Purging, inserting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards;

**Note:** When an employer is unable to reduce the atmosphere below 10 percent LFL, the employer may only enter if the employer inerts the space so as to render the entire atmosphere in the space non-combustible, and the employees use PPE to address any other atmospheric hazards (such as oxygen deficiency), and the employer eliminates or isolates all physical hazards in the space.

   e. Determining that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space;
f. Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards;

g. Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry, and ensuring that employees are not allowed to enter into, or remain in, a permit space with a hazardous atmosphere unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee;

h. Eliminating any conditions (for example, high pressure) that could make it unsafe to remove an entrance cover.

4. Provide the following equipment (specified in paragraphs a-I of this section) at no cost to each employee, maintain that equipment properly, and ensure that each employee uses that equipment properly:

   a. Testing and monitoring equipment needed to comply with paragraph (e) of this section;

   b. Ventilating equipment needed to obtain acceptable entry conditions;

   c. Communications equipment necessary for compliance with §§ 1926.1208(c) and 1926.1209(e), including any necessary electronic communication equipment for attendants assessing entrants’ status in multiple spaces;

   d. Personal protective equipment insofar as feasible engineering and work-practice controls do not adequately protect employees;

**Note to paragraph (4)(d).** The requirements of subpart E of this part and other PPE requirements continue to apply to the use of PPE in a permit space. For example, if employees use respirators, then the respirator requirements in § 1926.103 (Respiratory protection) must be met.
e. Lighting equipment that meets the minimum illumination requirements in § 1926.56 that is approved for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present, and that is sufficient to enable employees to see well enough to work safely and to exit the space quickly in an emergency;

f. Barriers and shields as required by paragraph (3)(d) of this section;

g. Equipment, such as ladders, needed for safe ingress and egress by authorized entrants;

h. Rescue and emergency equipment needed to comply with paragraph (9) of this section, except to the extent that the equipment is provided by rescue services;

i. Any other equipment necessary for safe entry into, safe exit from, and rescue from, permit spaces.

5. Evaluate permit space conditions in accordance with the following paragraphs (a) through (f) of this section when entry operations are conducted:

a. Test conditions in the permit space to determine if acceptable entry conditions exist before changes to the space’s natural ventilation are made, and before entry is authorized to begin, except that, if an Supervisor demonstrates that isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), the employer must:

- Perform pre-entry testing to the extent feasible before entry is authorized; and

- If entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working, except that employers
may use periodic monitoring in accordance with paragraph (e)(2) of this section for monitoring an atmospheric hazard if they can demonstrate that equipment for continuously monitoring that hazard is not commercially available;

- Provide an early-warning system that continuously monitors for non-isolated engulfment hazards. The system must alert authorized entrants and attendants in sufficient time for the authorized entrants to safely exit the space.

b. Continuously monitor atmospheric hazards unless the Supervisor can demonstrate that the equipment for continuously monitoring a hazard is not commercially available or that periodic monitoring is of sufficient frequency to ensure that the atmospheric hazard is being controlled at safe levels. If continuous monitoring is not used, periodic monitoring is required with sufficient frequency to ensure that acceptable entry conditions are being maintained during the course of entry operations;

c. When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors;

d. Provide each authorized entrant or that employee’s authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces;

e. Reevaluate the permit space in the presence of any authorized entrant or that employee’s authorized representative who requests that the Supervisor conduct such reevaluation because there is some indication that the evaluation of that space may not have been adequate; and
f. Immediately provide each authorized entrant or that employee’s authorized representative with the results of any testing conducted in accordance with this section.

6. Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations:

   a. Attendants may be assigned to more than one permit space provided the duties described in § 1926.1209 can be effectively performed for each permit space.

   b. Attendants may be stationed at any location outside the permit space as long as the duties described in § 1926.1209 can be effectively performed for each permit space to which the attendant is assigned.

7. If multiple spaces are to be assigned to a single attendant, include in the permit program the means and procedures to enable the attendant to respond to an emergency affecting one or more of those permit spaces without distraction from the attendant’s responsibilities under § 1926.1209;

8. Designate each person who is to have an active role (as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training required by § 1926.1207;

9. Develop and implement procedures for summoning rescue and emergency services (including procedures for summoning emergency assistance in the event of a failed non-entry rescue), for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue;

10. Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this
standard, including the safe termination of entry operations under both planned and emergency conditions;

11. Develop and implement procedures to coordinate entry operations, in consultation with the controlling contractor, when employees of more than one employer are working simultaneously in a permit space or elsewhere on the worksite where their activities could, either alone or in conjunction with the activities within a permit space, foreseeably result in a hazard within the confined space, so that employees of one employer do not endanger the employees of any other employer;

12. Develop and implement procedures (such as closing off a permit space and canceling the permit) necessary for concluding the entry after entry operations have been completed;

13. Review entry operations when the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized;

**Note to paragraph (13).** Examples of circumstances requiring the review of the permit space program include, but are not limited to: Any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

14. Review the permit space program, using the canceled permits retained under §1926.1205(f), within 1 year after each entry and revise the program as necessary to ensure that employees participating in entry operations are protected from permit space hazards.
5.0 Permitting Process

1. Before entry is authorized, each entry Supervisor must document the completion of measures required by § 1926.1204(c) by preparing an entry permit.

2. Before entry begins, the entry supervisor identified on the permit must sign the entry permit to authorize entry.

3. The completed permit must be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.

4. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit in accordance with § 1926.1206(b).

5. The entry supervisor must terminate entry and take the following action when any of the following apply:

   a. Cancel the entry permit when the entry operations covered by the entry permit have been completed; or

   b. Suspend or cancel the entry permit and fully reassess the space before allowing reentry when a condition that is not allowed under the entry permit arises in or near the permit space and that condition is temporary in nature and does not change the configuration of the space or create any new hazards within it; and

   c. Cancel the entry permit when a condition that is not allowed under the entry permit arises in or near the permit space and that condition is not covered by paragraph (e)(2) of this section.

   d. The entry employer must retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program required by
§ 1926.1204(n). Any problems encountered during an entry operation must be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.

6.0 Entry Permit

The entry permit that documents compliance with this section and authorizes entry to a permit space must identify:

1. The permit space to be entered;
2. The purpose of the entry;
3. The date and the authorized duration of the entry permit;
4. The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space;

Note to paragraph (4). This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.

5. Means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working;
6. Each person, by name, currently serving as an attendant;
7. The individual, by name, currently serving as entry supervisor, and the signature or initials of each entry supervisor who authorizes entry;
8. The hazards of the permit space to be entered;
9. The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;
Note to paragraph (9). Those measures can include, but are not limited to, the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.

10. The acceptable entry conditions;

11. The results of tests and monitoring performed under §1926.1204(e), accompanied by the names or initials of the testers and by an indication of when the tests were performed;

12. The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services;

13. The communication procedures used by authorized entrants and attendants to maintain contact during the entry;

14. Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this standard;

15. Any other information necessary, given the circumstances of the particular confined space, to ensure employee safety; and

16. Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.
7.0 Training

1. The controlling employer must provide training to each employee whose work is regulated by this standard, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard. This training must result in an understanding of the hazards in the permit space and the methods used to isolate, control or in other ways protect employees from these hazards, and for those employees not authorized to perform entry rescues, in the dangers of attempting such rescues.

2. Training required by this section must be provided to each affected employee:
   a. In both a language and vocabulary that the employee can understand;
   b. Before the employee is a first assigned duty under this standard;
   c. Before there is a change in assigned duties;
   d. Whenever there is a change in permit space entry operations that presents a hazard about which an employee has not previously been trained; and
   e. Whenever there is any evidence of a deviation from the permit space entry procedures required by § 1926.1204(c) or there are inadequacies in the employee’s knowledge or use of these procedures.

3. The training must establish employee proficiency in the duties required by this standard and must introduce new or revised procedures, as necessary, for compliance with this standard.
4. The controlling employer must maintain training records to show that the training required by paragraphs (a) through (c) of this section has been accomplished. The training records must contain each employee’s name, the name of the trainers, and the dates of training. The documentation must be available for inspection by employees and their authorized representatives, for the period of time the employee is employed by that employer.

8.0 Authorized Entrants

The entry employer must ensure that all authorized entrants:

1. Are familiar with and understand the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

2. Properly use equipment as required by § 1926.1204(d);

3. Communicate with the attendant as necessary to enable the attendant to assess entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required by § 1926.1209(f);

4. Alert the attendant whenever:

   a. There is any warning sign or symptom of exposure to a dangerous situation; or

   b. The entrant detects a prohibited condition; and

5. Exit from the permit space as quickly as possible whenever:

   a. An order to evacuate is given by the attendant or the entry supervisor;

   b. There is any warning sign or symptom of exposure to a dangerous situation;

   c. The entrant detects a prohibited condition; or

   d. An evacuation alarm is activated.
9.0 Attendants

The entry employer must ensure that each attendant:

1. Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

2. Is aware of possible behavioral effects of hazard exposure in authorized entrants;

3. Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants under § 1926.1206(d) accurately identifies who is in the permit space;

4. Remains outside the permit space during entry operations until relieved by another attendant;

Note to paragraph (4). Once an attendant has been relieved by another attendant, the relieved attendant may enter a permit space to attempt a rescue when the employer’s permit space program allows attendant entry for rescue and the attendant has been trained and equipped for rescue operations as required by § 1926.1211(a).

5. Communicates with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space under § 1926.1208(e);

6. Assesses activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:

   a. If there is a prohibited condition;
b. If the behavioral effects of hazard exposure are apparent in an authorized entrant;

c. If there is a situation outside the space that could endanger the authorized entrants; or

d. If the attendant cannot effectively and safely perform all the duties required under this section;

7. Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;

8. Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:

   a. Warns the unauthorized persons that they must stay away from the permit space;

   b. Advises the unauthorized persons that they must exit immediately if they have entered the permit space; and

   c. Informs the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;

9. Performs non-entry rescues as specified by the employer's rescue procedure; and

10. Performs no duties that might interfere with the attendant’s primary duty to assess and protect the authorized entrants.

10.0 Entry Supervisors

The entry employer must ensure that each entry supervisor:

1. Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

2. Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have
been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;

3. Terminates the entry and cancels or suspends the permit as required by § 1926.1205(e);

4. Verifies that rescue services are available and that the means for summoning them are operable, and that the employer will be notified as soon as the services become unavailable;

5. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and

6. Determines, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

11.0 Rescue

1. An employer who designates rescue and emergency services, pursuant to § 1926.1204(i), must:

   a. Evaluate a prospective rescuer’s ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified;

   b. Evaluate a prospective rescue service’s ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified

   c. Select a rescue team or service from those evaluated that:

       • Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;
• Is equipped for, and proficient in, performing the needed rescue services;

• 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.

2. An employer whose employees have been designated to provide permit space rescue and/or emergency services must take the following measures and provide all equipment and training at no cost to those employees:

   a. Provide each affected employee with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train each affected employee so the employee is proficient in the use of that PPE;

   b. Train each affected employee to perform assigned rescue duties. The employer must ensure that such employees successfully complete the training required and establish proficiency as authorized entrants, as provided by §§ 1926.1207 and 1926.1208;

   c. Train each affected employee in basic first aid and cardiopulmonary resuscitation (CPR). The employer must ensure that at least one member of the rescue team or service holding a current certification in basic first aid and CPR is available; and

   d. Ensure that affected employees practice making permit space rescues before attempting an actual rescue, and at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from...
representative permit spaces, except practice rescue is not required where the affected employees properly performed a rescue operation during the last 12 months in the same permit space the authorized entrant will enter, or in a similar permit space. Representative permit spaces must, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.

3. Non-entry rescue is required unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. The employer must designate an entry rescue service whenever non-entry rescue is not selected. Whenever non-entry rescue is selected, the entry employer must ensure that retrieval systems or methods are used whenever an authorized entrant enters a permit space, and must confirm, prior to entry, that emergency assistance would be available in the event that non-entry rescue fails. Retrieval systems must meet the following requirements:

   a. Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant’s back near shoulder level, above the entrant’s head, or at another point which the employer can establish presents a profile small enough for the successful removal of the entrant. Wristlets or anklets may be used in lieu of the chest or full body harness if the employer can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets or anklets is the safest and most effective alternative.

   b. The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 meters) deep.
c. Equipment that is unsuitable for retrieval must not be used, including, but not limited to, retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines. An employer who designates rescue and emergency services, pursuant to § 1926.1204(i), must:

4. If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be made available to the medical facility treating the exposed entrant used by other authorized entrants, or retrieval lines that will not work due to the internal configuration of the permit space.

12.0 Employee Participation

1. Employers must consult with affected employees and their authorized representatives on the development and implementation of all aspects of the permit space program required by § 1926.1203.

2. Employers must make available to each affected employee and his/her authorized representatives all information required to be developed by this standard.
Confined Spaces Emergency Planning and Procedures

Overview:
- Anticipated hazards
- Type of incidents
- Response plan
- Training of personnel (confined space workers, attendants, and rescuers)

Essentials of the Plan:
- In-plant or off premises rescue?
- Who is responsible for rescue operation?
- Who call off-premises and when?
- Communication: Worker to Attendant – Attendant to Rescuers
- Location and type of rescue equipment
- Special training on rescue equipment
- Lighting (Location and type)
- Medical facilities and personnel
- Power ventilation and air compressors
- Need for specially trained staff (HazMat, radiation, fire).
- Permit plan in use – special information shown (physical structure, chemicals in use, nature of work, etc)

The Six Essentials of Rescue:
- Rescue from outside if possible
- Enter to rescue only after help arrives
- Always assume presence of an IDLH atmosphere
- Only use SCBA or SAR (P/D) with escape bottle
- Never use same air (or atmosphere) as confined space workers
- Safety harnesses and lifelines in addition to PPE

Rescue Personnel Training:
- Hands-on, repetitive, on-site
- Torches, saws, ventilation principles, fire fighting, first aid, CPR, decontamination, spill containment, etc.
Confined Space Pre-entry Checklist
for Non-permit Required Spaces

This form must be completed prior to entering non-permit confined spaces. This applies to authorized Davis Constructors and Engineers, Inc. (Davis) and Mass Excavation (Mass X) employees as well as subcontractors. A second person must be present during all non-permit confined space entries.

Date: __________________
Name of person completing this checklist (print): __________________________________

Space name and location: ________________________________________________________
Reason for entry into the space: __________________________________________________

1. Review the confined space policy in the Site Specific Safety Plan.

2. Verify that there have not been any changes to the space since the hazard evaluation.

3. Answer the following questions below and proceed accordingly.

Will there be any activities conducted inside the confined space (e.g., welding, line breaking) or any chemicals (e.g., solvents) brought into the confined space that could create a hazardous atmosphere inside the space?

☐ NO ☐ YES If yes, Do Not Enter. Contact Safety Department for assistance.

Are there conditions in or around this confined space that could adversely affect anyone entering the confined space?

☐ NO ☐ YES If yes, Do Not Enter. Contact Safety Department for assistance.

If both questions were answered No:
1. Secure the site.
2. Install barriers and post warning signs.
3. Take measures to prevent any hazards on the outside of the space.
4. Control vehicular and pedestrian traffic.
5. Ensure second person is present.

Note: Any indication of an abnormal condition inside the space is cause to evacuate the space immediately. Return this form to the Site Safety Officer or jobsite office. Debrief personnel involved after entry.
### PRCS Entry Checklist

All applicable items shall be ‘YES’ or ‘N/A’ for the permit to be valid.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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</thead>
<tbody>
<tr>
<td>1. Procedure provided, reviewed, and enforced?</td>
<td></td>
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<tr>
<td></td>
<td>a. All job procedures reviewed, understood, and training completed?</td>
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<td></td>
<td>b. Person on site at all times to enforce all procedures?</td>
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<td></td>
<td>c. Material Safety Data Sheets (MSDS) reviewed?</td>
<td></td>
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<tr>
<td>2. Welding, cutting, open flame present, welding permit approved and posted?</td>
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<td>3. Confined space isolated?</td>
<td></td>
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<td></td>
<td>a. Lockout/Tagout procedure followed?</td>
<td></td>
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<td></td>
<td>b. Power sources off and locked out?</td>
<td></td>
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<td></td>
<td>c. Electrical hazards isolated, removed, and tagged?</td>
<td></td>
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<td></td>
<td>d. Rotating equipment locked out, removed, or disconnected?</td>
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<td></td>
<td>e. Lines carrying materials to and from confined space blanked off, section removed or locked by two valves and drained? Drain valve locked open and tagged?</td>
<td></td>
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<td></td>
<td>f. Contents removed and flushed?</td>
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<td>4. Confined space atmosphere prepared and monitored?</td>
<td></td>
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<td></td>
<td>a. Purged?</td>
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<td>b. Flanges and access doors removed or manholes opened?</td>
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<td></td>
<td>c. Continuous ventilation provided?</td>
<td></td>
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<td></td>
<td>d. Oxygen level maintained over 19.5% but less than 23%?</td>
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<td></td>
<td>e. Air monitoring equipment provided?</td>
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<td>5. PPE provided and specific instructions giving for its use?</td>
<td></td>
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<td></td>
<td>a. Air lines, SCBA or other approved respirators provided?</td>
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<td></td>
<td>b. Safety harnesses with D-ring and life line provided?</td>
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<td>c. Head, hearing, hand, foot and body protection provided?</td>
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<td></td>
<td>d. Lighting equipment of approved type provided and grounded?</td>
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<td>e. Fire extinguishers readily available?</td>
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<td></td>
<td>f. Walking/working surfaces protected from slippage?</td>
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<tr>
<td>6. Attendant standing outside of space trained and ready to respond to emergencies?</td>
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<tr>
<td></td>
<td>a. Rescue equipment provided at confined space?</td>
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<td></td>
<td>b. Emergency alarms or communications available?</td>
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</tbody>
</table>

Supervisor | Date
--- | ---
Supervisor | Date
Supervisor | Date
## Confined-Space Entry Permit

1. Location of Space
   
2. Description of Space
   
3. Employee authorizing entry
   
4. Date
   
5. Purpose of authorization
   
6. Entry authorized from to
   
7. Date
   
8. Authorized entrants
   
9. Authorized attendants(s)

### Space Hazards and Controls

1. Asphyxiating:
   - Oxygen deficiency [ ]
   - Chemical [ ]
   - Engulfment [ ]

2. Flammable/Explosive:
   - Dust [ ]
   - Chemical (specify) [ ]

3. Toxic:
   - Chemical (specify) [ ]

4. Unauthorized Activation:
   - Mechanical [ ]
   - Electrical [ ]

5. The confined space shall be isolated or potential hazards controlled by:
   - Depressurization [ ]
   - Purging and cleaning pipe [ ]
   - Ventilation [ ]
   - Lockout/tagout [ ]
   - Blanking/capping pipe [ ]
   - Other (specify) [ ]

6. Rescue services/equipment are available:
   - Onsite [ ]
   - Outside [ ]

7. Communications equipment procedures to be used:

8. The following personal protective equipment have been assigned to, and shall be worn by entrants:

9. Hot work [ may | shall not ] be conducted in this space. If hot work is permitted, the following controls shall be utilized:
Testing and Monitoring

1. The space has an oxygen content of ________ and is [ safe | unsafe ].

2. The space has been monitored and contains the following concentrations of toxic hazards:

   Carbon Monoxide _______  Hydrogen Sulfide _______  Methane _______

   Other (specify) _________________________________________________

3. The space has been tested and contains the following percentages of lower flammable limit of flammable/explosive chemicals (specify):

   __________________________________________________________________

   __________________________________________________________________

4. Monitoring will be conducted: continuously[ ] or at ________ intervals.

Authorization: All actions and conditions necessary for safe entry to, work in, and exit from the confined space have been performed. Entry is permitted on the date and time, and for the duration, specified above.

