



ELECTRICAL CONTRACTOR SAFETY PROGRAM



PREFACE

SAFETY MANUAL

NECA STANDING POLICY ON SAFETY SAFETY PROGRAMS AND SAFE WORKERS

NECA believes that safety is an integral part of achieving excellence in the electrical contracting business by maintaining the highest productivity, quality, and safety standards in a proactive, practical, and cost effective approach to manage organizational loss control. NECA members demonstrate safety professionalism and responsibility through every aspect of work and services they provide including designing, planning, construction, service work, and implementing operations with a minimum of disruption to customers. NECA's commitment to jobsite safety is reinforced by placing special emphasis in quality safety training programs that integrate safety into project pre-planning and project management.

NECA, historically, has supported and continues to support the highest safety standards in construction for the benefit of its members, the industry and the consuming public. NECA actively advocates maintaining the safest and most productive workplace possible. NECA members appreciate the benefits of a workplace free from injuries, the advantage of a productive work force, and the responsibility of offering a safe working environment. To that end, NECA believes that to achieve *zero injuries* in the workplace, members must strive for *zero energy work environments* as the normal and best practice, whenever achievable.

NECA members understand jobsite safety is an important responsibility shared between employers and employees and affirms that implementing safe work practices is not optional. The association believes that a trained and qualified workforce has responsibility to recognize and avoid workplace hazards and, where

necessary, employers provide appropriate personal protective equipment for workers exposed to workplace hazards.

NECA remains active in government relations and rulemaking processes related to worker safety. The association actively participates in electrical safety standard development, such as NFPA 70 the *National Electrical Code*, and NFPA 70E *Standard for Electrical Safety in the Workplace* and other safety legislation that affects the industry. NECA is committed to supporting collaborative effective efforts in industry alliances and partnerships sharing common safety objectives.

The goal of NECA members is to maintain a safe and healthy workplace for all employees and to foster efficient operations, thereby offering the best possible product and services to the construction customer. Effective safety-related work practices and principles must be integrated into the planning and installation of electrical work as well as into design.

NECA members recognize that implementing effective safety programs and safe work practices is often challenged by cultural differences and other distractions that are not in best interest of employees or employers and they are dedicated to solving these problems while establishing and maintaining safety in the workplace. *Safety Excellence* results from safe work practices that continuously strive for *Zero Injuries*. NECA's commitment to safety excellence and safe work environments remains active, focused and constant. (Adoption Date 09-12-2009)



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will have the knowledge to recognize hazards and the authority to take appropriate action.

- Evaluate their assigned work areas. They will identify hazards and take action to abate the hazards in accordance with federal, state, and local regulations as well as the policies, procedures and rules established by this company.
- Inspect and monitor their assigned work areas. They will ensure that all work is performed safely and in accordance with federal, state, and local regulations as well as the policies, procedures and rules established by the company.
- Enforce the policies, procedures and rules established in the safety program in accordance with the company disciplinary policy.
- Assist in the on-going training of workers by conducting periodic safety talks and activities. They will also bring any problems or concerns of the workers to the attention of management, the Safety Director and/or the Safety Committee.
- If requested, will serve on the Safety Committee and complete assigned tasks needed to execute the safety program.

Employees

All employees are:

- Required to work safely in accordance with state, federal and local regulations as well as the rules established by this company. This will include, but is not limited to, OSH Act 5(b) "Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct."
- Required to notify their supervisor immediately of any unsafe acts or conditions they observe.
- Encouraged to take an active role in the safety program and make recommendations to improve any and all parts of the program.

C. SAFETY RULES

All company safety policies and procedures must be followed.

Anyone known to be under the influence of alcohol and/or drugs shall not be allowed on company property. Persons with symptoms of alcohol and/or drug abuse are encouraged to discuss personal or work-related problems with the supervisor/or employer.

No one knowingly shall be permitted or required to work while his or her ability or alertness is impaired by fatigue, illness or other causes that might expose the individual or others to injury.

Horseplay, scuffling and other acts which tend to endanger the safety or well being of employees are prohibited. Fighting or instigating fights will not be tolerated.

All injuries shall be reported promptly to the supervisor/employer so that arrangements can be made for medical and/or first aid treatment.

Work shall be well planned and supervised to prevent injuries when working with equipment and handling heavy materials. When lifting heavy objects; employees should bend their knees and use the muscles of the legs instead of the smaller muscles of the back.

Employees should check to see that all guards and other protective devices are in place, and properly adjusted, and shall report deficiencies to management.

Employees shall not handle or tamper with any electrical equipment, machinery or air or water lines in a manner not within the scope of their duties unless they have received instructions from their supervisor/or employer. Only trained and authorized employees shall operate machinery, equipment, tools or company vehicles.



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Medical records, if required will be kept with the physician administering the service.

Requests for documents and records should be submitted to the Safety Director.