__________________________________________  Time ______________
(Signature of individual authorizing entry)

Cancellation: All entrants have exited the confined spaces and this permit is cancelled.

__________________________________________  Time ______________
(Signature of individual canceling entry)

(Reverse of ENG Form 5044-R)
# Davis Constructors and Mass Excavation
## Exposure Monitoring Log

<table>
<thead>
<tr>
<th>Date/Time (24-Hr Clock)</th>
<th>Type of Sample</th>
<th>Monitor Intervals</th>
<th>PID (ppm)</th>
<th>%O₂ (%)</th>
<th>%LEL (%)</th>
<th>CO (ppm)</th>
<th>H₂S (ppm)</th>
<th>Other</th>
<th>Sampler’s Initials</th>
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<tbody>
<tr>
<td></td>
<td>BZ or BG</td>
<td>In Depth</td>
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</table>

## Remarks:

- Field Team Leader Signature:

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**Legend:**
- Breathing Zone + BZ
- Background + BG
Respiratory Protection Plan

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1.0 Introduction...................................................................................... 2
2.0 Program............................................................................................ 2
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Appendix 2: Respirator Fit Test Report
Appendix 3: Voluntary Use Of Dust Mask Document
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Respiratory Protection Plan

1.0 Introduction

The Respiratory Protection Plan described in this document is intended to conform to the current OSHA Regulations, 29 CFR 1910.134.

The law states a written Respiratory Protection Plan must be established by the employer for selection and use of respirators, for use at existing or potentially hazardous or toxic work sites, or for any asbestos abatement work. The Respiratory Protection Plan includes a specifically mandated 11-point program. This 11-point program was used as an outline for a written Respiratory Protection Plan, as described in the following paragraphs.

2.0 Program

2.1 Selection and Use of Respirators

Appropriate types of administrative and engineering controls are used to reduce the levels of exposure to hazardous and toxic materials before selecting respirators. These controls may include establishing policies such as appropriate air monitoring of areas prior to entering, using wet techniques for dust control, and effective use of ventilation, negative air machines, enclosures, or sprays, and wind direction when applicable.

When such controls are not feasible or the containment level after use of controls is still potentially above the permissible exposure level, appropriate respiratory protection is provided by Davis Constructors & Engineers, Inc. (Davis) and used by the employee. Employees are required to sign a respirator fit test (Appendix 2) and training form (Appendix 4) stating they’ve read and understand this program prior to using respiratory equipment.

The respirator protection program is administered by the Safety Coordinator or a designee. This includes proper use, fit testing of respirators, training programs, and recordkeeping.
2.2 Respiratory Selection
Respiratory equipment is selected based on the hazards the worker may be exposed to. This selection is based on the criteria found in ANSI Z88.2. Both personal and environmental air monitoring is performed on a level, intensity, and schedule sufficient for initial selection of respiratory equipment and to either upgrade or downgrade as necessary during the course of the work.

All respiratory equipment selected conforms to National Institute for Occupational Safety and Health (NIOSH) guidelines and will retain NIOSH approvals. Respirators include the following information:
- an assigned identification number,
- a label identifying the type of hazard the unit is designed to protect against and,
- information concerning the limitations and approved component parts for this type of unit.

2.3 Training in the Use of Respirators
All employees using or who may use respirators are properly trained. Training addresses selection of the respirator, seal checking the face piece, proper use of the respirator in the situation, hazards anticipated, inspection and maintenance of the respirator, cleaning and disinfecting, and storage techniques. Most of these topics are covered in subsequent sections of this plan.

Training is documented (Appendix 4) and made a part of each employee’s permanent records. The program also includes formal qualitative-fit testing using amyl acetate and/or irritant smoke before using a particular type of respirator. Each employee completes a fit-test form upon completion of his or her fit test (Appendix 2). Employees are allowed to wear the unit in an uncontaminated area for at least 30 minutes before using them in a contaminated area. Fit tests, medical determinations and other records related to the respiratory protection program are kept by the health and safety department for the period of time required by regulation.
2.4 Respirator Assignment
Whenever possible employees are assigned their own respirator. They mark their unit with a unique number to use and be responsible for the unit for the duration of a specific project or for the life of the unit, if appropriate. This tends to cause employees to take better care of the unit and do a better job of cleaning and maintaining it. It also prevents germs from colds, flu, etc. from passing from one individual to another.

If individual assignment of units is not possible, the units are thoroughly cleaned and disinfected by each person immediately after using the unit and by the next person before using it.

When different types of respirators including different brands, sizes, or basic types (supplied vs. air purified) are used, the worker receives brief instructions on the use of the different respirator and undergoes and passes a qualitative-fit test. A card is issued to each person telling what respirator they’re assigned and fit tested for.

2.5 Respiratory Cleaning and Disinfecting
Respirators are cleaned after each day’s use. The filter cartridges are disposed of after each day’s use or more often if required by the site safety person or as the situation dictates. The respirators are rinsed off in the shower or in the washbasin with the headbands removed, depending on the type of respirator. The entire unit is cleaned in hot, soapy water (less than 120 degrees F). A pliable hand brush is used if the unit is exceptionally dirty. The unit is rinsed in clean, warm water and then rinsed in a disinfectant solution such as 50 ppm iodine or chlorine (1 teaspoon in 1 gallon of water) then thoroughly dried both inside and outside the face piece.

The units are air dried overnight in a clean area. If not being used again immediately, units are:
- inspected and any worn or defective parts replaced,
- reassembled and placed in clean, marked Ziploc® plastic bags for storage in a cool, dry place.
- inserted in the storage bag so the unit’s unique number is visible.
Organic solvents are not used for cleaning, because they deteriorate the rubber of the face piece. Respirator bags are not closed until units are completely dry (at least 48 hours).

2.6 Storage
Respirators are stored in a cool, dry, dark location inside plastic bags and/or boxes clearly marked with the unique number, the brand name, model number, and the unit size.

The unit is stored with the face piece down to protect the rubber from assuming an abnormal shape and essentially ruining it. The storage location affords protection against dust, chemicals, sunlight, and extreme heat or cold, like inside a metal or wood cabinet. Cartridges are not stored in bags with face pieces.

The inhalation valve of each mask is taped over with duct tape during temporary or long-term storage, if not kept in a Ziploc® bag to prevent dust or fibers from entering the unit.

Stored units are inspected at least once a month to ensure no distortion of the rubber is taking place.

2.7 Maintenance and Inspection
Inspection of respirators includes checking condition of the:
- glass faceplate for scratches, cracks, etc,
- condition of the rubber of the face piece,
- headbands for elasticity and damage,
- valves, both inhalation and exhalations, for fit, presence of dirt, hair and pliability,
- cartridge fittings are checked for cracks,
- Hoses are inspected, all fittings and connections are checked for leaks, cracks and pliability,
- clamps for tightness and exposure,
- quick-connects or threads for damage,
- dangerous clamps (those that might cut you) and other safety problems are eliminated from each unit.

Special care is taken if exposures to Permissible Exposure Limits (PELs) greater than the Short-Term Exposure Limits (STELs) or Immediately Dangerous to Life and Health (IDLH) atmospheres are encountered.
2.8 Medical Surveillance

Prior to participating in situations requiring respirators, employees receive baseline physical exams including the medical questionnaire in 1910.134 Appendix C. A copy of this medical questionnaire is at the end of this section (Appendix 1). The physician may also perform a Forced Expiratory Volume in one second (FEV 1.0) and a Total Vital Capacity (TVC) test on each person intending to use a respirator to help determine physical ability to safely wear respiratory equipment.

The physician then issues a written medical opinion as to the ability of the employee to wear a respirator and perform the tasks in question.

Medical examinations are:
- repeated annually,
- after a major change in job responsibilities,
- after an incident involving exposure or onset of any symptoms or,
- upon termination of the employee.

Employee records concerning medical surveillance are kept for 30 years after employment.

2.9 Approved Respirators

As stated previously, only NIOSH-approved respiratory equipment, including cartridges, are used. Respirators are not used when out of date. Cartridges and filters must be color coded for use according to NIOSH.

2.10 The Evaluation of Respiratory Protection Plan

On the basis of inspections, comments, and changes in the workplace, the program administrator and employees review this written Respiratory Protection Plan annually. This ensures the plan is adequate and achieves state-of-the-art practices. Necessary changes are made to the Respiratory Protection Plan as required to conform to new or existing state or federal regulations. An independent Industrial Hygienist also reviews the program on an annual basis and comments on and updates the program when required.
2.11 Other Items
The following items are also covered under Davis Respiratory Protection Plan:

a) A Quality Assurance Plan is employed ensuring the respirator plan is used and enforced.

b) Facial hair in the form of beards and long sideburns (which may interfere with the fit of the respirator) are not allowed for employees required to wear respirators.

c) IDLH (those Immediately Dangerous to Life or Health), Level A work, work in explosive atmospheres, and SCBA respirators are not covered by this Plan and are not worked in by Davis employees unless the plan is updated to include such activities.

d) If entered, Permit Required Confined Spaces requires:

1) An attendant in verbal or sight communication with the worker at all times.

2) Respiratory protection for the attendant is worn at least equivalent to the worker.

3) Written permission from Davis management in the form of a signed entry permit.

4) Workers never enter areas with low oxygen (less than 19.5 percent) with air-purifying respirators.

5) Temple eyepieces cannot be worn while using full-face respirators. Eyeglass lens clips are provided, if requested.

6) Contact lenses are never worn with respirators.

7) All employees involved in confined-space entry are trained to the extent required by law for their duties.
3.0 Fit-Testing Procedure

The employer ensures an employee using a right-fitting face piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face piece (size, style, model or make) is used, and at least annually thereafter.

The fit test is administered using an OSHA-accepted Qualitative Fit Test protocol. The OSHA-accepted QLFT protocols and procedures are contained in Appendix A of 1910.134.

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air purifying respirators are accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) used for respiratory protection.

4.0 Voluntary Use Of Respirators

Respirator use is encouraged, even when exposures are below the exposure limit to provide an additional level of comfort and protection for the worker. Voluntary use of a filtering face piece respirator (dust mask/disposable paper type dust respirator) does not require medical evaluation.

The supervisor needs only to ensure:

- the dust masks are not dirty or contaminated,
- their use does not interfere with the employee’s ability to work safely.
- provide a copy of Appendix 3 (Appendix D 1910.134) to each voluntary wearer. The same applies to voluntary air-purifying respirators.
Appendix 1: Medical Questionnaire for Respirator Users

Section 1

To the Employee: Can you read?
Your employer must allow you to answer this questionnaire during normal work hours or at a time and place that’s convenient for you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers. Your employer must tell you how to deliver or send this questionnaire to the health-care professional who will review it.

Answer the following question and please print:
Today’s date: __________________
Your name: ____________________________
Your age: ____________
Sex: (circle one): Male Female
Your height: Feet: _____ Inches: _______
Your weight: Pounds: __________
Employee ID number: ____________
Your job title: __________________________
Your telephone number: __________________

Have you worn a respirator?
If yes, what type(s):

What respirator will you wear for your job? (select from list below)
Air purifying respirator (full or half face piece)
Air purifying respirator (powered air purifying respirator)
Air purifying respirator (single use, filtering face piece)
Supplied air respirator (full or half face piece)
Supplied air respirator (airline)
Self-contained breathing apparatus (SCBA)
Supplied air respirator (escape only)
### Section 2

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td><strong>1.</strong></td>
<td>Do you currently smoke tobacco or have you smoked in the last month? If yes, explain:</td>
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<tr>
<td><strong>2.</strong></td>
<td>Have you ever had any of the following conditions?</td>
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<tr>
<td>a.</td>
<td>Seizures (fits)</td>
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<td>b.</td>
<td>Diabetes (sugar disease)</td>
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<tr>
<td>c.</td>
<td>Allergic reactions that interfere with your breathing</td>
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<td>d.</td>
<td>Claustrophobia (fear of closed-in places)</td>
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<td>e.</td>
<td>Trouble smelling odors</td>
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<td><strong>3.</strong></td>
<td>Have you ever had any of the following pulmonary or lung problems?</td>
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<tr>
<td>a.</td>
<td>Asbestosis</td>
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<td>b.</td>
<td>Asthma</td>
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<tr>
<td>c.</td>
<td>Chronic bronchitis</td>
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<td>d.</td>
<td>Emphysema</td>
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<td>e.</td>
<td>Pneumonia</td>
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<td>f.</td>
<td>Tuberculosis</td>
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<td>g.</td>
<td>Silicosis</td>
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<td>h.</td>
<td>Pneumothorax (collapsed lung)</td>
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<td>i.</td>
<td>Lung cancer</td>
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<td>j.</td>
<td>Broken ribs</td>
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<td>k.</td>
<td>Any chest injuries or surgeries</td>
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<td>l.</td>
<td>Any other lung problem you’ve been told about. If yes, explain:</td>
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<td><strong>4.</strong></td>
<td>Do you currently have any of the following symptoms of pulmonary or lung illness?</td>
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<tr>
<td>a.</td>
<td>Shortness of breath</td>
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<td>b.</td>
<td>Shortness of breath when walking fast on level ground or walking up a slight hill or incline.</td>
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<td>c.</td>
<td>Shortness of breath when walking with other people at an ordinary pace on level ground.</td>
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<td>d.</td>
<td>Have to stop for breath when walking at own pace on level ground.</td>
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<td>e.</td>
<td>Shortness of breath when washing or dressing yourself.</td>
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<td>f.</td>
<td>Shortness of breath that interferes with your job.</td>
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<td>g.</td>
<td>Coughing that produces phlegm (thick sputum)</td>
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<td>h.</td>
<td>Coughing that wakes you early in the morning.</td>
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<td>i.</td>
<td>Coughing that occurs mostly when you’re lying down</td>
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<td>j.</td>
<td>Coughing up blood in the last month.</td>
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<td>k.</td>
<td>Wheezing</td>
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<td>l.</td>
<td>Wheezing that interferes with your job.</td>
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<td>m.</td>
<td>Chest pain when you breathe deeply.</td>
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<td>o.</td>
<td>Other symptoms you think may be related to lung problems. If yes, explain:</td>
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<td><strong>5.</strong></td>
<td>Have you ever had any of the following cardiovascular or heart problems?</td>
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6. Have you ever had any of the following cardiovascular or heart symptoms?
   a. Frequent pain or tightness in your chest.
   b. Pain or tightness in your chest during physical activity
   c. Pain or tightness in your chest that interferes with your job.
   d. In the past two years, heart skipped or missed a beat.
   e. Heartburn or indigestion not related to eating.
   f. Other symptoms that may relate to heart or circulation problems. If yes, explain:

7. Do you currently take medication for any of the following problems?
   a. Breathing or lung problems
   b. Heart trouble
   c. Blood pressure
   d. Seizures (fits)
   If yes, explain:

8. If you've used a respirator, have you ever had any of the following problems?
   a. Eye irritation
   b. Skin allergies or rashes
   c. Anxiety
   d. General weakness or fatigue
   e. Any other problem interfering with your use of a respirator.
   If yes, explain:

9. Would you like to talk to the health-care professional who will review this questionnaire about your answers here?

10. Have you ever lost vision in either eye (temporarily or permanently)? If yes, explain:

11. Do you currently have any of the following vision problems:
   a. Wear contact lenses.
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Wear glasses</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>c. Color blind</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Any other eye or vision problem</td>
<td></td>
<td></td>
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<tr>
<td>12. Have you ever had an injury to your ears including a broken ear drum? If yes, explain:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Do you currently have any of the following hearing problems?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Difficulty hearing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Wear a hearing aid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Any other hearing or ear problem. If yes, explain:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Have you ever had a back injury? If yes, explain:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Do you currently have any of the following musculoskeletal problems?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Weakness in any of your arms, hands, legs, or feet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Back pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Difficulty fully moving your arms and legs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Pain or stiffness when you lean forward or backward at the waist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Difficulty fully moving your head up or down</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Difficulty fully moving your head side to side</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>g. Difficulty bending your knees.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Difficulty squatting to the ground.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>i. Climbing a flight of stairs or a ladder carrying more than 25 lbs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Muscle or skeletal problem that interferes with respirator. If yes, explain:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section 3

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>In your present job are you working at high altitudes (over 5,000 feet) or in a place with lower than normal amounts of oxygen? If yes, do you have feelings of dizziness, shortness of breath, pounding in your chest or other symptoms when you’re working under these conditions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>At work or at home have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g. gasses, fumes, or dust), or have you come into skin contact with hazardous chemicals? If yes, name the chemicals, if you know them:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Have you ever worked with any of the materials or under any of the conditions listed below?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>Asbestos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>Silica (e.g. in sandblasting)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Tungsten/cobalt (e.g. grinding or welding this material)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>Beryllium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>Aluminum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>Coal (for example mining)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td>Iron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h.</td>
<td>Tim</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>Dusty environments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j.</td>
<td>Any other hazardous exposures? If yes, describe these exposures:</td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td>List any second jobs or side businesses you have.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>List your previous occupations:</td>
<td></td>
<td></td>
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<tr>
<td>6.</td>
<td>List your current and previous hobbies:</td>
<td></td>
<td></td>
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<tr>
<td>7.</td>
<td>Have you been in the military services? If yes, were you exposed to biological or chemical agents (either in training or combat)?</td>
<td></td>
<td></td>
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<tr>
<td>8.</td>
<td>Have you ever worked on a HAZMAT team?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications)? If yes, name the medications, if you know them:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Site-Specific Safety Plan

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10.</strong></td>
<td>Will you be using any of the following items with your respirator(s)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>HEPA filters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>Canisters (e.g. gas masks)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Cartridges</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11.</strong></td>
<td>How often are you expected to use the respirator(s) (place a check in the “yes” or “no” box to the right for all answers applying to you).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>Escape only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>Emergency rescue only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Less than 5 hours a week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>Less than 2 hours a day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>2 to 4 hours a day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>Over 4 hours a day</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>12.</strong></td>
<td>During the period you’re using the respirator(s) is your work effort?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td><strong>Light</strong> (less than 200 kcal per hour). If yes how long does this period last during the average shift: _____hrs. _____min. Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work or standing while operating a drill press (1-3 lbs.) or controlling machines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td><strong>Moderate</strong> (200-350 kcal an hour). If yes how long does this period last during the average shift: _____hrs. _____min. Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td><strong>Heavy</strong> (about 350 kcal an hour). If yes how long does this period last during the average shift: _____hrs. _____min. Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13.</strong></td>
<td>Will you be wearing protective clothing and/or equipment (other than the respirator) when you’re using your respirator? If yes, describe this protective clothing and/or equipment:</td>
<td></td>
<td></td>
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<tr>
<td><strong>14.</strong></td>
<td>Will you be working under hot conditions (temperature exceeding 77 degrees F)?</td>
<td></td>
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<tr>
<td><strong>15.</strong></td>
<td>Will you be working under humid conditions?</td>
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<tr>
<td>16.</td>
<td>Describe the work you’ll do while using your respirator(s):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Describe any special or hazardous conditions you might encounter while using your respirator(s). For example, confined spaces, life-threatening gases:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Provide the following information—if you know it—for each toxic substance you’ll be exposed to when using your respirator(s):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>Name of the first toxic substance:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>Estimated maximum exposure level per shift:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Duration of exposure a shift:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>Name of the second toxic substance:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>Estimated maximum exposure level per shift:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>Duration of exposure a shift:</td>
<td></td>
<td></td>
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<tr>
<td>g.</td>
<td>Name of third toxic substance:</td>
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<tr>
<td>h.</td>
<td>Estimated maximum exposure level per shift:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>Duration of exposure a shift:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j.</td>
<td>The name(s) of any other toxic substances you’ll be exposed to while using your respirator:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Describe any special responsibilities you’ll have while using your respirator(s) that may affect the safety and wellbeing of others (for example, rescue, security):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Respiratory Equipment and Training

<table>
<thead>
<tr>
<th>Jobsite:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

* Signing this form is acknowledging you’ve received DCE Respiratory Protection Plan and understand the procedures and equipment discussed as noted below.

## ATTENDEES:

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
</tr>
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<tbody>
<tr>
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</tbody>
</table>

## Items Discussed

- Davis Constructors and Engineers Respiratory Protection Program
- Use of administrative and engineering controls
- Hazards and exposure levels
- Medical requirements
- Respirator inspection, components, and care
- Respirator limitations and cautions
- Respirator cartridges and filters selection
- Donning respirator and user seal check
- Fit testing procedure - Qualitative Test
# Appendix 2

## Respirator Fit Test Report

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Fit Test Expires:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Name:</th>
<th>License or SS #</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Address:</th>
<th></th>
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</table>

<table>
<thead>
<tr>
<th>City:</th>
<th>State:</th>
<th>Zip:</th>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Respirator Type:</th>
<th>1/2 Face Negative Pressure</th>
<th>Full-Face Negative Pressure</th>
<th>PAPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Circle)</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Manufacturer:</th>
<th>Model Number:</th>
<th>Size:</th>
</tr>
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<tbody>
<tr>
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</tbody>
</table>

## Cartridge Type Tested:

## Restrictions:

### Test

<table>
<thead>
<tr>
<th>Type of Test (Circle)</th>
<th>Quantitative Test Device:</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Isoamyl Acetate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Saccharin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bitrex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results</th>
<th>Pass</th>
<th>Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Given By:</th>
<th>Test Subject:</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>
Appendix 3

Voluntary Use of Dust Masks

This program is designed to protect employee health even though it was determined respirators are not required. Filtering face piece dust masks are allowed for those employees wishing to use them. This program is designed for compliance with OSHA Standard 29 CFR 1910.134(c)(2)(i) with the exception in 1910.134(c)(2)(ii).

The position title determined that respirators are not required for the following jobs, tasks, or departments:


The use of dust mask respirators by employees is strictly voluntary.

The position title provides, and employees are to read, Appendix D of the OSHA Respirator Standard 29 CFR 1910.134, a copy of which follows:

Appendix D 1910.134 (Non-Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.

2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It tells you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else’s respirator.
Subcontractor Health and Safety Procedures

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Subcontractor Health and Safety Procedures

1.0 Policy
Davis Constructors & Engineers, Inc. (Davis) policy is to select, contract with, and oversee subcontractors with the same priority and emphasis on safety as we practice. It’s a contractual requirement that subcontractors comply with Davis, client, state, and federal safety and health regulations.

2.0 Purpose and Scope
All contractors and employees on a project can only achieve the goal of an accident-free jobsite through a cooperative effort. This procedure provides guidelines used by Davis management when selecting subcontractors as well as safety requirements implemented when subcontractors and their employees begin work on Davis projects.

This procedure applies only to subcontractors who have a contractual relationship with Davis and their tier subcontractors.

3.0 Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subcontractor</td>
<td>Any person, partnership, or corporation with a contract with Davis and/or their subcontractor(s) to furnish labor, material, or equipment as part of the work</td>
</tr>
<tr>
<td>Work</td>
<td>The total of the contractor’s responsibilities as set forth in the contract documents.</td>
</tr>
<tr>
<td>Superintendent</td>
<td>The highest-ranking representative of Davis whose regular work location/office is on the project site.</td>
</tr>
</tbody>
</table>

4.0 Responsibilities
The Project Manager, project engineer, and superintendent are responsible for the selection of subcontractors. The Safety Department is available as a resource to interpret safety data and provide assistance in the selection of subcontractors as required. The Project Manager and superintendent and the project staff are responsible for assuring the overall implementation of and compliance with the requirements of this procedure through the subcontractor management/supervisor chain of command.
5.0 Training
Subcontract employees must complete safety training complying with all applicable federal, state, local, client, and Davis safety requirements.

Under federal and state safety requirements subcontractors (employers) must certify all operators of mobile equipment, such as forklifts, cranes, boom lifts, scaffolds, etc., are trained and/or certified on the proper operation of the equipment.

All subcontractor employees are required to participate in weekly safety training sessions. Signed copies of the weekly meeting reports are made available to Davis within 24 hours of each session.

6.0 Inspection and Storage
Copies of all subcontractor safety documents are maintained for a minimum of 12 months, unless a specified longer retention time is required by a regulatory agency.

Accident reports, OSHA logs, and other critical safety documentation become part of the permanent project files and maintained by Davis at project completion.

7.0 Procedure
Requesting and evaluating subcontractor general safety plan:
- The Project Manager/engineer or designee may request a subcontractor general safety plan from all potential subcontractors in conjunction with a request for quotation for services.

- Upon return receipt, the general safety plan is reviewed by the Project Manager/engineer and superintendent with input from the Safety Department to determine if the subcontractor has a safety program meeting acceptable guidelines for performing the work.

- Subsequent to review of the general safety plan, the Project Manager/engineer and/or superintendent jointly qualify or disqualify a subcontractor. Three primary sources of
information provide ways to evaluate the probable safety performance of prospective subcontractors:

1) Experience modification rates for worker’s compensation insurance premiums.

2) OSHA incidents rates for recordable injuries and illnesses.

3) Contractor safety programs, procedures, and practices.

Note: Due to the vast number of variables that may impact safety measurement systems, Davis has no standard minimum or set safety criteria for disqualifying potential subcontractors.

7.1 Documentation and Reporting Requirements

Every subcontractor’s employee is required to review all elements of the Davis Site Specific Plan and acknowledge said review by signature.

Subcontractors may be required to generate a Hazard Assessment Safety Action Plan, specific to their scope of work and completed before mobilizing the project. The Davis Safety Department reviews the plan.

Subcontractors may be required to participate in producing task-specific hazard analysis for daily activities as well as review all site safety reports.

Signed copies of subcontractor’s weekly safety meeting reports are made available to Davis within twenty-four (24) hours of each meeting.

 Accident investigation reports for all subcontractor accident, injuries, and work-related illnesses are forwarded to the Davis site superintendent within twenty-four (24) hours of the occurrence.

Subcontractors are also responsible for and comply with all federal and state accident reporting and recordkeeping requirements for their employees.
Site management must be informed promptly of any accident occurring on the project. Serious injuries, illnesses or any accident involving a third party or a member of the general public must be reported to Davis site management immediately.

Site management must be informed immediately of any OSHA, EPA, or other safety or health regulatory agencies actions involving the subcontractor’s work.

7.2 Basic Safety Requirements

The following basic safety rules list some of the Davis primary safety concerns for subcontractor safety, but are in no way all-inclusive. All other client, owner, Davis, federal, state, and local safety and health regulations governing the work applies.

Each subcontractor appoints an on-site safety representative who attends Davis scheduled project safety meeting and is responsible for implementation of rules listed below, as well as any other safety rules determined necessary for the safe execution of the project as decided by Davis.

Rules:

- Hard hats are worn at all times. This includes welders when using welding hoods, and all visitors.

- Sleeved shirts are worn at all times. (No tank tops.)

- Hard-toe, leather work boots, are worn at all times.

- Safety glasses (with rigid side shields), designated ANSI Z87.1, are worn at all times. This includes under welding hoods and employees with prescription eye wear.

- Face shields must be worn in conjunction with safety glasses when grinding, chipping, jack hammering, power sawing, or conducting other tasks involving serious face/eye hazards.

- Gloves, appropriate for the hazard present, are worn when hands are exposed to absorption of harmful substances, cuts, abrasions, punctures, chemical burns, thermal burns or harmful temperature extremes.
• All subcontractor employees comply with the Davis Fall-Protection Policy. This policy simply states: “Anytime employees are working from an unprotected elevation of six (6) feet or more, fall protection must be used.” Working as stated above means while traveling, stationary, or at any time exposed to a fall from a surface not protected by approved handrails, guardrails or some other approved fall-arrest device.

• Good housekeeping is maintained on a continual basis. Supplies, tools, materials, scrap material and construction debris are stored, transported, signed, contained and disposed of properly.

• Hearing protection is worn when employees are exposed to noise levels requiring protection, as defined by OSHA safety standards.

• Illegal drugs, alcohol, firearms, fireworks or other dangerous substance are not allowed on the project and may result in permanent dismissal.

7.3 Drug and Alcohol Compliance
Drug or alcohol usage or impairment on the worksite is not tolerated. Such impairment may risk injury or death to the impaired worker and/or co-workers. For the safety and protection of all jobsite workers, subcontractors must agree to mandate its employees to subject themselves to reasonable suspicion drug and/or alcohol testing when:

a. Any subcontractor manager or superintendent has a reasonable suspicion of drug or alcohol usage or impairment.

b. Davis superintendent or designee has a reasonable suspicion that any subcontractor employee may be in violation of the zero-tolerance drug and alcohol policy or appears impaired and such impairment could adversely affect job safety and/or performance.

Davis Drug and Alcohol Policy is posted at the jobsite and on the “Subcontractor” page of Davis website, www.davisconstructors.com this page is password protected. The password is: subp@ge.
7.4 **Equipment**

All equipment brought onto the project will, at a minimum, comply with Davis, state, and federal OSHA regulations. All equipment inspections are properly documented and maintained on site.

All equipment on the project is used in accordance with both federal and state safety requirements and the manufacturer’s instructions and guidelines. Equipment is not altered in any way for a use for which it’s not intended.

An inspection program and schedule are implemented for all equipment used on site, as required by applicable safety regulations. Documentation of these inspections are maintained by the subcontractor and provided to Davis upon request.

A scaffold tagging program is enforced on all projects. All subcontractor scaffolds are required to have a scaffold tag attached indicating subcontractor’s:

- name,
- date,
- status of scaffold safety requirements and
- any additional items that may be needed before using the scaffold.

Subcontractors use either Ground Fault Circuit Interrupters (GFCI’s) or an assured equipment grounding inspection program to protect employees using electrical tools and equipment.

7.5 **Certification and Permits**

Certain operations may require a Client/Owner permit. The subcontractor representative inquires with Davis site management to determine if any of the subcontractor’s activities require a Client/Owner permit. Such activities may include, but are not limited to:

- Hot Work
- Confined Space
- Excavations
Various state and local authorities require permits for specific activities such as excavations, heavy lifts, lead abatement, scaffolding, etc.

7.6 **Hazard Communication Program**

All subcontractor companies are required to have a written Hazard Communication Program meeting federal, state, and OSHA requirements and comply with the program. A copy of the program is forwarded to the Davis site management and a copy is required to be in the possession of the subcontractor on the site. The employer must complete documentation of employee Hazard Communications Training prior to the commencement of work.

Any potentially hazardous material or chemical brought onto the project must have a Safety Data Sheet (SDS). Copies of the SDS’s are forwarded to site management before the product is brought on to the project.

Small quantities of hazardous liquids, such as gasoline, diesel fuels and any solvents, brought onto the project are stored in a properly labeled safety container with a flame arrestor and self-closing lid. All hazardous materials and chemicals brought onto the project are in the proper containers with no visible signs of leaks. Contact site management prior to bringing large quantities of hazardous materials or liquid on site.

**All containers brought onto the project must be labeled as to their contents.**

Site management is notified before any chemical/material creating noxious or toxic fumes is used.

7.7 **Respiratory Protection**

All subcontractors, whose employees may be expected to wear a respirator, send a copy of their written Respiratory Protection Program to Davis site management. The program must comply with current Davis, state, and federal requirements. A Respiratory Protection Program must address the following:

- Proper respirator selection,
7.8 Safety Surveys
Site management and the Davis Safety Department conduct periodic safety surveys of projects. Any safety discrepancy observed is reported to the appropriate subcontractor’s site safety representative for immediate resolution.

Davis safety surveys do not relieve subcontractors of their responsibility to self-inspect their work and equipment. All subcontractors—at all times—conduct their work in a safe manner.

7.9 Safety Adherence
Davis understands the discipline of subcontractor personnel is the responsibility of subcontractor management. When observed, however, Davis documents violations of safety policies and forward said documentation to the subcontractor’s representative. After verbal and written notices are documented and if the subcontractor repeatedly fails to comply, the employee may be removed from the worksite (as outlined by the procedures below).

7.9.1 Consequences for Policy Violations
The consequences discussed below apply to all employees/subcontractors found in violation of this policy. Any foreman, supervisor, or official of management after becoming aware of any such failure ensures the following action is taken:

Stage One
A formal verbal warning may be given to the employee by his/her immediate supervisor, along with a warning that this is the first stage in the disciplinary procedure and any repetition within one month will lead to the second stage in the procedure.

Stage Two
If the offense(s) addressed in Stage 1 is repeated and/or continued or a more serious offense is committed, the employee may be given a formal written warning setting out the details of the offense(s) and stating that if the offense(s) is (are) repeated within one month, the third stage in this procedure is invoked. In addition to the written warning, the employee is suspended without pay, for a period of one day. Upon his/her return to work the employee must undergo additional formal training in the area of the offense(s) before being permitted to work in order to prevent injury to the employee or co-workers.

Stage Three
If an offense identified in Stage 2 is repeated within three months, the employee may be terminated. An employee so terminated is ineligible for rehire for 24 months.

Note: Depending on circumstances, Davis reserves the right to bypass, duplicate, or alter any stage of the recommended disciplinary procedures described above.

7.10 Imminent Danger
Upon discovery of any situation which may (in the opinion of the site management or safety representative) lead to a serious injury, illness, or death site management or safety immediately suspends the related work. Work may resume only after the safety concern(s) is corrected to the satisfaction of Davis.

Examples of “imminent danger” situations may include, but are not limited to, the following:

- Falls from elevations exceeding Davis, federal, or state safety standards.
- Excavation not properly sloped or shored.
- Possible electrocution hazards to the general public.
- Operations of vehicles, machinery, or heavy equipment in an unsafe manner.

Other than immediate suspension of work the procedure for correction of imminent danger situations follows the procedure set forth in section 7.9.
Aerial Lift and Scissor Lift Procedure

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Aerial Lift and Scissor Lift Procedure

1.0 Purpose and Scope
This safety procedure provides minimum requirements for use of aerial and scissor lifts. This work instruction applies to all aerial lifts including extensible and articulating boom platforms, aerial ladders, vertical towers, vertical mast lifts, and scissor lifts. This procedure applies to all employees and subcontractors covered by the Site-Specific Safety Plan (SSSP).

2.0 Responsibilities

General responsibilities for SSSP implementation are stated in section “A” of this document. Additional management, staff, specific to this topic is stated in this procedure.

2.1 Site Manager
- Designate a Competent Person(s) to conduct all aerial lift training and inspections.
- Ensure only approved lifts are used.
- Determine whether egress and access from elevated lifts are necessary and document approval or disapproval for each specific request.

2.2 Supervisors
- Ensure all employees operating aerial devices are trained in accordance with this SSSP and relevant national legislation and other regulatory requirements.
- Ensure approved lifts are used and that they’re properly inspected and maintained.
- Monitor aerial and scissor lift operations to assure compliance with this safety plan.

2.3 Employees
- Successfully complete the aerial lift operator training required by this SSSP prior to operating an aerial or scissor lift.
- Operate aerial lifts in accordance with training received, manufacturer’s recommendations, and this SSSP.
- Promptly report defective or malfunctioning equipment and any incident involving the use of aerial or scissor lifts to the supervisor.

### 3.0 Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerial Ladder</td>
<td>A manually or self-propelled aerial device consisting of a single or multiple section extensible ladder with a personnel platform.</td>
</tr>
<tr>
<td>Aerial Lift</td>
<td>Self-propelled elevating work platform positioned by telescoping boom, articulating boom, or vertical mast primarily designed as a personnel carrier attached to a rotating or non-rotating base that permits elevation of the free or outer end.</td>
</tr>
<tr>
<td>Approved Lifts</td>
<td>See Paragraph 4.2</td>
</tr>
<tr>
<td>Articulating Boom</td>
<td>A boom with two or more hinged sections that extends by unhinging.</td>
</tr>
<tr>
<td>Competent Person</td>
<td>One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate hazards.</td>
</tr>
<tr>
<td>Extensible Boom Platform</td>
<td>An aerial device with a telescopic boom and personnel platform attachment.</td>
</tr>
<tr>
<td>Fall Restraint</td>
<td>A fall-protection system that prevents the user from falling any distance. The system is comprised of a full-body harness, along with an anchorage, connectors, and other necessary equipment. The system prevents and/or restrains the user from reaching the open edge of the structure or platform.</td>
</tr>
<tr>
<td>Insulated Aerial Lift</td>
<td>An aerial device designed for work on energized electrical lines and apparatus.</td>
</tr>
<tr>
<td>Lift(s)</td>
<td>Any vehicle mounted, manually propelled, or self-propelled device, extensible or articulating, or both, designed to position personnel. This term is also used as an abbreviation for aerial devices and aerial platforms including aerial lifts and scissor lifts.</td>
</tr>
</tbody>
</table>
Lift Operator | A qualified person who controls the movement of the lift.
--- | ---
Platform | Any personnel-carrying device (e.g. basket or bucket), which is a component of an aerial device.
Personal Fall | A system used to arrest an employee in a fall from a working level. It includes anchorage, connectors, a full-body harness, and may include a lanyard, deceleration device, lifeline, or a suitable combination of these.
Scissor Lift | A self-propelled elevating work platform utilizing a scissor type framework for positioning the platform vertically and is primarily designed as a personnel carrier.