F. COMMUNICATION AND TRAINING

No employee will be allowed to perform a job or task unless they have received training on the hazards present and the precautions necessary to perform the job safely. The Safety Director will ensure the following training is provided:

Orientation Training

Each new and newly assigned worker will participate in a safety orientation training session. Participants will be instructed in all elements of the company safety program and will complete all safety training required by federal and local agencies.

Refresher Training

On-going safety training will be a primary component of the company safety program. This training may take the form of classroom or on-the-job instruction. The Safety Director and Safety Committee will establish a training agenda. This agenda will include all refresher training required by federal, state and local agencies. The training agenda will also be based on a recent hazard analysis and review of accident/incident reports.

Hazard Specific Training

Before beginning a new job a review of the hazards will be conducted by the supervisor. Training will be provided for any new hazards introduced to the workers. This may include the introduction of new substances, equipment, tools, processes or procedures.

Job Briefings

Job site supervisors will conduct a job briefing at the beginning of each shift. Briefings will be performed per the company protocols and the briefings checklist used. The job briefing will identify job assignments, procedures to be followed and the actions that will be taken to protect workers in the performance of their assigned tasks. Additional briefings will be conducted as tasks, assignments or conditions warrant.

Safety Talks/Meetings

The Safety Director will ensure that periodic safety talks, activities and meetings are conducted by supervisors on the job. They will provide refresher training to workers and introduce new policies, procedures and hazard controls to be applied. The meetings will also serve as a means for workers to bring safety concerns to the attention of management.

Management/Supervisor/Safety Committee Training

Special training will be provided to management, supervisors and safety committee members. This training will address the requirements of OSHA regulations and best safety practices used in our industry. Training will be provided on an on-going basis so that our safety program is kept current and effective.

G. SAFETY EVALUATIONS & INSPECTIONS

Each employee will perform a safety check of the work area at the beginning of the shift. They will also check equipment, tools and personal protective equipment before each use.

The supervisor will evaluate their assigned work area for hazards and ensure that a plan is established to abate hazards. They will ensure that hazards are abated in accordance with federal, state, and local regulations



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- Accept and complete assigned tasks needed to execute the safety program.

Organization of the Safety Committee

The Safety Committee will be comprised of supervisors and selected workers who have taken an interest in safety. The Safety Director shall serve as a representative of management and act as Chairman of the Safety Committee.

Safety Committee Procedures

The safety committee will meet once a month. The Chairman will establish an agenda to be followed.

The Chairman will ensure that minutes of each meeting are taken. The Chairman will review the results of the meeting with management and take appropriate actions.

A report of the meeting will be posted or communicated to employees at monthly safety talks.

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BLOODBORNE PATHOGENS EXPOSURE CONTROL PROGRAM

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Employees

All employees will:

- Abide by all engineering controls and safe work practices in place to minimize potential exposure. This includes, but is not limited to, hand washing and use of the appropriate PPE.

D. ENGINEERING CONTROLS AND WORK PRACTICES

Engineering controls and work practice controls will be used to prevent or minimize exposure. Hand washing facilities are available at all jobsites. Employees will wash with anti-bacterial cleansers and use appropriate disinfectant means after administering first-aid and follow all standard precautions. All equipment will be decontaminated or discarded in appropriate containers.

E. PERSONAL PROTECTIVE EQUIPMENT

First-aid responders will use PPE appropriate for administering the first-aid required. All jobsite first-aid kits will contain:

- Gloves
- Eye protection
- Resuscitation bags and mouthpieces
- Face shield or masks

F. HOUSEKEEPING

In the event of a first-aid incident or other exposure covered by this Plan, the first-aid responders exposed will take precautions to decontaminate work surfaces, tools and equipment. PPE will be used during cleanup.

Mechanical means such as tongs, forceps or a brush and a dust pan will be used to pick up contaminated

broken glassware. The waste will be treated as regulated waste and disposed of in sealed and labeled or color-coded containers. When storing, handling, transporting or shipping regulated waste, it will be in containers that are constructed to prevent leakage. The waste will be discarded according to federal, state and local regulations.

In the event of a first-aid incident in which the first-aid responder's clothes become contaminated, the following actions will be taken:

- Contaminated laundry will be handled as little as possible and with a minimum of agitation. Appropriate PPE will be worn when handling contaminated laundry.
- Contaminated laundry will be placed in color-coded bags at its location of use and taken by a commercial launderer. The launderer will be given the appropriate warnings.

Labeling

Biohazard warning labels will be placed on all containers for wastes which may be contaminated with blood or body fluids, or red bags will be used as required.

G. TRAINING

All designated first-aid responders or other employees covered by this Plan will receive training conducted by or under the direction of the Safety Director. The training program will cover, at a minimum, the following elements:

- A copy and explanation of the standard
- Causes, control and symptoms of Bloodborne pathogens
- Modes of transmission of Bloodborne pathogens



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J. HEALTHCARE PROFESSIONAL'S WRITTEN OPINION

The designated Healthcare Professional will provide the exposed employee with a copy of the evaluating Healthcare Professional's written opinion within 15 days after completion of the evaluation.