4.0 Procedure

Only trained, qualified, and authorized employees are to operate lifts.

Plan the work! Inspect work area for hazards, such as overhead and ground-level obstructions and electrical hazards, other lifts, conflicting work operations, traffic, potholes, and wind speeds above manufacturer limits. Do not operate above 30 mph (45 kmh).

Always use approved lifts. See paragraph 4.4.

Maintain required distances for work near or on live electrical lines. See paragraph 4.5.

Always select the proper type of lift based on the intended use.

4.1 General Requirements

Aerial lifts should only be operated on firm, level surfaces. Lifts will not be driven on grades, side slopes, or ramps with slopes exceeding manufacturer's incline limits.

If the machine has a separate power source to operator the movement of the base (e.g. truck mounted) vs. the movement of the platform, the vehicle engine must be shut off and the key removed before using the platform.

Truck mounted aerial devices are lowered and secured prior to driving the truck or vehicle on the highway.
When so equipped, outriggers or stabilizers and extendable axels are fully extended and placed on firm level surfaces or mats. Outrigger or stabilizer mats and pads are:

- At least three (3) times larger in surface area than the float they support,
- Flat where the outrigger or stabilizer contacts it to prevent the lift from sliding off, and
- Strong enough to withstand the loads imposed by the outrigger.

Lift controls are operated in a smooth, controlled manner at all times. Avoid sudden starts, stops, or change in direction. Never jam the controls from one travel direction to another.

Keep all body parts inside the machine while moving equipment.

When boom lifts must be moved on an incline, the boom is always positioned uphill of the wheels and the wheels chocked, if it’s parked on an incline. See manufacturer instructions for incline limits.

Never use the boom to push or pull the aerial lift base or any other object.

Boom and basket load limits specified by the manufacturer are not exceeded.

Care is taken to prevent electric cords, rope, and hoses from becoming entangled in the aerial platform. Only the tools and materials required to perform the work are permitted in the platform and must fit completely inside the basket. Small tools and materials are kept in a properly secured container on the floor of the platform.

Supporting equipment, material, or rigging loads from the boom, handrails, or platform is prohibited.

If lift or supporting assembly becomes caught or otherwise prevented from normal motion by adjacent structures or obstacles, and control reversal does not free the lift, all personnel are removed from the platform before additional attempts are made to free the lift using the ground controls.
4.2 Fall Protection

Employees must wear a personal fall-protection harness and lanyard which is attached to a manufacturer-approved attachment point in the platform or basket when working from an aerial lift. If a manufacturer-approved attachment point is not provided, a Qualified Person determines the proper anchor point location specific to each type of lift. It’s recommended that lanyards used for lifts be as short as possible to restrain an employee from being thrown from the platform.

Guardrails are in place and access gates closed while lift is in use.

Employees always stand firmly on the floor of the basket and do not sit or climb on the edge of the basket or use planks, ladders, or other objects in the platform to gain a work position or as a climbing device to access other work levels.

The floor of the platforms must be kept clear of trash, debris, etc.

Lifts are not moved when the platform is elevated with personnel in the basket unless:

- the travel surface is level,
- the equipment is designed for that purpose, and
- manufacturer’s instructions allow it.

For aerial lifts the platform is below horizontal for traveling. The operator limits travel speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors that could cause collisions or injuries.

4.3 Protection of Personnel in Immediate Work Area

The counterweight swing radius of articulating or extensible boom lifts is barricaded to prevent crushing injuries to employees on the ground.

When the lift is operated in elevated positions the area underneath the work is barricaded.
Elevated platforms are attended at all times or lowered to grade.

When lowering elevated platforms the operator must inspect the area around the machine to ensure no personnel, equipment, or obstructions are in the path of travel. If the area in the path of movement is not visible, i.e., in a cloud of steam or fog, the basket is not lowered until vision is restored or the area is otherwise determined to be clear.

A spotter is utilized whenever the operator cannot see the machine base during movement of the base. A spotter is used when operating lifts in close proximity to obstructions, operating equipment, vehicles, or personnel.

4.4 Approved Aerial/Scissor Lifts

4.4.1 General Requirements
Only lifts meeting Davis and regulatory requirements are used.

Articulating boom and extensible boom platforms must have both upper (platform level) and lower (ground level) controls. Lower controls override upper controls but are not operated unless permission was obtained from the employee in the lift, except in case of emergency.

All lift platform controls have two points of activation contact (normally a foot pedal and control lever) by the operator to activate the directional controls (horizontal and vertical movement). With a time-delay feature the delay is set to no more than three (3) seconds. Any other manufacturer supplied interlocks are operational.

Lifts have:
- Top rails, mid-rails, and toe boards unless completely enclosed on the sides,
- Anchor points for fall-arrest equipment (see Section “J” in SSSP), and
- Provision for storage of the equipment manual and the manual are available on each machine.

Scissor lifts have provision for manually blocking the lift open during inspection and maintenance operations.
Electric- or propane-powered lifts are considered for indoor applications.

Gasoline- or diesel-powered lifts are only used outdoors or in well-ventilated areas.

Modifications, attachments, or use for purposes other than as designed are approved in writing by the manufacturer prior to use.

Only lifts approved for use in hazardous locations and atmospheres such as areas with explosive vapors, dust, etc. are used in defined hazardous locations. See NFPA 505.

4.4.2 Lifts Used by Qualified Electricians
Lifts used by qualified electricians for live electrical work meet all the general requirements stated above and the following additional requirements:

- Lifts are designed for use on live electrical work with appropriate insulated parts.
- Lifts have voltage limitations exceeding the voltage to be worked on.
- A conductive bucket liner or other suitable conductive device is provided for bonding the insulated aerial device to the energized line or equipment.
- The body of the lift is effectively grounded.
- The lift has dual controls (lower and upper).
- A minimum clearance table for bare-hand live-line work, as shown below, is printed on a durable nonconductive plate mounted in the bucket or its vicinity so it’s visible to the operator of the lift.

4.5 Lifts Used to Work Near or On Live Electrical

4.5.1 Lifts Used to Work Near Live Electrical
Lifts are not operated where any part of the equipment, employees, tools, or materials come closer to or above any energized electrical line than specified in the following table except for qualified electricians using insulated aerial lifts approved for electrical service.

An overhead wire is considered an energized line unless it was disconnected and is visibly grounded in the work area. Power lines on wooden poles generally carry from 110 to 69,000 volts.
Power lines on steel towers usually carry from 69,000 to 345,000 volts.

<table>
<thead>
<tr>
<th>Nominal Voltage, kV (Phase to Phase)</th>
<th>Minimum Required Clearance ft. (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 50</td>
<td>10 (3.05)</td>
</tr>
<tr>
<td>51 – 200</td>
<td>15 (4.60)</td>
</tr>
<tr>
<td>201 – 350</td>
<td>20 (6.10)</td>
</tr>
<tr>
<td>351 – 500</td>
<td>25 (7.62)</td>
</tr>
<tr>
<td>501 – 750</td>
<td>35 (10.67)</td>
</tr>
<tr>
<td>751 – 1,000</td>
<td>45 (13.72)</td>
</tr>
</tbody>
</table>

Voltages above 1,000 kV require greater distances (1kV = 1,000 volts). (Non-US locations may require greater distances.)

**4.5.2 Lifts Used to Work on Live Electrical**

Only qualified electricians work directly on live electrical lines from lifts when allowed by relevant national or site regulations. See HSEP 19.3 and 19.4. See approved aerial and scissor lifts used on live electrical lines.

For bare-handed live-line work the qualified electrician:
- Makes the required inspections and tests of the lift and ground it,
- Checks the arm current leakage on the bucket using a voltage equal of that to be worked on for three minutes with a leakage current not to exceed one (1) microampere per kilo-volt or nominal line-to-line voltage at beginning of shift,
- Bond the conductive bucket liner to the energized conductor by means of a positive connection before contact- ting the energized part to be worked on and leave attach- ed until the work on the energized circuit is completed,
- Does not place conductive materials over 36 inches long in the bucket except for appropriate length clean and dry jumpers, armor rods, and tools,
- Does not use hand lines between buckets, booms, and the ground, except nonconductive-type dry hand lines.
may be used from line to ground when not supported from the bucket,

- Maintain minimum clearance distances for live-line bare-hand work as specified in the following table for all grounded objects and from lines and equipment at a different potential than to which the insulated aerial device is bonded, unless such grounded object or other lines and equipment are covered by insulated guard (these distances are maintained between all parts of the insulated boom assembly and any grounded parts including the lower arm or portions of the body of the lift when approaching, leaving, and when bonded to the energized circuit),

- Use harnesses and lanyards that meet the requirements for linemen equipment;

- Does not wear pole climbers (metal spurs used to climb wooden poles) while working from the aerial lift; and

- Does not perform work with an electrical storm in the immediate vicinity. Work no closer than six (6) miles (10 km) from the storm.

Minimum Clearance Table for Bare-Hand Live-Line Work:

<table>
<thead>
<tr>
<th>Voltage Range (phase-to-phase) (Kilo-volts)</th>
<th>Phase to Ground</th>
<th>Phase to Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 to 15</td>
<td>2’ 0” (.61m)</td>
<td>2’ 0”</td>
</tr>
<tr>
<td>15.1 to 35</td>
<td>2’ 4”</td>
<td>2’ 4”</td>
</tr>
<tr>
<td>35.1 to 46</td>
<td>2’ 6”</td>
<td>2’ 6”</td>
</tr>
<tr>
<td>46.1 to 72.5</td>
<td>3’ 0”</td>
<td>3’ 0”</td>
</tr>
<tr>
<td>72.6 to 121</td>
<td>3’ 4”</td>
<td>4’ 6”</td>
</tr>
<tr>
<td>138 to 145</td>
<td>3’ 6”</td>
<td>5’ 0”</td>
</tr>
<tr>
<td>161 to 169</td>
<td>3’ 8”</td>
<td>5’ 6”</td>
</tr>
<tr>
<td>230 to 242</td>
<td>5’ 0”</td>
<td>8’ 4”</td>
</tr>
<tr>
<td>345 to 362*</td>
<td>7’ 0”</td>
<td>13’ 4”</td>
</tr>
<tr>
<td>500 to 552*</td>
<td>15’ 0” (4.60 m)</td>
<td>31’ 0”</td>
</tr>
</tbody>
</table>
*For 345-362 Kv, 550-552 Kv, and 700-765 Kv, the minimum clearance distance may be reduced provided the distances are not made less than the shortest distance between the energized part and a grounded surface. See HSEP 19.4 for lower voltages.

4.6 Elevated Lift Egress and Access
Exiting and accessing an elevated platform is permissible only when it’s determined to be the safest means of access to an elevated work area. This determination is documented and has prior approval by the site manager or the site safety supervisor.

When authorized the following minimum procedures are used to access or exit an elevated platform.

- Obtain documented approval from site manager or site safety supervisor.
- The platform is attended at all times by a lift operator while any personnel are exiting or accessing an elevated platform.
- 100 percent tie-off is maintained while exiting or entering the platform. The employee secures a second lanyard to an anchorage point outside the basket before disconnecting his lanyard from the lift and exiting. When re-entering secure second lanyard to the lift only after both feet are on the floor of the basket then release the lanyard tied to outside anchorage.
- The floor of the basket is at the same level as the structure to be accessed.
- At no time do employees exit or enter over the lift controls.
- Access gates are utilized if at all possible to exit or enter the elevated platform.
- If the manufacturer prohibits egress and access of an elevated lifting platform, such practices are prohibited unless written approval is obtained from the manufacturer.

4.7 Fueling and Recharging Equipment
The equipment is lowered to grade, parked, and shut down prior to refueling or battery charging.

Fueling and battery charging is done in a well-ventilated area free from flame, sparks, or other hazards that may cause
a fire or explosion because of the fuel or the hydrogen generated from battery charging.

Follow all manufacturer requirements for fueling or charging batteries.

For battery charging connect charger to battery prior to turning it on. Turn the charger off prior to removing charger leads.

Wear appropriate PPE while fueling or charging batteries.

4.8 Inspections
All lifts are inspected by a competent person:

Lifts must have visual inspections performed by the operator prior to use.

Defective equipment is tagged out-of-service and is immediately removed from service.

4.8.1 Visual Pre-use Inspection
Prior to use all aerial lifts are inspected using a pre-shift inspection log sheet may be used. See Figure 4.

The subsequent operator using the lift during the same shift ensures a pre-shift inspection was completed prior to use.

Lift controls are tested prior to each use to determine whether they’re in safe working condition. The ground controls are checked first for those units with ground controls.

Visual inspection items include the following and those provided in Figure 4:
- Controls plainly and legibly marked as to their function,
- Evidence that safety devices and interlocks are operational,
- Personal protective equipment for operator and riders, e.g. fall protection, gloves,
- Hydraulic system for tight connections, hose damage, and leaks,
- Cables and wiring,
• Loose or missing parts,
• Legible warning placards and decals (replace defective placards or decals prior to equipment use),
• Outriggers, stabilizers, and extensible axles,
• Guardrail systems and gate latches,
• Other items recommended by manufacturer.

4.8.2 Documented Periodic Inspection
A documented periodic inspection is performed by a competent person.
• When a lift service at the shop.
• After any incident involving the lift.

See Figure 3.

4.8.3 Yearly Inspection
Insulating booms of aerial devices used for work on energized high-voltage conductors and equipment have a dielectric test performed every 12 months.

4.9 Maintenance
A preventive maintenance program is established ensuring manufacturer maintenance requirements are met. Maintenance personnel assist with periodic inspections.

Only qualified personnel perform repairs on lifts.

Any problems or malfunctions affecting safe operations are repaired and functionally tested before use.

Properly support booms, extended scissor sections, etc., during maintenance operations on the hydraulic systems. Follow lockout procedures. See section “M” of SSSP.

All repairs are documented.

5.0 Operator Qualification and Training
The aerial and scissor lift qualification for lift operators includes training in accordance to manufactures requirements.

5.1 Training
Lift operators are trained by a designated Competent Person. Manufacturer representatives are recognized as being competent on their equipment and are considered Competent Persons to satisfy the requirements of this work instruction. Most lift users are trained by Union Training Reps but must as have refresher training on the lift used at the site.

As a part of the training, prospective operators must review the operations manual, the Davis Safety Program, and the site-specific safety requirement for each lift they need to qualify for.

Additional training may be required if the operator:
- is assigned to a different type or model lift,
- has not been operating safely, or
- is involved in a lift-related accident and/or incident.

Operator Skills Demonstration:
The skills portion of this procedure is designed to verify the prospective operator possesses the actual skills required to operate each type of aerial or scissor lift.

The exercise is performed with the exact type of equipment the prospective operator may be authorized to operate.

A designated Competent Person administers the practical skills portion of this procedure in a safe environment and under controlled conditions.

Skills demonstration includes inspecting the lift, starting/stopping, raising/lowering, where applicable rotating/extending/retracting the boom, and moving the lift from one location to another.

Training Documentation:
Copies of training are forwarded to Davis Safety Dept. in the main office.
**SCISSOR LIFT OPERATORS DAILY CHECKLIST**

(COMPLETE BEFORE THE START OF EACH SHIFT)

SCISSOR LIFT Make: _________ Model: _______________

Location: ________________________________________________________

**CHECK JOBSITE HAZARDS AND TERRAIN**

(Choose any defective item with an x and give details)

WALK AROUND

__ STRUCTURE, (cleanliness, physical condition) ________________________
__ TIRES, (proper inflation, lug nuts, cuts, gouges, pressure) _____________
__ BATTERY (fluid level, condition, state of charge) _____________________
__ HYDRAULIC SYSTEM, (level, visible leaks) ___________________________
__ ELECTRICAL WIRING ________________________________
__ FLUIDS, (fuel, hydraulic, coolant, and oil) ____________________________
__ INSTRUCTION / WARNING PLACARDS, (in place and legible) ____________

FROM THE GROUND CONTROL STATION

__ TEST EMERGENCY STOP BUTTON ________________________________
__ RAISE AND LOWER PLATFORM ________________________________
   (lower with auxiliary power)_______________________________
   (lower with manual bleed valves)____________________________

FROM THE PLATFORM CONTROL STATION

__ SECURE ENTRY CHAIN OR GATE, CHECK GUARD RAILS ____________
__ TEST EMERGENCY STOP AND HORN ________________________________
__ TEST FUNCTION ENABLE SWITCH ________________________________
__ TEST UP/DOWN FUNCTION (lower with auxiliary power) ______________
__ TEST STEERING, DRIVE, AND BRAKING ___________________________
__ TEST TILT SENSOR OPERATION ________________________________
__ TEST LIMIT DRIVE SPEED ________________________________
__ TEST POTHOLE GUARDS ________________________________
__ EXTEND AND LEVEL OUTRIGGERS, (if applicable) ________________

Details of problem marked above: ____________________________________

________________________________________________________________

Davis Constructors Scissor Lift Daily Inspection Log
# SCISSOR LIFT INSPECTION

Month ____________________ Year _____

<table>
<thead>
<tr>
<th>Day</th>
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Any additional comments concerning the operation of the scissor lift:

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**Note:** Defects found must be repaired prior to use. If equipment fails inspection notify your supervisor immediately. Store this inspection form in the equipment until end of month, and then file in project office. If equipment fails, fill out appropriate repair forms.
AERIAL LIFT OPERATORS DAILY CHECKLIST
(COMPLETE BEFORE THE START OF EACH SHIFT)

AERIAL LIFT Make: ___________________ Model: ___________________
Location: __________________________________________________________________________

CHECK JOBSITE HAZARDS AND TERRAIN
(Check any defective item with an x and give details)

WALK AROUND
__ STRUCTURE, (cleanliness, physical condition, welds, bolts, platform) ___________
__ TIRES, (proper inflation, lug nuts, cuts, gouges, pressure) ______________________
__ BATTERY (fluid level, condition, state of charge) _____________________________
__ HYDRAULIC SYSTEM, (level, visible leaks) ________________________________
__ ELECTRICAL WIRING ____________________________________________
__ FLUIDS, (fuel, hydraulic, coolant, and oil) _________________________________
__ INSTRUCTION / WARNING PLACARDS, (in place and legible) _________________

FROM THE GROUND CONTROL STATION
__ TEST EMERGENCY STOP BUTTON ___________________________________________
__ TEST EXTENDABLE AXLES ________________________________________________
__ TEST MACHINE FUNCTION ________________________________________________
__ TEST AUXILIARY CONTROLS _____________________________________________
__ TEST TILT SENSOR AND OPERATING ENVELOPE DISPLAY _____________________

FROM THE PLATFORM CONTROL STATION
__ SECURE ENTRY, CONNECT HARNESS, CHECK GUARD RAILS ________________
__ TEST EMERGENCY STOP AND HORN _______________________________________
__ TEST HYDRAULIC OIL RETURN INDICATOR _________________________________
__ TEST TILT SENSOR ALARM _______________________________________________
__ TEST FOOT SWITCH AND ALL MACHINE FUNCTIONS __________________________
__ TEST STEERING _________________________________________________________
__ TEST DRIVE AND BRAKING ______________________________________________
__ TEST DRIVE ENABLER SYSTEM ___________________________________________
__ TEST LIMIT DRIVE SPEED ________________________________________________
__ TEST AUXILLARY CONTROLS _____________________________________________

Details of problem marked above: __________________________________________________________________________

Davis Constructors Aerial Lift Daily Inspection Log
## AERIAL LIFT INSPECTION

Month ____________________ Year _____

<table>
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<th>Day</th>
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**Any additional comments concerning the operation of the aerial lift:**

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**Note:** Defects found must be repaired prior to use. If equipment fails inspection notify your supervisor immediately. Store this inspection form in the equipment until end of month, and then file in project office. If equipment fails, fill out appropriate repair forms.

Davis Constructors Aerial Lift Daily Inspection Log
# Personal Protective Equipment Plan

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1.0 Introduction
The following plan outlines Davis Constructors & Engineers, Inc. (Davis) policy of Personal Protective Equipment (PPE) other than respiratory. Respiratory Protection Policy is covered in Section 16.

2.0 General Requirements

2.1 Application
Personal protective equipment for the eyes, face, head, and extremities, protective clothing, respiratory devices and protective shields and barriers, are provided, used and maintained in a sanitary and reliable condition wherever their use is necessary. Potential exposure to flying debris, chemical or toxic gasses or fumes, falling objects, and heavy machinery will require use of this PPE plan.

2.2 Employee-owned Equipment
When employees provide their own protective equipment, Davis is responsible for assuring its adequacy, including proper maintenance, repair, and sanitation of such equipment. If employee-provided equipment is not up to par, Davis can provide proper approved equipment.

2.3 Design
All personal protective equipment is of safe design and constructed for the work to be performed. Where appropriate all PPE will be NIOSH, ANSI, or MSHA approved.

2.4 Selection
Selection of PPE is based on a thorough hazard evaluation at each work-site, work project duration, and a consideration for the following requirements:

- Maintenance
- Durability
3.0 **Eye and Face Protection (1910.133)**

3.1 **General**
Protective eye and face equipment is required when a reasonable probability of injury can be prevented by such equipment. In such cases Davis will make conveniently available a type of eye and face protection suitable for the work to be performed. No unprotected person will knowingly be subjected to a hazardous environmental condition.

3.1.1 Eye and Face Protectors Must Meet Minimum Requirements: Protectors should:

- Be in accordance with ANSI Z87.1

- Provide adequate protection against the particular hazards for which they’re being used.

- Be reasonably comfortable when worn under the designated conditions.

- Fit snugly and not unduly interfere with the movements of the wearer.
Personal Protective Equipment Plan

- Be capable of being disinfected.
- Be easy to clean, kept clean, and in good repair.

3.1.2 Corrective Lenses

- Persons who must use corrective lenses, wear eye glasses, and who’re required by this standard to wear eye protection, will wear goggles or eye glasses of one of the following types:
  - Eye glasses with protective lenses that provide optical correction.
  - Goggles that can be worn over corrective eye glasses without disturbing the adjustment of the eye glasses.
  - Goggles that incorporate corrective lenses mounted behind the protective lenses.

- When limitations or precautions are indicated by the manufacturer, those limitations are shown to the user and care is taken to see that such limitations and precautions are strictly observed.

- Design, construction, testing, and use of devices for eye and face protection are in accordance with American National Standard for Occupational and Educational Eye and Face Protection, Z87.1-1968.

- Typically, Davis will not pay for prescription lenses that can be worn off the jobsite.

- Davis provides prescription safety glasses for Foreman, Superintendents, Project Managers, and Project Engineers.
3.1.3 The Chief Causes of On-the-job Eye Injuries are as Follows:

- Flying objects (especially those set in motion by hand tools).
- Corrosive substances.
- Hazardous material splashes.
- Poisonous gas or fumes.
- Debris from the use of equipment (Grinders, table saws, chop saws, drills, etc.).

3.1.4 Davis has Available Eye Protective Equipment:

- Cover goggles.
- Protective safety glasses.
- Protective spectacles with side shields.
- Face shield.

4.0 Occupational Head Protection (1910.135)

Helmets or hard hats for the protection of heads of workers from impact and penetration from falling and flying objects and from limited electric shock and burns will meet the requirements and specifications established in American National Standard Safety Requirements for Industrial Head Protection, ANSI Z89.

Hard hats are mandatory at all times on the jobsite unless work plan or JSA is written has superintendent approval. The following applies to use and care of the hard hat:

- Hard hats must not be stored in direct sunlight as the sunlight may affect their protective quality.
Personal Protective Equipment Plan

- Employees will not keep anything under their hard hat that might interfere with the suspension.

- Adjust suspension to achieve a snug fit by loosening or tightening the head band.

- A loose suspension can allow contact with head in the instance of impact and may cause skull fracture or concussion.

- A suspension that’s too rigid can transmit the shock of impact and fracture the neck.

- Hard hat and suspension should be cleaned and inspected for damage at regular 30-day intervals.

- Broken or punctured hard hat shells must be replaced.

- Don’t write on plastic shells with Magic Markers. Markers destroy the integrity of the material.

- Don't spray bug repellent on the plastic shells. Repellent destroys the integrity of the material.

* Superintendent has the authority to relax hardhat requirements in the final stages of the site work when no head hazard exists.

5.0 Occupational Foot Protection

All employees must wear substantial boots on the jobsite. For protection they’re the best. Any foot wear must meet the requirements specified in the Site Specific Plan.

5.1 Workplace Footwear Policy

Davis requires employees wear appropriate workplace footwear:

- Tennis, jogging or running shoes, and sandals are NOT ALLOWED on our jobsites.
Personal Protective Equipment Plan

- Employees reporting for work must have proper work boots on, or they’ll not be permitted on the job site.

### 6.0 Hand Protection (1910.138)

Hand protection is an integral part of PPE. Workers must be provided, or provide for themselves, appropriate hand protection. Sometimes this is a complex problem. For example, a painter’s hands may be exposed to a variety of hazards (i.e. temperature extremes, abrasive materials, paints and solvents) that may cause inflammation of the skin or dermatitis. The Safety Data Sheets for most paints recommend the use of impermeable solvent-resistant gloves.

Gloves are the primary type of hand protection. They may be made of leather, rubber, cotton or a variety of plastics or synthetics. There’s no all-purpose glove. For this reason, you must select your gloves on the basis of the hazards involved in the work. Consider the following:

- For abrasive blasting, wear heavy duty canvas or leather gloves.
- For water blasting, wear gloves that protect against chemicals and wetness.
- For painting (spraying, brushing, or rolling) wear rubber gloves or use a skin barrier cream or lotion to protect and control drying of the skin.
- Always wash hands after using solvents or materials that may pose health risks.
- Never wear gloves around machinery because the moving parts can snag the gloves and pull hands into the machinery.
- Heavy and light duty leather gloves are the most common glove on our sites and should be inspected regularly for rips, tears, etc.
- Hands must be cared for to prevent infection and other serious problems. A teaspoon of white distilled vinegar rubbed on hands will restore the skin’s PH balance and promote healing in
Personal Protective Equipment Plan

dried and cracked hands. There’re a variety of lotions and barrier crèmes available to help prevent serious problems.

7.0 Hearing Protection

When employees are subjected to sound levels exceeding those listed in the following table feasible administrative or engineering controls are utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment will be provided.

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<thead>
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Power Tools, Hand Tools, and Machine Guarding

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4.0 Machine Guards ................................................................. 5
5.0 Knives and Sharp Objects .................................................... 6
6.0 Safe Grinding ................................................................. 7
Power Tools, Hand Tools, and Machine Guarding

1.0 Introduction
The following are basic rules for inspection and use of power and hand tools including machine guards.

2.0 Portable Power Tools
The safety hazards posed by portable power tools are, in some ways, more serious than those associated with stationary machines. Following is a list of safety hazards posed by power tools:

- Portable power tools are difficult to guard completely.
- Because of their mobility there’s the added hazard of coming in contact with the operator’s body.
- Because the tool may have been dropped or mishandled there’s the possibility of breakage or damage not readily apparent.
- The source of power (electrical, hydraulic, etc.) comes in close contact with the operator.

Following is a list of some power tools and their associated hazards:

- Electrical tools: electric shock hazard.
- Pneumatic tools: noise, flying chips.
- Gasoline-powered tools: fuel hazards.
- Hydraulic tools: leaks and pressure hazards.

The following are the most common injuries resulting from improper use and handling of power tools:

- Burns
Power Tools, Hand Tools, and Machine Guarding

- Cuts
- Electrical shock
- Particles in the eye.
- Falls (tripping over cords and hoses)

Basic safety rules for power tools include:

- Know your tools. Read the owner/operator’s manual carefully.
- Ground all tools unless double-insulated.
- Keep guards in place and in working order.
- Keep the work area clean.
- Avoid dangerous environments (especially dark or wet locations).
- Use the right tool for the job; never use an undersized tool.
- Never leave a tool in an overhead place where it might fall.
- Suspend cords and hoses over aisles where they won’t pose tripping hazards. If laid across the floor, protect them with wooden strips or special raceways.
  - Don’t hang cords or hoses over nails, bolts, or sharp edges.
  - Keep cords away from oil, chemicals, and hot surfaces.
- Use the proper protective equipment (goggles, earplugs, respirators, rubber gloves, safety shoes, etc.).
- Don’t over-reach. Keep proper footing and balance.
Power Tools, Hand Tools, and Machine Guarding

- Remove adjusting keys and wrenches before turning the tool on.
- Avoid accidental starting. Don’t carry plugged-in tools with a finger on the switch.
- Use clamps or a vice, not your hands, to secure work.
- **Never, under any circumstance**, perform makeshift repairs to electrical power tools. Send the tool to an authorized repair person.
- Secure air or hydraulic lines so they cannot disconnect under pressure and whip around.
- Never lift power tools by the cord.

3.0 Hand Tools

Each year hand tools are responsible for about 7—8 percent of all compensable injuries. These injuries often involve severe disabilities. For example:

- Loss of eyes/vision: using striking tools without eye protection.
- Puncture wounds: using a screwdriver with a loose handle which causes the handle to slip.
- Severed fingers, tendons, and arteries: using a dull knife requires too much force which may cause your hand to slip down the blade.
- Broken bones: using the wrong hammer for the job, smashing a finger.
- Contusions: using a small wrench for a big job, bruising a knuckle.
Power Tools, Hand Tools, and Machine Guarding

- Infections: ignoring a cut in the skin made by a dirty chisel.

Perhaps the major reason for such accidents is most people take hand tools for granted. They use them at home and are not accustomed to following regular inspection and maintenance procedures. The four basic rules for hand tool safety are:

1) Select the right tool for the job (don’t use a screwdriver as a pry bar).
2) Keep tools in good condition.
3) Learn and follow the proper technique for using tools.
4) Keep tools in a safe place.

It’s the employee’s responsibility to use the right tool for the job, to use it correctly, to check its condition before using, and to return it to its right spot. It’s the supervisor’s responsibility to periodically inspect the tools, housekeeping, and tool maintenance.

Following are examples of safe procedures for carrying tools:

- Tools are properly secured while climbing.
- Chisels, screwdrivers, and pointed tools should never be stuck into pockets.
- When handing tools from one employee to another always offer the handle of the tool.

4.0 Machine Guards

Any part of a moving machine presents a possible hazard. Guarding can eliminate or control this danger. The most dangerous machine motions are:

- Rotating
Power Tools, Hand Tools, and Machine Guarding

- Reciprocating and transverse motions.
- In-running nip points.
- Cutting actions.
- Punching, shearing, and bending.

No guard, barrier, or enclosure should be adjusted or removed by anyone for any reason unless that person has specific permission and is adequately trained to do that job. Before safeguards or other guarding devices are removed in preparation for repair, adjustments, or service to equipment, the power for the equipment is turned off and main switch locked out and tagged.

No machine is started unless the guards are in place and in good condition. Defective or missing guards are reported to the supervisor immediately. In addition, employees may not work on or around mechanical equipment while wearing neckties, loose-fitting clothing, untied hair, watches, rings, or other jewelry.

5.0 Knives and Sharp Objects

Cuts are one of the most common workplace injuries. Employees may use knives and sharp tools for everything from cutting string to opening boxes. Cuts can be serious. Prevention is the key. Things to consider when using sharp objects include:

- Be sure it’s sharp.
- Use only for its intended purpose (not as pry bars or screwdrivers).
- Don’t cut toward your fingers, leg, or body.
- Don’t hurry or joke around with sharp objects.
Power Tools, Hand Tools, and Machine Guarding

6.0 Safe Grinding

- Wear proper protection. Inspect. Always wear approved eye, face and hand protection when working with or near grinders. Visually inspect the grinding wheel for damage before use and before mounting. Chipped or cracked wheels must be discarded.

- Stand aside and test-run: Don’t stand directly in line with a newly-mounted wheel when starting up. Before grinding, test-run a newly mounted wheel at full speed.

- Check flanges: Check mounting flanges for correct diameter (straight wheels at least one-third diameter of wheel) and for warping. Do not use bent or dirty flanges.

- Inspect parts: All spindles, adapters, flanges and other parts are inspected weekly and maintained in good condition.

- Lubricate: Proper lubrication of motors and bearings is essential.

- Wheel care: Avoid dropping or bumping the wheel. Don’t allow anything to strike a wheel that’s not in use. Handle and store wheels carefully. Use suitable tacks or bins according to manufacturer’s specifications.

- Use tool rests: A tool rest is used on all grinding wheels and kept at a distance of not more than ¼ inch from the wheel.

- Replacing grinding wheels and discs: Follow manufactures requirements for replacing wheels and discs. Always check the size and rpm ratings when replacing wheels or discs. The rated speed of the accessory must be at least equal to the maximum speed marked on the power tool. Accessories running faster than their RATED SPEED can break and fly apart.

- Never grind near flammable or combustible materials or products.
Power Tools, Hand Tools, and Machine Guarding
## Electrical Safety

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1.0 Introduction

Electrical accidents are generally caused by unsafe conditions, unsafe acts, or combinations of the two. Some unsafe electric equipment and installations are identified by the presence of faulty insulation, improper grounding, loose connections, defective parts, ground faults in equipment, or energized parts left unguarded.

This Safety Program provides guidelines for working safely around electrical hazards. It includes provisions for training, lockout/tagout requirements, and discussions of why safety related work practices are required. Guidelines are also presented for specific types of work practices and the required precautionary practices when using portable electric equipment and while being in hazardous locations. Additionally, it presents examples of labels, signs, and marking requirements.

This section provides definitions, establishes general provisions, gives references, and identifies specific responsibilities as required by federal and state regulations. **Note:** By contract the electrical subcontractor is responsible for most electrical applications and work.

2.0 References

This Safety Program is established in accordance with Occupational Safety and Health Standards for General Industry (29 CFR 1910.301-335) and Occupational Safety and Health Standards for Construction Industry (29CFR 1926.400-417)

3.0 Definitions

**Classified Location:** Classified location means an area where properties of flammable vapors, liquids or gases, or combustible dusts or fibers may be present and the likelihood a flammable or combustible concentration or quantity is present.

**Employee:** All personnel employed by Davis Constructors & Engineers, Inc. (Davis) regardless of classification.

**Electrical Hazards:** Any risk of electrical shock not reduced to a safe level by the electrical installation.
Electrical Safety

Exposed: Exposed means part of any electrical circuit capable of being inadvertently touched or having an approach distance unsafe for an individual.

Ground: A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth or to some conducting body serving in place of the earth.

Ground-Fault-Circuit Interrupter (GFCI): A device that functions to interrupt the electric circuit to the load when a fault current to ground exceeds some predetermined value less than required to operate the over current protective device (fuse or circuit breaker) of the supply circuit.

Qualified Person: Persons permitted to work on or near exposed energized parts trained in electrical safe work practices.

Safety Related Work Practices: Skills and techniques used to safely perform work activities near or on electrical equipment.

Wet Location: Installations underground or in concrete slabs or masonry in direct contact with the earth, and locations subject to saturation with water or other liquids, such as vehicle washing areas, vehicle service areas, and locations unprotected and exposed to weather.

Workers: Non-supervisory personnel within the department.

4.0 General Provisions

This section details the provisions of this Safety Program with each provision discussed in a separate subsection. The provisions adopted by Davis are:

- Training.
- Lockout/Tagout requirements.
- Safety related work practices.
- Portable electric equipment.
- Hazardous locations.


**Electrical Safety**

- Protective equipment.
- Labels, signs, and markings.

### 4.1 Training

It’s the responsibility of each exposed employee’s immediate supervisor to ensure employee receives training necessary to safely perform his/her duties. This training is given via classroom and on-the-job instruction and is documented.

Exposed employees are trained in and made familiar with the safety related work practices required by 29 CFR Part 1910 Sections 331 through 335, and safety related work practices contained within the National Electric Code as they pertain to their respective job assignments. Additional training requirements for Qualified Persons are also mandated.

Employees are trained in specific hazards associated with their potential exposure. This training includes isolation of energy, hazard identification, premises wiring, connections to supply, generation, transmission, distribution installations, clearance distances, and emergency procedures.

Qualified Persons are, at a minimum, trained in and familiar with:

- The skills and techniques necessary to distinguish exposed live (energized) parts from other parts of electric equipment.
- The skills and techniques necessary to determine the nominal voltage of exposed live (energized) parts.
- The clearance distances and the corresponding voltage to which the qualified person is exposed.

### 4.2 Lockout/Tagout Requirements

All electrical energy sources are locked out or tagged out or both when any employee is exposed to direct or indirect contact with parts of fixed electrical equipment or circuits.
**Electrical Safety**

### 4.3 Safety Related Work Practices

Safety related work practices are used to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts. Safety related work practices are consistent with the nature and extent of the associated electrical hazards.

Specific types of work practices covered by this Safety Program include:

- Working with de-energized parts.
- Working with energized parts.
- Vehicular and mechanical equipment near overhead lines and underground lines.
- Illumination.
- Conductive materials and equipment.
- Portable ladders.
- Housekeeping

Jobsite inspection documents provide electrical inspection checklist to assess electrical hazards at the jobsite.

### 4.4 Portable Electrical Equipment

All portable electric equipment is handled in a manner to not damage or reduce service life. Flexible cords connected to equipment are not used for raising or lowering equipment and are not used if damage to the outer insulation is present. Additionally, visual inspections are required. To ensure the safety of employees, unauthorized alterations of the grounding protection are not allowed.

Prior to each shift a visual inspection is performed for external defects and for possible internal damage.

Attachment plugs and receptacles are not connected or altered which would prevent proper continuity of the equipment grounding conductor. In addition, these devices are not altered to al-
Electrical Safety

low the grounding pole of a plug to be inserted into slots intended for connection to the current-carrying conductors.

4.5 Hazardous Locations
Portable electric equipment and flexible cords used in highly conductive work locations or in job locations where employees are likely to contact water or conductive liquids are approved by the manufacturer for those locations. Employees should be aware of hazardous locations including wet locations and locations with combustible or flammable atmospheres.