The written opinion for post-exposure evaluation and follow-up will be limited to whether or not the exposed employee has been informed of the results of the medical evaluation and any medical conditions which may require further evaluation and treatment. For HB vaccinations, the opinion will be limited to whether the employee required or received the vaccine. All other diagnoses must remain confidential and not be included in the written report to the employer.

K. RECORDKEEPING

Medical Records

Medical records are maintained for each employee with exposure in accordance with 29 CFR 1926.33 or 1910.20. In addition to the requirements of this standard, the medical records will include:

- The name and social security number of the exposed employee
- A copy of the exposed employee's Hepatitis B vaccination records and any medical records relative to the employee's ability to receive vaccinations
- A copy of all results of examinations, medical testing, and follow-up procedures as required
- A copy of all HCP's written opinion(s) as required by the standard

Employee medical records will be kept confidential and will not be disclosed or reported without the em-

ployee's express written consent except as required by the standard or by law.

Employee medical records shall be maintained for at least the duration of employment plus 30 yrs.

Employee medical records shall be provided (within 15 working days) upon request of the employee or to anyone having written consent of the employee.

Training Records

Bloodborne pathogen training records will be maintained by the Safety Director at a designated location.

Transfer of Records

If the company ceases to do business and there is not a successive employer, the employer shall notify the Director of the National Institute for Occupational Safety and Health (NIOSH) at least 3 months prior to a scheduled records disposal, and prepare to transmit them to the Director of NIOSH.

L. CREDENTIAL INFORMATION

Designated First-Aid Providers:

Medical Evaluations Performed By:

Designated Health Care Professional:

Employee Assistance Program Manager:



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converging walls or by a floor sloping downward and tapering to a smaller cross-section

- Contains any other recognized serious safety or health hazard (i.e., a safety hazard that exposes entrants to the risk of death, incapacitation, impairment of ability to self-rescue, injury.)

5. Vented Vault:

A vault that has provisions for air changes using exhaust stacks and low level air intakes operating at differentials of pressure and temperature providing for air flow which precludes the development of a hazardous atmosphere.

D. HAZARD DETERMINATION

This company does not intend to perform the initial evaluation of any confined space. It has chosen to rely upon the evaluation performed by the host employer or its designee to satisfy the requirements for safe entry into the confined space. The Company's employees are not trained to enter and/or work in confined spaces that require the use of a "full permit" for entry. Our employees are trained to work in enclosed spaces or confined spaces that can utilize "Alternative Procedures" for entry and work, or one that does not require a permit (i.e. a Non Permit Required confined space.) As these spaces will be treated in the same manner to ensure safe entry the terms confined space and enclosed spaces will be used interchangeably in this program.

The entering of any confined space can be very hazardous unless proper safety precautions are taken. For example, a person might work in a small area under several adverse conditions, such as poor lighting, slippery work surfaces, excessive noise levels, toxic and flammable gases, and oxygen deficient atmosphere.

Proper safety precautions shall be taken to ensure these conditions are controlled such that employees who are

required to work in confined spaces are provided a safe and healthful work environment.

E. CONFINED SPACE ENTRY: NON-PERMIT

Confined spaces may be classified as non-permit spaces if all atmospheric and/or other safety hazards are eliminated. A reclassification worksheet will be used to ensure that steps are taken to identify that the hazards have been removed.

When changes occur within or to a non-permit space that may create an atmospheric hazard the following actions will be taken:

1. Evacuate the space immediately.
2. Evaluate how the hazardous atmosphere developed.
3. Eliminate condition(s) that created the problem, if possible.
4. Reentry using "alternate procedures" may be necessary.

F. CONFINED SPACE ENTRY: ALTERNATIVE PROCEDURES

1. Confined spaces that have been reclassified as non-permit spaces by removal of potentially hazardous atmospheres through the use of ventilation can be entered in the same manner as an enclosed space.
2. Safe work practices must be used during entry into and work within confined spaces, and for rescue of workers from such spaces. Be sure that employees are trained in safety-related work practices and procedures, and other safety requirements related to job assignments (e.g., general safety and welding, cutting, and electrical work safety requirements.)
3. Employees who enter confined spaces must be trained in the following:



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that there is no increase in flammable gas or vapors, once safe levels of these substances have been detected.

12. If continuous forced air ventilation is used, it will begin before any entry occurs into the confined space or enclosed space, and must be maintained until a safe atmosphere is confirmed, before employees are allowed to enter the work area. The ventilation will be directed so that it ventilates the immediate area where employees are present within the confined space. Forced ventilation will continue until all employees have left the space unless continuous monitoring is used.

13. The air supply for continuous forced ventilation must be from a clean source, and must not increase the hazards in the confined space. If open flames are used in the confined space, perform a test for flammable gases and vapors **immediately before** the open flame device is used, and at least once per hour while the device is in use. Conduct testing more often if conditions within the confined space indicate that once per hour is insufficient to detect hazardous accumulations of flammable gases or vapors.

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- Safe use of voltage detecting instruments
- Additional training as needed to address specific hazards associated with a given operation

C. PREPARATION FOR LOCKOUT (TAGOUT)

All disconnecting means shall be identified and located to ensure that energy is interrupted by a physical break and not deenergized by a circuit interlock. This shall be accomplished by reviewing current diagrammatic drawings or other means, tags, labels, and signs. A list of disconnecting means to be locked (tagged) will be developed and attached to the plan for each LOTO operation.

Each disconnecting means shall be evaluated to determine adequacy of their interrupting ability. Based on the evaluation, it will be determined if verification of a visible open point is possible, or if other precautions are needed.

Work activity where any personnel might be exposed to sources of electrical energy hazards will be identified. It will be determined if there are any other energy sources in the area where employees may be exposed to other types of energy. Energy control methods will be established for all hazardous energy sources.

A voltage detector rated for voltage to which employees may be exposed will be selected for the operation. A procedure will be established for each operation to determine that the voltage detector is operating properly.

The possibility of induced voltages or stored electrical energy will be identified. Grounds will be applied as needed before touching conductors or circuit parts.

D. LOCKOUT (TAGOUT) STEPS

The following identifies the basic steps for LOTO. In addition to these steps, it shall be determined whether a Simple or Complex LOTO can be performed. The Complex LOTO plan shall address any additional steps required. A Complex LOTO will be performed when any of the following exist:

- Multiple energy sources (more than one)
- Multiple crews
- Multiple crafts
- Multiple locations
- Multiple employers
- Unique disconnecting means
- Complex or particular switching sequences
- Continues for more than one shift, that is, new workers

1. Notify employees a lockout (tagout) is going to be implemented and the reason. A qualified employee knowledgeable of hazards associated with electrical energy shall implement the lockout (tagout). He/She shall know the location of disconnecting means for all sources of electrical energy and stored energy.

2. The qualified person shall deenergize and disconnect the electric supply and relieve all stored energy.

3. All disconnecting means will be locked/ tagged out with lockout (tagout) devices. Refer to Section H for appropriate devices.

Where only a tag is used, one of the following additional safety measures will be used to prevent reenergization

- ☐ Opening the circuit at _____
- ☐ Blocking the circuit at _____
- ☐ Removal of the following circuit element _____



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ELECTRICAL SAFETY

A. PURPOSE AND SCOPE

A universal safety concept is to control all forms of hazardous energy. This applies to all forms of energy including, mechanical, pneumatic, hydraulic and electric. This Electrical Safety Program will focus on safely working with electrical hazardous energy.

This company normally does work covered by OSHA's 29 CFR 1910.147, Subpart S Electrical of the General Industry Standards & Subpart K Electrical of the Construction Industry Standards and the National Electrical Code (NEC). In some instances work is done that is covered by OSHA's 29 CFR 1910.269 & 1910.272 Subpart V and the National Electrical Safety Code (NESC). It also recognizes that NFPA 70E the Standard for Electrical Safety in the Workplace offers guidance on certain electrical safety procedures.

OSHA and the NFPA 70E:

OSHA requirements are not recommendations. There are a number of OSHA requirements that address the hazards of working on or near exposed energized parts for construction and maintenance work. These requirements are often written in performance language, requiring compliance without necessarily stating how to comply.

The NFPA 70E, Standard for Electrical Safety in the Workplace, is written in prescriptive language and is an important national consensus standard that defines the requirements for an overall electrical safety program.

As such, the procedures found within this policy are taken directly from the NFPA 70E - Electrical Safety in the Workplace and will cover the majority of the work locations and tasks our electricians and contractors face. It is NOT all encompassing.

Certain tasks performed on very high hazard electrical systems and equipment, those with high level available fault currents and / or long fault clearing times, or exposures exceeding 600 volts, will require the direct use of the current edition of the NFPA 70E standard to determine proper PPE and safe work practices and procedures.

B. RESPONSIBILITIES

General Contractor/Host

The General Contractor/Host will:

- Review the letter provided by our company on Customer or General Contractor electrical related hazards and responsibilities.
- Inform our Safety Director of known hazards associated with electrical installation, maintenance or repair that is related to the work our company will be performing and might not be recognized by our employees
- Inform our Safety Director about the installation that the contract employer needs to make the assessments
- Report any safety violations by our employees that are observed to our Safety Director

Safety Director

The Safety Director will:

- Monitor this Electrical Safety Program. Questions regarding this program and any information associated with it should be directed to the Safety Director.
- Ensure that all employees are properly trained for the tasks they will perform. Only persons specifically approved by the Safety Director may install, modify, repair, or work on electrical conductors and equipment.