For wet locations dry your hands before plugging and unplugging energized equipment. Energized plug and receptacle connections are handled only with protective equipment if the conditions could provide a conductive path to the employee’s hand (if, for example, a cord connector is wet from being immersed in water). In addition, GFCI protection is required for some equipment/locations (including all jobsite work not powered by permanent building receptacles) and is also recommended for use in all wet or highly conductive locations.

For combustible/flammable atmospheres all electric equipment and wiring systems in classified locations must meet the National Electric Code requirements for that particular classification.

4.6 Protective Equipment
Employees working in areas with potential electrical hazards are provided with and use protective equipment appropriate for the work being performed. Examples of PPE that might be needed for protection against electric shock include but are not limited to:

- Non-conductive hard-hats, glove, and foot protection or insulating mats.

- Specialized eye and face protection whenever there’s danger from electric arcs or flashes, in addition to normal required eye protection.

- Insulated tools or handling equipment.
Electrical Safety

- Protective shields and barriers to protect against electrical shock and burn.

Additionally, other ways of protecting employees from the hazards of electrical shock are implemented including insulation and guarding of live parts. Insulation provides an electrical barrier to the flow of current. The insulation must be appropriate for the voltage and the insulating material must be undamaged, clean, and dry. Guarding prevents the employee from coming too close to energized parts. It can be in the form of a physical barricade or it can be provided by installing the live parts out of reach of the work area.

4.7 Labels, Signs, Markings, and Barricades

Labels, signs, markings, barricades, safety signs, safety symbols, or accident prevention tags are used where necessary to warn and protect employees from contact with electrical hazards.

Electrical equipment is not used unless the manufacturer’s name, trademark, or other descriptive marking is placed on the equipment.

Other markings are provided giving voltage, current, or wattage. The markings are of sufficient durability to withstand the environment involved.

Covers for boxes are permanently marked HIGH VOLTAGE. The markings are on the outside of the box cover and are easily visible and legible.
## Welding and Cutting Operations

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Welding and Cutting Operations

1.0 Introduction

Welding and cutting tools are helpful to the construction industry. With the growing use of steel in construction having welding skills is needed and a plus. However, the tools needed to weld can be dangerous. This section is designed to help minimize the danger of welding on site both to the operator and fellow employees.

2.0 General Precautions

2.1 Welding Area Precautions

The welding area is thoroughly screened off from the rest of the worksite and “DANGER WELDING” signs are posted conspicuously on all sides. The screened areas are considered an “EYE HAZARD AREA” and are so posted. As with the rest of the worksite anyone entering or working within it wears eye protection. Welders working within this area use extreme caution and screen their work whenever possible to prevent flash burns to co-workers.

3.0 Welding and Burning Operations

3.1 Scope of this Section

This section applies to all personnel performing work involving the use or handling of oxygen, acetylene, hydrogen, or other compressed fuel gases or electric arc-welding equipment. This specifically includes all persons performing the following operations:

- Oxygen-acetylene welding, brazing or soldering.
- Oxygen-acetylene cutting or other flame cutting.
- Electric arc-welding or arc-cutting.
- Stud welding.
- All heating operations using flame produced by an oxygen-acetylene hydrogen torch, and other compressed fuel gases. This includes the use of “Flamo,” “Rock Gas,” and other similar casing head gas or high-test gas stored in
Welding and Cutting Operations

tanks or cylinders and used for heating, cutting, or welding purposes.

3.2 Definitions
The words “operator,” “welder,” “cutter,” etc., used in this section refer to the person actually operating, handling, connecting, disconnecting, or using the equipment under the scope of this section.

The word “supervisor” or “supervision” used in this section refers to the person or persons in charge of the welding operation and the welding operator.

The “work area” is defined to include the location where the work is being performed, and all spaces below, above, or adjacent to, where there’s any possibility of causing a fire or an explosion.

3.3 Responsibility and Authority
The first responsibility for safety rests on the operator.

The operator of any welding, cutting, heating torch, machine, equipment, is held responsible for violations of the mandatory provisions of the OSHA regulations. Operators are held responsible for willful and deliberate misuse of equipment or proven carelessness or inattention, either of which results in the creation of a hazard.

The operator or the operator’s supervisor makes the required inspection of the work area ensuring all spaces where the work is performed, or spaces below, above, or adjacent to, are free from possible causes of fire or explosion. The welder or cutter has the right to refuse to proceed under what he believes are unsafe conditions. However, the welder must refer this to the supervisor’s attention to take the necessary steps to investigate the conditions calling in the Health and Safety Coordinator and/or the fire marshal for a final decision, if necessary.

Other employees or their supervisors will not do anything to change conditions creating a hazard while any hot work is performed.
Welding and Cutting Operations

The Health and Safety Coordinator or the superintendent is responsible for the general enforcement of safety orders and the observances of safe practice. It’s the supervisor’s responsibility to ensure the employees know what constitutes safe work practices and that safe work practices are consistently followed.

No person is allowed to operate any equipment until properly trained and qualified in the operation of the equipment and demonstrates a thorough working knowledge of the safety rules.

The Health and Safety Coordinator is called upon to make tests in all closed compartments, voids, and other confined spaces. The Coordinator must issue an “all clear” or “gas free” certificate before anyone is allowed to enter.

3.4 Explosion Hazards from Compressed Gases

3.4.1 Explosions

Explosions occur from the following conditions:

- Excess pressure.
- Unstable chemical compound.
- Rapid combustion (burning) in a closed space.

3.4.2 Excess Pressure

Operators of welding, cutting, or heating equipment using compressed fuel gases do not exceed the specified safe operating pressures.

When a gas is heated in a confined space its pressure is increased. Watch and avoid the following hazards:

- The increase of pressure in a tank. For example, oxygen tank when heated by the sun, hot piping, or machinery.
- The increase in pressure inside a closed section of piping on a hollow casting to weld.
Welding and Cutting Operations

To avoid these dangers:

- Keep gas cylinders from becoming overheated.

- Any hollow article is vented before heat is applied.

When liquid is vaporized (i.e. water to steam), the increase in pressure is much greater than pressure formed from heating gases. This danger greatly increases in confined spaces.

Venting can be accomplished by drilling a hole of sufficient size to allow the escape of steam or heated air.

CAUTION: Do not close vent until the object has cooled to normal temperatures. Condensing steam or cooling air may create a partial vacuum, which will cause a thin-walled object to collapse from external atmospheric pressure.

3.4.3 Unstable Chemical Compounds

Many high explosives are of the type of unstable chemical compounds which can flash into an explosion from a jar or sudden jolt. Acetylene gas becomes an unstable compound at slightly above 15 pounds pressure per square inch (psi).

3.4.4 Rapid Combustion

Combustion is burning. Anything that can burn may explode (rapidly burn), if conditions are right.

Oxygen, such as used for welding or cutting, causes a much hotter and fiercer flame than air. Many things, such as oily rags, tend to burn in air, but explode in oxygen. Oxygen and oil make an especially dangerous combination.

Most flammable gases and the vapors of flammable liquids become explosive when mixed with air or pure oxygen. Hydrogen, acetylene, methane, and gasoline vapors are highly flammable.
4.0 Apparatus and Equipment

4.1 Apparatus and Equipment
Only approved apparatus, such as torches, cylinders, regulators, hoses, etc. tested and found safe are used. Equipment is used only for the gas for which it was intended. Defective or damaged apparatus is turned in immediately for replacement or repair.

4.2 Cylinders
A gas cylinder can be a source of great danger if not treated properly. All persons concerned with the use, storage, or handling of gas cylinders are thoroughly familiar with the provisions of “Safety Precautions” in this regard.

4.3 Hose
For light work, the 3/16 inch or 1/4 inch diameter hose can be used. For pressure above 15 psi, the 1/4 inch or 5/16 inch diameter hose is used.

Single hose lines can be tied or taped together for convenience in handling but not more than four inches (4”) in eight inches (8”) may be covered.

Hose connections are made through substantial fittings securely attached and leak proof under standard tests. “Dry splices” and “hay wire” connections are not allowed.

4.4 Regulators
Approved regulators designed and designated for the gas being used are always used between hose line and gas cylinders or piping supply systems.

Oil is never allowed to come into contact with an oxygen regulator not even for testing, assembly, or preservation.

4.5 Manifold Cylinders
- When acetylene cylinders are coupled, approved flash arrestors are installed between each cylinder and the manifold. For outdoor use only and where the number of...
Welding and Cutting Operations

cylinders coupled does not exceed three, one flash arrester installed between manifold and regular is acceptable.

- Each fuel gas cylinder lead is provided with a check valve to prevent gas flowing back into the cylinder.

- Acetylene is not distributed in hoses or pipelines at a pressure above 15 psi.

- Unalloyed copper, or copper alloys containing more than sixty-seven percent (67%) copper, are not used in piping or fittings for handling acetylene (except blowpipe or torch tips). Acetylene reacts with pure or slightly alloyed copper to form acetylide which is violently explosive.

- Iron or steel pipe, tubing, or fittings are used for high-pressure oxygen. Annealed brass or copper are used for high-pressure oxygen.

- Special care is taken at all times to ensure no scale, dirt, oil, grease, or any combustible material of any kind is in an oxygen manifold when put into service.

- Flash-arrestors of the water seal type are inspected for correct water level at least once a week when in service and when being put into service after being out of use.

- In manifolding acetylene cylinders, care is taken to connect cylinders containing approximately equal pressure.

- Brass tubing subjected to repeated bending may become hard and brittle. Cylinder leads are annealed or renewed when evidence of “work-hardening” of the tubing from repeated bending is noted.

- No manifold, pipe, or tubing distributing system for oxygen or fuel gas is constructed or operated unless its design and method of operation is approved by the Health and Safety Coordinator.
Welding and Cutting Operations

- When the rate of consumption of acetylene is such that a full cylinder is emptied in seven (7) hours or less of use the cylinders must be manifolded.

5.0 Operating Procedures (Gas Welding and Cutting)
The following operating procedure is carried out by all personnel using gas welding, cutting, silver brazing, and heating equipment.

5.1 Setting Cylinders
Ensure cylinders are set in the safest available location and secured against falling or being knocked over.

5.2 Connecting Apparatus and Lighting Torch
1. Remove valve protection caps.
2. Face oxygen valve away from acetylene valve.
3. Inspect oxygen cylinder valve and regulator closely to ensure no oil or grease is present.
4. Face cylinder valve away from personnel and “blow out” cylinder valves by quickly opening and closing part of a turn. This is done in a well-ventilated location preferably out-of-doors.
5. Inspect cylinder valve openings to ensure no dirt or foreign matter is present.
6. Inspect regular connections to ensure they’re clean.
7. Attach regulators.
8. Attach hose.
9. “Purge” hose to open air only (not in confined spaces) by allowing acetylene to pass through acetylene hose and oxygen through oxygen hose for a few seconds until the hose is filled with only the gas for which it’s intended.
10. Torch can be attached and tested at this point or it can be moved to worksite and attached later.
Welding and Cutting Operations

11. Ensure regular screws are backed out until loose and that no one is standing in front of the pressure gauges before opening cylinder valves.

12. Open acetylene cylinder valve slowly 1/4 to 1/2 turn. Leave valve wrench in place so acetylene can be shut off quickly in an emergency.

13. Open oxygen valve slowly at first. Never attempt to tighten a leaking regular nut to cylinders while cylinder valve is open. Never force threaded connections on any gas welding or cutting equipment and use only approved wrenches in making connections.

14. Turn on acetylene and light it first. Use care not to allow unburned acetylene to escape into a room or compartment.

15. Use a spark lighter to light the torch. Do not use a match held in the hand.

16. Turn on oxygen and adjust flame.

5.3 Turning Off Equipment

When welding or cutting will not be resumed for a considerable amount of time or when the operator leaves the scene for any length of time the equipment is turned off as follows:

1. Extinguish torch closing acetylene valve first and then closing oxygen.

2. Close both oxygen and acetylene cylinder valves (leaving regulators open).

3. Open acetylene valve on torch and allow gas in hose to escape to open air or in a well-ventilated area only.

4. Open oxygen valve on torch and allow gas in hose to escape. Close valve.
5. Close both regulators. Oxygen and acetylene regulators are closed when adjusting screws are backed out until loose.

5.4 Re-Lighting Procedures
To re-light after being secured as in section 5.3:

1. Check torch valves to be sure they’re closed firmly.
2. Repeat steps 11, 12, and 13 in section 5.2.
3. Open cylinder valves slowly.
4. Open regulators slightly.
5. “Purge” the acetylene line. Open into air or well-ventilated area for 5 to 15 seconds.
6. “Purge” oxygen line the same way and close.
7. Light as directed in steps 14 and 15 in section 5.2.

5.5 Storing Gear
Gas welding and cutting equipment is stored as follows at the end of the shift or on completion of work in the vicinity:

1. Repeat steps 1 to 3 of section 5.3.
2. Shut-off tank release regulator screws and coil hose.
3. Disconnect torch and regulators and lock them in a toolbox.
4. Replace valve protection caps on cylinders.
5. Check cylinders to ensure they’re properly secured against being knocked over.

5.6 General Precautions
- An explosive mixture of acetylene and oxygen can accumulate quickly in a closed space. Do not allow such
Welding and Cutting Operations

a mixture to accumulate. Particularly, do not be slow to light the torch especially a large one for heavy work.

- Take care not to burn yourself or others with the torch flame. Look and think before you move the torch to point away from the work.

- If there’s any chance of the hose becoming cut, broken, or your torch being damaged while you're away, coil the hose back up to the cylinders. Do not hang the hose or torch on regulators. Regulator connections are not made to carry weights.

- If there’s danger of your outfit being tampered with while you're away, take the torch off and lock it in your toolbox.

- Testing for leaks is made with soapy water. Use grease-free soap. Never employ flames to detect leaks.

- Always use care in lowering a torch through small openings, etc. so the valves do not become opened and fill the space with an explosive mixture of gases.

- Take care to secure hoses up off the ground and out of the way where people will not trip. Use special care to avoid danger of the hose being cut or pinched by doors, traffic in area, etc. or pulled in two by the handling of construction materials at the jobsite.

- The practice of kinking the hose to shut off the pressure when changing torches, etc., is strictly forbidden. The hose may be kinked to stop the flow of gas in an emergency.

- The operator will not make attempts to light the torch from hot metal.

- Never attempt to light the torch with both acetylene and oxygen turned on.

- No operator of any welding, cutting, or heating equipment using oxygen-acetylene gas repairs defective equipment.
Welding and Cutting Operations

It’s returned to the superintendent who takes it in for checks and repairs.

6.0 Operating Procedures for Arc-welding

6.1 Connecting Equipment
- A qualified electrician connects the power supply of welding machines. The electrician also grounds the frame (equipment ground) of all welding machines. He connects the ground (welding return lead) of multiple units.
- Leads are kept off the ground or out of the way to preventing tripping hazards. They’re kept from coming in contact with any flammable materials, oily rags, solvents, paints, etc.
- Windows, doors, etc. are blocked where leads might be cut or jammed. Leads with damaged or deficient insulation are turned in promptly for repair.

6.2 Electrodes Holders
Operators only use approved types of electrode holders. Handles and surfaces (gripped by the operator) are insulated.

6.3 Shutting Down Arc-welding Equipment
- At lunch period, at the end of the day, and any other time when leaving work for an extended period of time (15 minutes or more in most cases), the lead must be de-energized. On single operator machines the machine must be shut down when leaving for any length of time.
- A multiple machine is shut down when all operators on that machine cease work as in previous bullet point. An individual operator leaving the job during working hours may open his grid switch when the machine is running. Leads not in use are disconnected at the grid.
- A lead (energized or not) is not left unattended near combustibles where a fire could be caused, if such a lead becomes grounded.
Welding and Cutting Operations

6.4 Precautions in the Use of Arc-welding Equipment

- Don’t assume that just because a welding lead carries low voltage, it’s safe. It could be mixed with a 440 volt power line. Stand on a dry wood board or have some kind of insulation and a steel surface or grounded structure whenever possible.

- Always wear gloves when handling energized holders, changing electrodes, etc. Gloves are dry and in good condition. Never put an electrode under your arm.

- No operator repairs welding equipment.

- No gasoline driven welding machine is operated in any building or other confined space where there’s danger of carbon monoxide accumulation.

7.0 Fire Prevention

Guarding against fires and explosions are the responsibility of every employee and supervisor and all others concerned with the work underway.

7.1 Inspection of Work Area

The work area is defined to include the location where the work is performed. Including, all spaces below, above, or adjacent to, where there’s any possibility of a fire or an explosion.

The entire work area is inspected carefully by the operator or the Health and Safety Coordinator and by assisting personnel before welding, cuttings, etc., are allowed to begin. Additional inspections are made at the start of each shift and more often when unusual hazards are present.

7.2 Fire and Explosion Hazards

The work area is inspected for flammables including gas. All flammable materials are removed from the work area. Supervisor and safety directors continuously monitor safety precautions, fire prevention, and housekeeping.
Welding and Cutting Operations

7.3 Oil, Gasoline, and Paint
Welding and cutting operations are not permitted in or on the outer surface of rooms, compartments, tanks, closed drums, or other containers, containing or have contained flammable or explosive materials, liquids, or vapors, until all fire and explosive hazards are eliminated and the Health and Safety Coordinator approves the conditions prior to commencing work.

Gasoline, paint thinner, kerosene, or any other similar flammable liquids are not allowed in the same area where welding or flame cutting is being performed.

Diesel oil, fuel oil, and other flammable liquids are not permitted to accumulate in the work area. If there’s any oil present, the space is cleaned and rendered gas free before work starts. Oil and debris are much worse than oil alone. It’s the responsibility of the personnel using rags, etc., in machinery spaces or other areas to keep their oily rags in containers and have them removed from the space at the end of each shift. Oily rags etc. found in spaces are picked up by the personnel using them.

The fumes from fresh paint and hot or cold Bitumastic constitute a serious fire hazard. No painting is done in the work area at the same time welding, cutting, or heating is being performed. Fresh paint is set beyond the “tacky” stage and paint fumes are removed by adequate ventilation before welding, cutting, brazing, or use of open flame is allowed.

Oil paint containing lead constitutes not only a fire hazards, but a health hazard as well due to the presence of lead or other poisonous substances in the smoke from cutting or welding. Thick coats of oil paint or paint containing lead and coats of red lead is removed by scaling, chipping, or other approved methods from both sides of the material being welded or cut to such an extent that it will not constitute a fire hazard. When removing Bitumastic, coal-tar paint, or preservatives like “No-oxide,” the removal is adequate to clear any area which is heated enough to make the material run. Otherwise, it may melt and run onto a hotter arc which could ignite. The area from which all Bitumastic, coal-tar paint, or preservatives like “No-oxide” are removed twenty-four (24) inches in all directions from any welding or cutting area.
Welding and Cutting Operations

7.4 Fire Watches
During gas or arc-welding and cutting operations fire watches are posted in a number of locations as necessary to protect against fire. Supervisors are expected to utilize good judgment and discretion providing adequate protection.