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- Energized work shall only be justified when it can be demonstrated that de-energizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations. Energized parts that operate at less than 50 volts to ground shall not be required to be de-energized if there will be no increased exposure to electrical burns or to explosion due to electric arcs.
 - *Examples of increased or additional hazards include, but are not limited to, interruption of life support equipment, deactivation of emergency alarm systems, and shutdown of hazardous location ventilation equipment.*
 - *Examples of work that might be performed on or near exposed energized electrical conductors or circuit parts because of infeasibility due to equipment design or operational limitations include performing diagnostics and testing (e.g., start-up or troubleshooting) of electric circuits that can only be performed with the circuit energized and work on circuits that form an integral part of a continuous process that would otherwise need to be completely shut down in order to permit work on one circuit or piece of equipment.*
- In preparing for a job, an effort will be made to anticipate unexpected events through a hazard/risk evaluation, completion of a planning checklist, and job briefing.
- Based on the hazard/risk evaluation, actions will be taken to minimize or eliminate hazards and protect employees from shock, burn, blast, and other hazards due to the working environment.
- Employees shall not knowingly be permitted to work on electrical circuits, parts or equipment:
 - When their alertness is recognizably impaired due to illness, fatigue, or other reasons.
 - Where obstructions or the lack of illumination prevent a clear view of the work to be performed.

D. EMPLOYEE INFORMATION AND TRAINING

All employees are trained in and familiar with:

- Safety related work practices
- Safety related work procedures
- Safety related protective equipment
- Safety related personal protective equipment.

Qualified employees are knowledgeable, trained and have demonstrated proficiency in:

- Skills and techniques necessary to distinguish exposed live parts from other parts
- Skills and techniques to determine nominal voltage of exposed live parts
- Minimum approach distances corresponding to those that the employee may be exposed,
- The proper use of special precautionary techniques, personal protective equipment (PPE), insulating and shielding materials, and insulated tools as required to perform the assigned work.

Refresher training will be conducted prior to performing those tasks which have not been performed within the past year, or when observation of the employee's work performance demonstrates the need for refresher training.

A Job Briefing shall be conducted as described in the Administrative section of this manual.



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- Type: _____
- Model: _____

Only the following type of tags shall be used for LOTO:

- Type: _____
- Model: _____

The following voltage detecting device(s) shall be used depending on the applicable voltage:

- Voltage Range: _____
- Type: _____
- Model: _____

- Voltage Range: _____
- Type: _____
- Model: _____

I. AUDIT

An audit of this program and procedures shall be conducted annually. The annual audit shall be dated and filed at _____.

ENERGIZED ELECTRICAL WORK

A. PURPOSE AND SCOPE

This program has been established to keep our electrical workers safe from hazards associated with energized electrical work tasks. Using this policy will help keep our NECA and IBEW electrical contractors compliant with state and federal requirements for employee safety in the workplace.

OSHA and NFPA 70E standards require that all energized circuit parts and equipment be DE-ENERGIZED before any employee works on or near them. De-energizing must be used as the primary method of worker protection from electrical hazards.

Exemptions to Work Permit. There are very few exceptions to this rule. *Work performed on or near live parts by qualified persons related to tasks such as testing, troubleshooting, voltage measuring, etc., shall be permitted to be performed without an energized electrical work permit, provided appropriate safe work practices and personal protective equipment in accordance with this procedure are provided and used.*

B. DEFINITIONS

1. ARC FLASH HAZARD ANALYSIS:

A study investigating a worker's potential exposure to arc-flash energy, conducted for the purpose of injury prevention and the determination of safe work practices, arc flash protection boundary, and the appropriate levels of personal protective equipment (PPE).

2. ARC FLASH HAZARD:

A dangerous condition associated with the possible release of energy caused by an electric arc.

3. ARC RATING:

The value attributed to materials that describes their performance to exposure to an electrical arc discharge. The Arc is expressed in cal/cm² and is derived from the determined value of the arc thermal performance value (ATPV) or energy of break open threshold (EBT).

4. BOUNDARY, ARC FLASH:

When an arc flash exists, an approach limit at a distance from a prospective arc source within which a person could receive a second degree burn if an electric arc were to occur.



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18. INCIDENT ENERGY:

The amount of energy impressed on a surface, a certain distance from the source, generated during an electrical arc event. One of the units used to measure incident energy is cal / cm².

19. JOB BRIEFING:

Before starting each job, the employee in charge shall conduct a job briefing with the employees involved. The briefing shall cover subjects identified on the Energized Electrical Work Permit such as hazards associated with the job, work procedures involved, special precautions, energy source controls, and PPE requirements.

20. LESS THAN 50 VOLTS:

For voltages of less than 50 volts, the decision to de-energize should include consideration of the capacity of the source and any overcurrent protection between the energy source and the worker.

21. PERSONAL PROTECTIVE EQUIPMENT (PPE):

Employees working in areas where electrical hazards are present shall be provided with, and shall use, protective equipment that is designed and constructed for the specific part of the body and for the work to be performed. The equipment shall be maintained in a safe, reliable condition and shall be visually inspected before each use.

22. QUALIFIED PERSON:

A person who is trained and knowledgeable of the construction and operation of equipment or a specific work method and is trained to recognize and avoid the electrical hazards that might be present with respect to that equipment or work method and has received safety training to recognize and avoid the hazards involved. Such persons shall also be familiar with the proper use of special precautionary techniques, personal protective equipment, including arc-flash, insulating and shielding materials, and insulated tools and test

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

23. RATING:

Test instruments, equipment, and their accessories shall be rated for circuits and equipment to which they will be connected. They shall be inspected and correct operation verified before and after an absence of voltage test is performed.

24. SAFETY TRAINING:

Employees shall be trained to understand the specific hazards associated with electrical energy. They shall be trained in safety-related work practices and procedural requirements, as necessary, to provide protection from the electrical hazards associated with their respective job or task assignments. Employees shall be trained to identify and understand the relationship between electrical hazards and possible injury.

25. SHOCK HAZARD ANALYSIS:

A shock hazard analysis shall determine the voltage to which personnel will be exposed, boundary requirements, and the PPE necessary in order to minimize the possibility of electric shock to personnel.

26. WORK DE-ENERGIZED:

Live parts shall be put into an electrically safe work condition (by de-energizing and using lockout/tagout) before an employee is exposed to electrical hazards. (See Lockout / Tagout Procedures)

When the employer can demonstrate that de-energizing introduces additional or increased hazards or is infeasible due to equipment design or operation limitations, energized work may be allowed.

Examples of increased or additional hazards:

- Interruption of life support equipment.



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C. RESPONSIBILITIES

Safety Director

The Safety Director:

- Will receive all requests to work energized.
- Will coordinate the completion and approval of the Energized Electrical Work Permit and Hazard/Risk Assessment.
- Or designee shall ensure that all employees are qualified and have receive specific training needed to work energized on the project.
- Shall compile and maintain a list of authorized individuals who have received training that qualifies them to perform specific tasks energized.

Supervisor

The Supervisor will:

- Ensure that an Energized Electrical Work Permit is revised before allowing work to begin on an energized circuit.
- Confirm the individuals assigned to work energized on the jobsite are authorized.
- Ensure PPE is provided and worn in accordance with the Hazard Assessment and Energized Electrical Work Permit.
- Ensure all boundaries are maintained

Employee

Employees will:

- Not perform any energized work for which they have not been authorized.
- Comply with the Energized Electrical Work Permit and all company safety principles including the electrical safety principles.

D. ACTIONS

Where planning has determined a phase of a project requires work to be performed energized those involved will consult with the Safety Director.

Any employee assigned to a task that feels that it must be performed energized will submit a request to the Safety Director.

An Electrical Hazard Analysis will be performed. This involves conducting both a shock hazard and arc flash hazard analysis. The Host Company shall be consulted for any information needed to complete the analysis.

The following will be documented on the company Hazard/Risk Assessment Sheet for that project:

- Shock Hazard Analysis Results
Limited, and Restricted Approach Boundary requirements
- Flash Hazard Analysis
Flash Protection Boundary (FPB)
PPE when inside the FPB.

The Energized Electrical Work Permit shall be completed and approved for each task before work can begin. The Permit must include:

- A description of the circuit and equipment to be worked on and the location
- Justification for why the work must be performed in an energized condition
- A description of the safe work practices to be employed
- Results of the shock hazard analysis
- Determination of shock protection boundaries
- Results of the flash hazard analysis
- The Flash Protection Boundary
- The necessary PPE to safely perform the assigned task



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Insulated tools shall be designed and constructed for the environment to which they are exposed and the manner in which they are used.

Fuse or fuse holder handling equipment, insulated for the circuit voltage, shall be used to remove or install a fuse if the fuse terminals are energized.

Ropes and handlines used shall be nonconductive.

Fiberglass reinforced plastic rod and tube used for live line tools shall meet the requirements of ASTM F 711, *Standard Specification for Fiberglass-Reinforced Plastic (FRP) Rod and Tube Used in Live Line Tools*, 1989 (R1997).

Portable Nonconductive ladders shall meet the requirements of ANSI standards for ladders listed in NFPA 70E.

Protective shields, protective barriers, or insulating materials shall be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near live parts that might be accidentally contacted or where dangerous electric heating or arcing might occur.

Normally enclosed live parts that are exposed for maintenance or repair shall be guarded to protect unqualified persons from contact with the live parts.

Rubber insulating equipment used for protection from accidental contact with live parts shall meet the requirements of the ASTM standards listed in NFPA 70E.

Plastic guard equipment for protection of employees from accidental contact with live parts, or for protection of employees or energized equipment or material from contact with ground, shall meet the requirements of the ASTM standards listed in NFPA 70E.).

Conductive materials, tools, and equipment that are in contact with any part of an employee's body shall be handled in a manner that prevents accidental contact with live parts. Such materials and equipment include, but are not limited to, long conductive objects, such as ducts, pipes and tubes, conductive hose and rope, metal-lined rules and scales, steel tapes, pulling lines, metal scaffold parts, structural members, bull floats, and chains.