At least one fire watch is provided where a fire hazard exists. It’s possible for one fire watch to serve two or more welders when working in the same locations. It’s also possible for one cutter or one welder to require two or more fire watches for adequate protection.

Maintenance of discipline among fire watches is the responsibility of the supervisor in charge of the job (superintendent or foreman). All cases of unauthorized absence from post, carelessness, or inattention to the fire watched is cause for disciplinary action or termination and immediate stoppage of work until alert fire watches are obtained.

Supervisors determine their needs for fire watches, the hours to be worked, and make necessary arrangements for fire watch personnel.

For work, a fire watch is posted at any location where a definite hazard exists which cannot be properly watched by the operator. Employees or a dependable helper may be detailed for this job by the supervisor in charge of the work, but detail must be definite and responsibilities must be fixed.

7.5 Fire Extinguishers
Approved and rated fire extinguishing equipment is maintained near all welding and cutting operations. The suitability of the equipment is determined by an analysis of the conditions, location, and type of operation.

In case of doubt as to the suitability of the equipment the Health & Safety Coordinator or the Fire Marshal is consulted.

Whenever a fire watch is assigned each fire watch employee is provided with at least one fifteen (15) pound capacity (50 pounds gross weight) CO₂ fire extinguisher fully charged and in good working order. Extinguishers with broken seals, missing
tags, or in any way broken, damaged, or inoperative are not used for fire watches.

Fire watches make daily inspections of the condition of the fire extinguishers. Any extinguisher found to be under weight or with the seal broken, or in any way inoperative, is promptly replaced. Unserviceable extinguishers are removed for repair and inspection.

Special protection in the form of fire hoses, fog nozzles, etc., or other special types of fire-fighting equipment to combat special risks is arranged for by the supervisor wherever and whenever necessary.

7.6 Safe Clothing and Equipment
Welders, gas cutters, and all other persons associated with the welding and cutting operations do not wear flimsy or highly flammable clothing or clothing designed, constructed, or in such condition as to cause a definite fire or accident hazard.

Unsafe clothing is changed for safe clothing or covered by suitable protective clothing, like leather sleeves or leather jackets. Any operator while using welding or cutting equipment will not wear oilskins.

Protective equipment supplied by the employer is listed below:

- Welding helmets for electric welders.
- Burning goggles for gas cutters.
- Welders safety hats and gas cutters.
- “Flash” goggles for welders.
- Leather jackets, sleeves, and gloves for welders and gas cutters.
- Metal screens for shielding arc-glare from nearby employees.
Welding and Cutting Operations

- Fire screens for particularly hot work or close work under conditions that may constitute a fire hazard to the operator.

All the above-mentioned protective equipment is made readily available from the employer’s tool trailer.

All operators wear the approved type of goggles for the work they’re doing. Persons using or watching electric arcs wear “flash” goggles and over the “flash” goggles they use a welder’s hood with the proper shade of filter lens as indicated by the following table. When working with or around welding or burning all employees—at all times—wear adequate and approved types of “flash” goggles for protection.

| Table 1 |
|-----------------|---|
| **Amperes** | **Shade** |
| 30-75 | 8 |
| 75-200 | 10 |
| 200-400 | 12 |

| Table 2 |
|-----------------|---|
| **Rod Diameter** | **Shade No.** |
| 1/16 | 10 |
| 3/32 | |
| 1/8 | |
| 5/32 | |
| 3/16 | |
| 7/32 | 12 |
| 1/4 | |

“Flash” goggles are left on while chipping slag and wire brushing the weld.

The welder’s hood is inspected daily to detect possible light leaks, cracked protective glasses, and badly fouled or missing cover glass. Any defects are corrected prior to use.

Portable screens are used around arc-welding when practicable. If no screens are available, build them.
Ladders and Stairway Safety

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Ladders and Stairway Safety

1.0 Purpose and Scope
This Safety Policy provides the minimum requirements to be followed when stairways and ladders of any type are used. This policy applies to all employees, subcontractors, and contractors engaged in operations covered by the Davis Constructors & Engineers, Inc. (Davis) Safety Program.

2.0 Responsibilities
Management, staff, employee, and subcontractor responsibilities are stated in individual procedures addressing responsibilities specific to the program topic.

2.1 Supervisors
Supervisors responsible for employees performing work covered by this policy must ensure that employees are trained and can use ladders and stairways in a safe and proper manner.

2.2 Employees
Employees must inspect each ladder and stairway prior to use and use them in accordance with the requirements of this Safety Program and their training.

3.0 Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double-cleat ladder</td>
<td>A ladder similar in construction to a single-cleat ladder, but with a center rail to allow simultaneous two-way traffic for ascending or descending.</td>
</tr>
<tr>
<td>Extension ladder</td>
<td>A non-self-supporting, portable, adjustable ladder consisting of two or more sections, so arranged as to permit length adjustment.</td>
</tr>
<tr>
<td>Fixed-ladder</td>
<td>A ladder that cannot be readily moved or carried because it is an integral part of a building or structure.</td>
</tr>
<tr>
<td>Handrail</td>
<td>A rail used to provide a handhold for support.</td>
</tr>
<tr>
<td>Job-made ladder</td>
<td>A ladder that is fabricated at a jobsite that has not been commercially manufactured. This definition does not apply to any individual-rung/step ladders.</td>
</tr>
<tr>
<td>Ladder stand</td>
<td>A mobile fixed size self-supporting ladder consisting of a wide flat tread ladder in the form of stairs. The assembly</td>
</tr>
</tbody>
</table>
Ladders and Stairway Safety

<table>
<thead>
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<tbody>
<tr>
<td>Portable ladder</td>
<td>A ladder that can be readily moved or carried.</td>
</tr>
<tr>
<td>Riser height</td>
<td>The vertical distance from the top of a tread to the top of the next higher tread or platform/landing or the distance from the top of a platform/landing to the top of the next higher tread or platform/landing.</td>
</tr>
<tr>
<td>Rung (cleat)</td>
<td>A ladder crosspiece on which a person steps while ascending or descending a ladder.</td>
</tr>
<tr>
<td>Stairs, stairway</td>
<td>A series of steps and landings having three or more risers constitutes stairs or stairway.</td>
</tr>
<tr>
<td>Single-cleat ladder</td>
<td>A ladder consisting of a pair of side rails, connected together by cleats, rungs, or steps.</td>
</tr>
<tr>
<td>Stair rail system</td>
<td>A vertical barrier erected along the unprotected sides and edges of a stairway to prevent employees from falling to lower levels. The top surface of a stair rail system may also be a &quot;handrail.&quot;</td>
</tr>
<tr>
<td>Stepladder</td>
<td>A stepladder is a self-supporting portable ladder, nonadjustable in length, having flat steps and a hinged back. Its size is designated by the overall length of the ladder measured along the front edge of the side rails.</td>
</tr>
<tr>
<td>Straight ladder</td>
<td>A single ladder is a non-self-supporting portable ladder, nonadjustable in length, consisting of but one section.</td>
</tr>
<tr>
<td>Tread depth</td>
<td>The horizontal distance from front to back of a tread (excluding nosing, if any).</td>
</tr>
<tr>
<td>Unprotected sides and edges</td>
<td>Any side or edge, except at entrances or points of access, of a stairway where there is no stair rail system or wall 36 inches (90 cm) or more in height, and any side or edge (except at entrances to points of access) of a stairway landing, or ladder platform where there is no wall or guardrail system 39 inches (1 m) or more in height.</td>
</tr>
</tbody>
</table>

4.0 Ladder Procedures

4.1 General Ladder Use Requirements

4.1.1 Inspections
Ladders and Stairway Safety

- Before a ladder is used it’s inspected carefully for missing cleats, cracked or missing rungs, or damaged or missing side rails.
- The use of ladders with broken or missing rungs, broken or split side rails, or other faulty/defective construction is prohibited. Ladders with such defects are immediately removed from service.
- Ladders are not painted. They’re treated only with a transparent non-conductive material and are kept free from dirt or materials that could conceal defects.
- Keep ladders free of grease, oil, mud, and similar substances that can create user hazards.
- Tag or mark defective ladders for repair or destruction.

4.1.2 Setup

- Read and follow instructions included in the manufacturer’s use and care booklet.
- Portable ladders are placed on a substantial level base, and the area around the top and bottom of the ladder is kept clear.
- Place portable ladders so both side rails have secure footing. When working on soft ground provide solid footing to prevent ladder from sinking.
- Never lean a ladder against unsafe backing such as loose boxes or barrels.
- If a ladder must be placed where in front (or behind) a door, the door is locked or otherwise guarded.

4.1.3 Use

- A ladder or stairway is required, if a worker must step up or down more than 19 inches.
- Step ladders are used to provide an elevated work platform and straight ladders to provide access to another work level.
- Do not use ladders in a horizontal position or as a runway or scaffold.
- Do not use ladders for skids, braces, workbenches, or any purpose other than climbing.
- Only one employee works from a ladder at a time. If work requires two employees, a second ladder is used.
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- While ascending or descending a ladder face the ladder and maintain three points of contact at all times, e.g., two feet and one hand.
- Do not carry anything that prevents holding on with both hands. Use a hand-line, ½ inch or greater in diameter, to raise or lower tools and equipment.
- Do not reach further than arm’s length from ladder. Move ladder as work progresses.
- Be sure shoes are not greasy, muddy, or slippery before climbing.
- Never slide down a ladder.
- Do not leave placed ladders unattended unless properly secured.
- Metal ladders or ladders with metal side rails are not used near electric equipment or lines, or for work involving welding or motor control centers. (Aluminum conducts electricity.)
- Employees do not anchor (tie) personal fall protection to portable ladders. Structural components of fixed ladders may be utilized for personal fall protection only when determined by a Competent Person to meet the anchorage requirements described in section G, Fall Protection.
- Portable ladders in use are tied, blocked, or otherwise secured to prevent being displaced. It’s recommended all ladders be equipped with a 6-foot tie-off rope, which is affixed as soon as the ladder is positioned. If no suitable anchor point is available, a second worker steadies the ladder.

4.2 Straight and Extension Ladders

- The ladder must be equipped with a tie-off rope and non-skid feet.
- Employees do not work higher than a third rung from top on straight or extension ladders.
- The top of the ladder must extend 3 feet (91 cm) beyond the upper transfer point or platform, if used to access an elevated work area, or a grab rail must be provided.
- The top section of straight ladders should always be securely tied off to something substantial.
- Ladders are placed so the distance from the foot of the ladder to the base of the wall or other support is one fourth the working
Ladders and Stairway Safety

length of the ladder. Or, stated differently: Set up straight or extension ladders using the 1-to-4 rule. The feet of the ladder should be placed 1 foot (30 cm) from the base of the vertical support for every 4 feet (122 cm) of ladder height.

- After the extension section is raised to desired height, check to see that safety dogs or latches are engaged and secure the extension rope to a rung on the base section of ladder.
- Extension ladders must be overlapped a minimum of 3 rungs.
- Extension ladders must not be taken apart in order to use the two sections separately. Short ladders must not be spliced together to make longer ladders.

4.3 Step Ladders
- Employees do not use the top two steps of a step ladder.
- If an employee’s feet are on or above the fifth rung of a ladder, the ladder is tied off or held by at least one other person.
- Step ladders are not used as straight ladders. Always open step ladders fully, set ladder level on all four feet, and lock spreaders in place.
- Do not place tools or material on steps. Use a tool container.

4.4 Ladder Stands
- Ladder stands are portable steel ladders that are constructed with casters or wheels for mobility and steps for climbing. Unlike a straight or stepladder, the top platform of a ladder stand can be used.
- Ladder stands used on grated surfaces may need modification. Grated surfaces may make the ladder unstable and can damage the rubber leg tips needed for stability. Stability modification, which may include welding 2 inch x 2 inch (5 cm x 5 cm) plates of ¼ inches (0.6 cm) steel to the bottom of each leg, are made only after site management approval.
- Ladder stands with more than one step have handrails.
- Ladder stands should be used on level surfaces.
- Although the top step can be used when handrails are present caution should be used by personnel when reaching over the front or sides.

4.5 Job-Made Ladders
Job-made ladders have many regulations covering their construction, Refer to Figure 1. Some of the regulations are as follows:

- Single cleat ladders do not exceed 30 feet (9m) between supports (base and top landing).
- Double cleat ladders do not exceed 24 feet (7.3m).
- The width of single cleat ladders will be at least 15 inches (38 cm), but not more than 20 inches (51 cm), between rails at the top.
- Side rails are parallel or flared top to bottom by not more than ¼ inch (0.6 cm) for each two feet (60 cm) of length.
- Use only structural-grade lumber for construction of wood ladders.
- Cleats are uniformly spaced, 12 inches (30 cm) top-to-bottom.
- Cleats are inset into the edges of the side rails one-half inch, or filler blocks are used on the rails between the cleats.
- The cleats are secured to each rail with three 10d common wire nails or other fasteners of equivalent strength.
- Ladder inspections are also required.

4.6 Manufactured Ladder Specifications

- Manufactured ladders must meet the requirements set forth in the ANSI A14 series or equivalent local standards.
- Ladders must be heavy-duty, Type 1A construction, 250-pound capacity. For occasional use in work environments that do not include construction activities, such as offices, light-duty (200 pound capacity) or medium-duty (250 pound capacity) ladders may be used.

4.7 Inspection and Storage

- All ladders are visually inspected before use and semi-annually thereafter to identify signs of wear, misuse, abuse, deterioration, etc. Inspections are documented on the weekly jobsite inspection form.
- Items to be inspected include the following.
  - Rungs
  - Cleats
Ladders and Stairway Safety

- Rails
- Hooks and latches
- Hinges
- Non-skid Feet
- Tie-off Rope (6 feet, 1.8 m)
- Deficiencies are repaired or the ladder destroyed as determined by the nature of the deficiency.
- A color-coding system to mark inspected ladders similar to that of electrical and fall protection inspection is recommended.

4.8 Training
All personnel engaged in operations requiring use of ladders must be properly trained prior to use in accordance with this plan. Training is to be conducted annually for each employee who may have occasion to use ladders.

5.0 Stairway Procedures
5.1 Stairways
Stairways must be:
- Installed at least 30 degrees, and no more than 50 degrees, from the horizontal.
- Lighted.
- Clear of debris.
- Filled with concrete or temporarily fitted with wood for pan type stairs.
- There are no variations greater than ¼ inch (0.6cm) in riser height or tread width.

5.2 Landings and Platforms
- All temporary stairways have one landing every 12 feet (3.6 m) of rise or less.
- Where doors or gates open directly on a stairway a platform is provided.
- Landings are at least 30 inches (76 cm) deep by 22 (56 cm) inches wide.
- The landing provides a minimum of 20 inches (51 cm) clearance beyond the swing radius of the door.
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- A landing must be guarded by a standard railing system.
- Standard railing system consists of a top rail, intermediate rail, toe board, and posts and has a vertical height of approximately 42 inches (107 cm) from the upper surface of the top rail to the floor, platform, or runway.

5.3 Stair Rails and Hand Rails
Every flight of stairs having four or more risers, or rising more than 30 inches (76 cm), is equipped with standard stair railings or standard handrails:

- On stairways less than 44 inches (112 cm) wide having both sides enclosed, at least one handrail, preferably on the right side descending.
- On stairways less than 44 inches (112 cm) wide having one side open, at least one stair railing on open side.
- On stairways less than 44 inches (112 cm) wide having both sides open, one stair railing on each side.
- On stairways more than 44 inches (112 cm) wide but less than 88 inches (224 cm) wide, one handrail on each enclosed side and one stair railing on each open side.

On stairways 88 (224 cm) or more inches wide, one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.

When the top edge of a stair rail also serves as a handrail, the top edge is no more than 37 (94 cm) inches, nor less than 36 inches (91 cm), from the upper surface of the rail to the upper surface of the tread.

5.3.1 Midrails
Midrails, screens, mesh, intermediate vertical members, or equivalent, must be installed between the top rail and stairway steps.
Midrails must be located midway between the top rail and stairway steps.
Handrails and/or stair rail system top rails must support a 200-pound (91 kg) load in all directions.
Ladders and Stairway Safety

Unprotected stairway landings/platforms have a 42-inch (107 cm) guardrail system that meets standard specifications.

5.3.2 Stair Rail System
A stair rail system is a vertical barrier erected along the unprotected sides and edges of a stairway to prevent falls.
A stair rail is not less than 36 inches (91 cm) from the upper surface of the stair rail system and the surface of the tread, in line with the face of the riser at the forward edge of the tread.
Stairways having four or more risers, or rising more than 30 inches (76 cm) must be equipped with a stair rail system on all unprotected sides or edges.
The top edge of a stair rail system may also serve as a hand rail when the top edge of the stair rail is not more than 37 inches (94 cm), or less than 36 inches (91 cm) from the surface of the tread.
Handrails must have 3 inches (7.6 cm) clearance between the handrail and the wall or other objects.

6.0 References
Corporate Safety Plan Section G, Fall Prevention and Protection
29 CFR 1910 Subpart D, Walking and Working Surfaces
29 CFR 1910.25, 26, 27, 29, Ladders
29 CFR 1926 Subpart X, Stairways and Ladders
29 CFR 1926.1050, 1051, 1053, 1060, Ladders
ANSI A14.1, Safety Requirements for Portable Wood Ladders
ANSI A14.2, Safety Requirements for Portable Metal Ladders
ANSI A14.3, Safety Requirements for Fixed Ladders
ANSI A14.4, Safety Requirements for Job-Made Wooden Ladders
ANSI A14.5, Safety Requirements for Portable Reinforced Plastic Ladders
ANSI A14.7, Safety Requirements for Mobile Ladder Stands and Mobile Work Platforms
ANSI A14.8, Safety Requirements for Portable Ladder Accessories
ANSI A14.9, Safety Requirements for Ceiling Mounted Disappearing Climbing Systems
ANSI A 14.10, Safety Requirements for Specific Duty Ladders
Ladders and Stairway Safety

7.0 Figures

Figure 1, Safety Guidelines for Ladders
Figure 2, Proper Ladder Installation
# Scaffold Safety

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1.0 **Purpose and Scope**

This procedure provides the minimum procedures to be followed when scaffolds and platforms are erected and utilized on jobsites. This procedure does not apply to crane suspended personnel baskets.

Responsibilities:

1.1 **Site Manager**

Site management designates scaffolding competent persons.

1.2 **Supervisors**

Supervisors responsible for employees performing work on scaffolds must:

- Ensure employees receive the proper scaffold user training.
- Confirm each job is properly evaluated for hazards associated with scaffolding such as design, fall protection, falling object protection, electrical protection, etc, and that these hazards are properly eliminated or controlled.
- Ensure scaffolds are inspected by a scaffold competent person prior to use, prior to each shift, and after any incident affecting a scaffold’s structural integrity.