When an employee works in a confined or enclosed space (such as a manhole or vault) protective shields, protective barriers, or insulating materials shall be used as needed to prevent inadvertent contact with these parts. Doors, hinged panels, and the like shall be secured to prevent their swinging into an employee and causing the employee to contact exposed live parts.

Employees shall not perform housekeeping duties inside the Limited Approach Boundary where there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided to prevent contact.

Barricades, signs and warning tape shall be used to identify and maintain boundaries as determined by the Electrical Hazard Analysis.

E. EMPLOYEE INFORMATION AND TRAINING

Qualified Personnel (i.e. authorized to work energized) shall be trained in:

- The applicable procedures associated with securing and implementing an Energized Electrical Work Permit
- NFPA 70E
- OSHA Electrical Safety Work Practices
- Electrical safety work practices as need for the tasks to be performed.



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D. APPAREL

Any employee that is potentially exposed to hazards from flames or an electrical arc shall wear clothing that is arc rated and will not ignite and continue to burn.

When work is performed within reach of exposed energized lines or equipment, all exposed conductive articles (e.g., key or watch chains, rings, wrist watches or bands) shall be removed or rendered nonconductive.

Loose-fitting clothing, key or watch chains, rings, and wrist watches or bands present a hazard when climbing, working around rotating equipment, mobile equipment; therefore, they should not be worn when performing these tasks.

Note: Long hair also presents a hazard when working around rotating and reciprocating equipment; thus, a hair net should be worn when working in these areas.

E. PROTECTIVE COVER-UP

Once workers reach a position within reach of energized circuits, they shall immediately cover with electrical protective equipment all live parts (e.g., adjacent wires, cables, neutrals and associated parts) and any paths-to-ground with which a worker could make accidental or incidental contact. This shall include the covering of the conductor, cable, or associated parts being worked on, in so as far as practical, while still leaving room to perform the work. The reason for covering conductors, neutrals, and associated parts, and paths-to-ground is to limit the likelihood of incidental contact with phase wires and paths-to-ground in case a worker should slip or in some manner make an unanticipated move that could result in the accidental or incidental contact with live parts or a path-to-ground. Therefore, the electrical protective cover-up installed around the work area shall be arranged to limit the

likelihood of any contact with live parts or paths-to-ground.

When all work is completed, the protective equipment shall be removed in a manner that provides the worker with maximum protection at all times while removing the electrical protective equipment, and moving out of the energized area.

F. OVERHEAD WORK

The appropriate Class II or III rubber insulating gloves with glove protectors, shall be worn on both hands at all times when working on or when working within reach or extended reach of 25 kV or less, phase-to-phase, or 15 kV or less phase-to-ground. A hardhat, safety glasses, and FR clothing are also required to be worn. These requirements exist regardless of the type of work being performed, and even when protective equipment is in place or is being installed.

Note: For voltages from 0 - 600 volts, Class "0" gloves with protectors may be worn provided all MADs are maintained at all times. (Note: Class "00" gloves are available for use under 500V)

When installing or removing insulated protective equipment without the use of a live-line tool and when working directly on energized conductors above 5 kV phase-to-phase, the following additional rules shall be complied with:

1. Workers shall isolate themselves from ground contact by use of an insulated aerial device. Approved insulated platforms may be utilized on voltages less than 15 kV phase-to-phase. Any equipment used for this purpose shall be specifically approved and maintained for this work. Workers shall maintain MADs, or provide insulation from all paths-to-ground, including poles, and from other phase conductors.



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is refinished or repaired, it shall be electrically tested before being returned to service.

Fiberglass beams, liners and baskets on insulated aerial devices shall be kept clean, dry and maintained as a live-line tool using approved methods to preserve their insulating qualities when such equipment is used to insulate the worker.

Cable and chain hoists shall not be used on or in close proximity of energized conductors.

Hot line hoists shall be insulated from any path to ground when used on energized conductors above 600 volts. These hoists shall be kept clean and dry. Handles of these hoists shall be maintained as a live-line tool.

Insulated mechanical jumpers shall be given a thorough periodic inspection. Prior to each use, they shall be given a visual inspection to check for physical damage to the insulation.

H. DENERGIZING LINES AND EQUIPMENT FOR EMPLOYEE PROTECTION

Clearances

The employee in charge of job is responsible for obtaining and releasing clearances. The employee in charge must have a thorough understanding of the Host Company's clearance procedure. Request from the Host Company any procedure(s) that contain the general instructions for obtaining and releasing clearances and handling of electric equipment, lines, and loads. The instructions shall be studied and adhered to in all instances.

Clearances should not be given or accepted on lines or equipment without an open-air break between all sources of supply and the line or equipment on which work is being done. Under certain circumstances, it

may be impractical to obtain an open-air break. Under these circumstances specific methods and equipment, approved by the Host Employer or Management, may be used to obtain clearances. These shall be documented on the Job Briefing form and thoroughly discussed during the job briefing.