Supervisors of scaffold erection crews must:

- Have completed training and site manager designation as a competent person for scaffold operations.
- Ensure all scaffold craftsmen receive proper training on scaffold erection, alteration, movement, repair, disassembly, and inspection.
- Ensure they or another designated competent person performs initial inspections on completed scaffolds prior to use, prior to each shift, or after any occurrence affecting a scaffold’s structural integrity.

1.3 **Employees**

Inspect each scaffold being worked on and report any defects or concerns to supervisor immediately.

Use any required personal fall protection according to training received.
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Never attempt to alter or repair any scaffold without proper approval, supervision, and training.

1.4 Competent Person
Scaffolding competent persons are responsible for supervising scaffold erection and performing inspections prior to initial use, before each work shift, and following any occurrence affecting the structural integrity of the scaffold.

1.5 Qualified Person
Qualified Persons (normally a Registered Professional Engineer) are responsible for scaffold design, scaffolds erected over 125 feet high, and pole scaffolds erected over 60 feet high.

2.0 Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boatswains’ Chair</td>
<td>A single point adjustable suspension scaffold consisting of a seat or sling designed to support one employee in a sitting position.</td>
</tr>
<tr>
<td>Brace</td>
<td>A rigid connection that holds one scaffold member in a fixed position with respect to another member or to a building or structure.</td>
</tr>
<tr>
<td>Cleat</td>
<td>A structural block used at the end of a platform to prevent the platform from slipping off its supports. Cleats are also used to provide footing on sloped surfaces such as crawling boards.</td>
</tr>
<tr>
<td>Competent Person</td>
<td>One capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who is authorized to take prompt corrective measures to eliminate them.</td>
</tr>
<tr>
<td>Coupler</td>
<td>A device for locking together the tubes of a tube and coupler scaffold.</td>
</tr>
<tr>
<td>Guardrail</td>
<td>A vertical barrier consisting of, but not limited to, toprails, midrails, and posts, erected to prevent employees from falling off a scaffold platform or walkways to lower levels.</td>
</tr>
<tr>
<td>Lifeline</td>
<td>A component consisting of a flexible line connecting to an anchorage at one end to hang vertically (vertical lifeline) which serves as a means for connecting other components of a personal fall-</td>
</tr>
</tbody>
</table>
## Scaffold Safety

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>arrest system to the anchorage.</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Intended Load</strong></td>
<td>The total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.</td>
</tr>
<tr>
<td><strong>Outrigger</strong></td>
<td>The structural member of a supported scaffold used to increase the base width of a scaffold in order to provide support for and increased stability of the scaffold.</td>
</tr>
<tr>
<td><strong>Qualified Person</strong></td>
<td>One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and demonstrated ability to solve or resolve problems related to the subject matter, the work, or the project.</td>
</tr>
<tr>
<td><strong>Rated Load</strong></td>
<td>The manufacturer’s specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold component.</td>
</tr>
<tr>
<td><strong>Scaffold</strong></td>
<td>Any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting employees or materials, or both.</td>
</tr>
<tr>
<td><strong>Single-Pole Scaffold</strong></td>
<td>A supported scaffold consisting of a platform(s) resting on bearers, the outside ends of which are supported on runners secured to a single row of posts or uprights, and the inner ends of which are supported on or in a structure or building wall.</td>
</tr>
<tr>
<td><strong>Suspended Scaffolds</strong></td>
<td>Scaffolds with one or more platforms suspended by ropes or other non-rigid means from an overhead structure. Examples include: Single-point, Two-point, and Multi-point Adjustable Suspension Scaffolds, Interior hung scaffolds, Float (ship) scaffolds, Boatswain’s chairs Cantenary scaffolds.</td>
</tr>
<tr>
<td><strong>Three Points of Contact</strong></td>
<td>Term used for a method of safe ladder climbing where between a climber’s two hands and two feet at least three are in contact with the ladder rungs/rails at all times while ascending or descending the ladder.</td>
</tr>
<tr>
<td><strong>Tube-and-Coupler Scaffold</strong></td>
<td>A supported or suspended scaffold consisting of a platform(s) supported by tubing, erected with coupling devices connecting uprights, braces, bearers, and runners.</td>
</tr>
</tbody>
</table>
3.0 Procedure

3.2 General Requirements
All scaffolds are designed by a qualified person or manufacturer and are erected, loaded, and used in accordance with that design or manufacturer’s specifications.

Scaffolds are erected, altered, moved, or dismantled by trained scaffold erectors and under the supervision of competent persons.

Employees required to perform work on scaffold platforms are trained in the recognition and control measures for hazards associated with the type(s) of scaffold being used.

A scaffold is capable of supporting, without failure, its own weight and at least four times the maximum intended load.

All scaffold work platforms have complete guardrails and toe boards installed.

All scaffold work platforms must be completely decked between the uprights and/or guardrail supports.

Scaffold platforms are a minimum of 18” wide.

All scaffold decking is made of manufactured system components designed specifically for that purpose or scaffold grade lumber.

The footing or anchorage for all scaffolds is sound, rigid, and capable of supporting the loaded scaffold without settling or displacement. Unstable objects such as barrels, boxes, loose bricks, or concrete blocks are not used to support scaffolds. Mud sills (12” x 12” minimum size) are used if scaffold legs are resting on dirt, grass, or a potentially unstable surface such as gravel, sand, shell, etc. Base plates are required at all times. When using leveling jacks, ¾ of its length must remain inside the scaffold leg.

Manufactured scaffold components are not modified. Scaffold components manufactured by different manufacturers or of dissimilar metals are not intermixed unless the components fit
Scaffold Safety

together without force, modification and the scaffolds structural integrity is maintained as determined by a competent person.

Supported scaffolds with a height-to-base width ratio of more than four-to-one are restrained from tipping by guying, tying, bracing, or equivalent means.

- Guys, ties, and braces are installed according to the scaffold manufacturer’s recommendations or at the closest horizontal member to the 4:1 height and be repeated vertically at locations of horizontal members every 20 feet or less thereafter for scaffolds three feet wide or less, an every 26 feet or less thereafter for scaffolds greater than three feet wide.
- The top guy, tie or brace of completed scaffolds are placed no further than 4:1 height from the top. Such guys, ties, and braces are installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet.

Design drawings must be made prior to erection and kept on site for any scaffold over 125’ high. They must be made by a licensed professional engineer competent in this field.

3.2 Scaffold Decking (Boards)

Scaffold Grade 2” x 10” or 2” x 12” board material only is used.

No paint or material which would affect proper visual board inspection or work surface safety is applied to scaffold boards. Scaffold boards may be painted 10” to 12” on each end to denote use for scaffold decking only.

Scaffold boards are not to extend over their end supports more than 12” or less than 6.”

All decking on platforms is overlapped (minimum 12”) or secured from movement.

Do not use cleated boards with cleats turned up.

3.3 Access to Scaffold Platforms

When scaffold platforms are more than two feet above or below a point of access an attached ladder or other approved ladder/-
Scaffold Safety

stair system must be used by scaffold users to reach the platform.

Hook-on and attachable ladders are positioned so their bottom rung is not more than 24” above the scaffold supporting level.

Access ladders must extend 36” above the platform being accessed or equivalent safe access is provided.

Scaffold bracing is not used for access or climbing. Integral prefabricated scaffold access frames must be specifically designed and constructed for use as ladder rungs may be used for access to platforms.

Hook-on and attachable ladders are broken with rest platforms at 35’ maximum vertical intervals.

Hook-on and attachable ladders are specifically designed for use with the type of scaffold being used.

Rungs must be uniformly sized and spaced with a maximum between rungs of 16-3/4.”

Rungs must be at least 11-1/2” long (left to right).

3.4 Scaffold Use
Scaffolds are not loaded in excess of their maximum intended loads or rated capacities.

Debris is not allowed to accumulate on platforms.

Do not stack brick, tile, block, or similar material higher than 24” on the scaffold desk.

Makeshift devices such as boxes and barrels are not used on top of scaffold platforms to increase the working level height of employees.

Ladders are not used to increase the working level height of employees except when:
  o The ladder is placed and secured against a structure which is not a part of the scaffold and the scaf-
fold/platform is secured against movement and any side thrust exerted by use of the ladder.
  - The ladder must be secured against movement at the top and the bottom legs.
  - The supervisor approves this ladder use.

Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold tag lines or equivalent measures to control the loads are used.

Scaffolds are never altered or moved while in use or occupied.

Scaffolds are not moved or dismantled without first removing all loose tools, materials, and equipment resting on the scaffold deck.

Employees do not work on scaffolds during storms or high winds.

Employees do not work on scaffolds covered with ice or snow unless all ice or snow is removed and planking sanded to prevent slipping.

The clearance between scaffolds and power lines are: Scaffolds are not erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might get closer to exposed and energized lines than as follows:

<table>
<thead>
<tr>
<th>Insulated Lines (Voltage)</th>
<th>Minimum Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 300 Volts</td>
<td>3 Feet</td>
</tr>
<tr>
<td>330 Volts to 50 KV</td>
<td>10 Feet</td>
</tr>
</tbody>
</table>
| More than 50 KV           | 10 Feet plus 4” for each 1 KV over 50 KV Or: 2 times the length of the line insulator, but never less than 10 feet.
### Scaffold Safety

<table>
<thead>
<tr>
<th>Uninsulated Lines (Voltage)</th>
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| More than 50 KV             | 10 Feet plus 4” for each 1 KV over 50 KV.  
Or: 2 times the length of the line insulator, but never less than 10 feet. |

#### 3.5 Fall Prevention and Fall Protection

Each employee on a scaffold more than 6 feet above the ground or next lower level is protected from falling to that lower level by means of a complete guardrail system (fall prevention) or approved personal fall protection.

All scaffold work platforms have complete guardrails and toe-boards installed. However, if the guardrail is incomplete or missing, personal fall protection is required.

**Fall Prevention:**

- All scaffold guardrail systems must meet the design/performance requirements set forth in this section and by local regulatory agency standards.

- Guardrail systems are installed along all open sides and ends of platforms.

- Guardrail systems are completely installed before the scaffold is released for use by employees other than erection and dismantling crews.
  - Guardrail systems are surfaced to prevent injury to employees such as punctures or lacerations.
  - Top edge height of toprails or equivalent member is installed between 38 and 45 inches.
  - Each toprail or equivalent member is capable of withstanding, without failure, a force applied in any downward or outward direction of at least 200 pounds.
  - Rope, No. 9 wire, banding material, or similar material is not used as a toprail or midrail.
  - Midrails are installed at a height approximately midway between the top edge of the guardrail system and the platform surface.
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- Each midrail or equivalent member is capable of withstanding, without failure, a force applied in any downward or outward direction of at least 150 pounds.

- Where guardrail systems are incomplete, missing, or moved to allow access for work personal fall protection is used on the affected platform(s).

- In some cases a building, structure, equipment, or piping may prevent the proper installation of a complete scaffold guardrail, a Competent Person can determine whether these obstructions meet or exceed the applicable guardrail requirements; to be used instead of the scaffold guardrail system.

**Personal Fall Protection:**

- Approved personal fall protection is required any time employees work on an unprotected scaffold (by a complete deck and guardrails) and 6 feet or more above the ground or next lower level; or anytime on a suspended scaffold platform. Working as stated above means while traveling, stationary, or at anytime exposed to a fall hazard.

- Employers 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. See OSHA Standard Interpretation letter in *Attachment 1*. When it’s determined that providing fall protection is not feasible a fall protection plan is developed using a Job Safety Analysis form describing how the scaffold erector/dismantler can safely perform this task.

- Personal fall protection used on scaffolds is attached by a lanyard to a vertical lifeline, horizontal lifeline, or approved scaffold structural member.

- Personal fall protection is not required while using a designated ladder or access system, provided “three points of contact” are maintained when ascending or descending a scaffold ladder (access way).

- Employees may not climb any ladder with anything in their hands. Tools and materials may be hoisted up or down by rope or other devices.
Falling Object Protection:
- Protection from falling hand tools, materials, debris and other small objects are provided through the installation of toeboards, barricades, mesh/screens, debris nets, or catch platforms/canopies.

- When a hazard of tools, materials, or small objects falling from the surface of scaffold platforms and striking employees below, the area below:
  - is barricaded and employees are not permitted to enter the hazard area, or
  - has a 2” x 4” (nominal) toeboard is erected along all edges of scaffold platforms more than 10 feet above lower levels.
  - when tools and materials are stacked above the height of the toeboard two additional protective measures are considered:
    1) Higher toeboards or,
    2) Mesh/screen put up against the guardrail with openings small enough to contain materials on the platform.

- When potential falling objects are too large, too heavy, or too massive to be contained by any of the above listed measures those materials are placed away from edges.

Mobile (Rolling) Scaffolds:
- Mobile scaffolds are used only on level smooth surfaces free of major defects or the wheels must be contained in wood or channel iron runners.

- Mobile scaffolds are braced by cross, horizontal, or diagonal braces, or a combination thereof, to prevent racking or collapse of the scaffold and to ensure scaffolds remain plumb, level, and squared at all times. All brace connections are secured.

- Scaffold height during movement does not exceed two times the minimum base.

- When out-rigger frames are used they're installed on both sides of the scaffold and would be included in the base/height limit calculation.
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- All casters used with mobile scaffold are provided with a positive locking device to hold the scaffold in position when the scaffold is stationary or while employees are on the scaffold.

- Caster stems and wheel stems are pinned or otherwise secured in scaffold legs or adjustment screws.

- Manual force used to propel the scaffold is applied as close to the base as possible and never more than five feet above the supporting surface.

- Power systems used to propel mobile scaffolds are designed for such use.

Suspended Scaffolds:

- Wire or fiber rope used for scaffold suspension including connecting hardware is capable of supporting at least six times the maximum intended load. All other components of suspended scaffolds including support devices must be capable of supporting at least four times rated-load capacity of the scaffold system.

- The suspended scaffold, suspension ropes, connecting hardware, and the support devices must be inspected by a Competent Person before each use.

- Approved personal fall protection is required for all occupants of a suspended scaffold and is anchored to a fixed safe point of anchorage which is independent of the scaffold and is protected against sharp edges and abrasion.
  - Each individual has a separate life line and fall arresting device.
  - Anchorages are capable of supporting 5,000 pounds a person attached.

- Only those items specifically designed as counterweights are used in accordance with the manufacturer’s specifications on counterweight scaffold systems.

- Outrigger beams which are not stabilized by bolts or other direct connections to the floor or roof deck are secured by tie-backs. Tiebacks are equivalent in strength to the suspension
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ropes and secured to a structurally sound anchorage on the building or structure.

- When welding or cutting is performed from a suspended platform precautions are taken to cover/insulate any wire rope and attachment points exposed to potential heat or slag hazards.

- When electric welding is performed from a suspended platform the following precautions are taken:
  - An insulated thimble is used to connect the wire rope to its hanging support.
  - The suspension wire rope is covered with insulating material extending at least four feet above the hoist.
  - Non-active lines, independent lines, excess suspension wire rope, tail lines….. are covered/insulated for protection near the point of welding operations and to prevent possible grounding contact with the platform as well as secured so as not to provide a potential ground to the building/structure or the ground.
  - Each hoist is covered with protective covers.
  - In addition to the work lead attachment required by the welding process a grounding conductor is connected from the scaffold to the structure. The size of this conductor is at least the size of the welding process work lead and this conductor is not in series with the welding process or the work piece.
  - If the scaffold grounding lead is disconnected at any time, the welding machine is shut off.
  - The active welding rod or uninsulated welding lead is not allowed to contact the scaffold or its suspension system.

Boatswains’ Chairs:
As Boatswains’ Chairs are also suspended scaffolds the following procedures apply in addition to those outlined in Suspended Scaffolds section prior.

- The chair seat is not less than 12” x 24” and 1” thickness. Non-cross laminated wood boatswains’ chairs are reinforced on their underside by cleats securely fastened to prevent the board from splitting.

- The rope used for suspension and the seat slings are 5/8” diameter, first-grade manila, fiber, synthetic or other rope.
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which meets the criteria for strength and durability required by the policy.

- The chair seat slings are reeved through the four corner seat holes so as to cross each other on the underside of the seat and are rigged to prevent slippage that could cause an out-of-level condition.

- When a heat producing process such as gas or arc welding is being conducted, suspension ropes and chair seat slings are a minimum of 3/8” wire rope.

3.6 Inspections and Storage
Users inspect the scaffold prior to and during use and report any defects or concerns to a supervisor immediately.

Scaffolds and scaffold components are inspected for visible defects by a Competent Person prior to initial use, before each work shift, and after any occurrence affecting a scaffold’s structural integrity.

Before erecting and during dismantling trained scaffold craftsmen inspect all scaffold components. Those found defective must be repaired or replace immediately.

- Handrails, midrails, cross bracing, and steel tubing are inspected for nicks especially near center span and indications where a welding arc struck.

- Scaffold components are straight and free from bends, kinks, dents, and severe rusting.

- Scaffold frame weld zones are inspected for cracks and ends of tubing for splitting or cracking.

- Manufactured decking is inspected for loose bolt or rivet connections and bent, kinked, or dented frames. Plywood surfaces are checked for softening due to rot or wear, and peeling or delaminated layers at the edges. Scaffold boards are inspected for rot, cracks, notches, and other damage. Also, inspect cleats if used.
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- Each quick-connecting device whether spring, threaded connection, or toggle pin arrangement is inspected to see that it operates properly.

- Casters, if used, are inspected for smooth rolling surfaces, free turning, free acting swivel, and to be sure the locking mechanism is in good working order.

There are no scaffold storage requirements established by this policy.

3.7 Training

3.7.1 Scaffold Erectors
These requirements are applicable to each employee involved in erecting, altering, disassembling, moving, repairing, or inspecting a scaffold.

Training is performed by a Competent Person to recognize any hazards associated with scaffold erection. The Competent Person is designated by the site manager.

The training includes the following topics as applicable:
  o The nature of scaffold hazards.
  o The correct procedures for erecting, altering, disassembling, moving, repairing, and inspecting the type(s) of scaffold intended to be utilized.
  o The design requirements as well as the maximum intended load-carrying capacity and intended use of the scaffold.
  o The requirements of this procedure.

3.7.2 Scaffold Users
These requirements are applicable to each employee performing work while on a scaffold.

Scaffold user training is performed by a person designated by the site manager. The training includes the following topics as applicable:
  o The maximum intended load and load carrying capacities of the scaffolds used.
  o The nature of any overhead work/falling objects, personal fall, and electrical hazards in the work area and:
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- The correct procedures for dealing with electrical hazards.
- The proper use of personal fall-protection equipment and fall-protection systems.
- The overhead work/falling object protection systems being used.
  - The requirements of this procedure applicable to scaffold users.

3.7.3 Retraining
Retraining for both scaffold erectors and scaffold users is required when:
  - There are changes in the types of scaffolds, fall protection, falling object protection or other equipment or procedures related to the hazards associated with site scaffolding.
  - Changes in the worksite present new hazards to which the employee was not previously trained.
  - An employee demonstrates a lack of skill or understanding or when an inadequacy in an affected employee’s work involving scaffolds indicates the employee has not retained proficiency.