Multiple crews working on the same line or equipment must have either a single worker in charge responsible to coordinate all activities or independently comply with the provisions of all standards that apply:

- Hot line tags are important and shall be obtained according to the Host Company's policy.
- Hold Tags shall be attached to all components listed on the clearance instructions.
- Hold Tags shall not be removed without proper authorization!

I. GROUNDING FOR PROTECTION OF EMPLOYEES

Grounding of Lines and Equipment – "If it isn't grounded, it isn't dead!"

All equipment and/or lines that are not properly cleared, tagged, tested for voltage (voltmeter or fuzzing – only above 13.2Y / 7.62 kV) and grounded are energized and shall be worked accordingly.

Note: On secondary lines operating at less than 600 volts, if it becomes impractical to begin or continue work with temporary grounds in place, the grounds may be removed, and the secondary worked without PPE provided that:

- The secondary is isolated from all source voltages
- There is no possibility of induced voltages.



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appropriate Class 0 (only for direct buried cables operating at ≤ 600 V), Class II or III rubber insulating gloves with protectors, a hardhat, safety glasses, FR clothing, and approved rubber overshoes shall be worn when:

- Opening or closing pad mounted or above ground enclosures housing direct buried cables
- Spiking cables
- Performing switching.

Notes:

- For the sole purpose of opening or closing for inspection of underground enclosures, Class II gloves are permitted up to 25 kV phase-to-phase, and Class III gloves are permitted up to 45 kV phase-to-phase.
- Caution must be exercised to determine if any abnormal condition exists, such as, a single phasing condition before opening any pad-mounted enclosure.

The appropriate Class II or III rubber insulating gloves with protectors, shall be worn on both hands at all times when working on or when working within reach or extended reach of MADs of the direct buried cables and associated parts such as elbows and bushings energized at 25 kV or less, phase-to-phase, or 15 kV volts or less phase-to-ground, regardless of the type work being performed. A hardhat, safety glasses, FR clothing, and approved rubber overshoes are also required to be worn.

Note: For voltages from 0 - 600 volts, Class "0" gloves may be worn provided all MADs are maintained at all times. (Note: Class "00" gloves are available for use under 500V)

Unprotected parts of the employee's body may encroach within the MADs of such cables and associated parts. If there is likelihood that any unprotected part of

the body can come into incidental contact with exposed energized parts, protective cover-up shall be installed over such cables and associated parts to prevent any incidental contact. This work may be performed only when absolutely necessary during rain, snow, mist or heavy fog.

The neutral of a direct buried cable is part of the system neutral; thus, cannot be cut or separated without first jumping out the neutral conductor. The semi-conducting covering is a grounded sheath and is a path-to-ground.

Exposed live parts such as live-front terminations operating above 5 kV phase-to-phase or 3 kV phase-to-ground must be worked with live-line tools.

All previously energized primary UD cables, regardless of its condition, must be spiked with an approved spiking tool before cutting the cable.

The energized conductor of an insulated direct buried cable shall be considered within reach or out of reach as follows:

- With the concentric neutral and a semi-conducting covering in place, the conductor is considered out of reach.
- With the concentric neutral removed, and the semi-conducting covering is in place, the conductor is considered within reach. With proper protective equipment in place over the semi-conducting covering, the conductor is considered out of reach.
- With both the concentric neutral and the semi-conducting covering removed, the conductor is considered within reach. Even when adequately covered with proper protective covering and/or physical barriers, any exposed energized terminations shall be considered within reach.
- Note: When making terminations to UD cables in place, exposed energized parts from 0 - 600 volts



EMERGENCY ACTION PLAN

SAFETY MANUAL

A. PURPOSE AND SCOPE

The potential exists at every workplace that natural or manmade disasters can threaten the safety of individuals working at or occupying a facility or jobsite. The goal of this program is to provide an Emergency Action Plan to effectively respond to any threat and provide protection in the event of an incident. This plan describes the basic management procedures that are to be followed during emergencies. It also addresses the requirements for Emergency action plans as identified in General Industry 1910.38 and Construction 1926.35 as well as offers specific actions that are to be taken in response to various emergencies.

B. RESPONSIBILITIES

The response to an incident is both event and location specific. The responsibilities that follow are fundamental to the success of any Emergency Response Plan. Our company may have several representative individuals for each of the following titles at a given location. Depending on the size of the jobsite or location, multiple individuals for each title may share responsibility. These individuals will be identified to the host and/or general contractor at the pre-job meeting and to employees before the job begins.

Safety Director

The Safety Director will:

- Contact Emergency Medical Services (EMS), internal and/or external Emergency Response Units, and/or law enforcement agencies, as needed and if they have not already been contacted.
- Provide communication between the Company, Host Employer General Contractor or Construction Manager and EMS, internal or external Emer-

gency Response Units, and/or law enforcement agencies, as needed.

- Notify the Management of the emergency, and of any actions taken.
- Respond to an incident as instructed by Management
- Provide information to others affected by the emergency (property owners, contractors, etc.) regarding emergency and evacuation procedures, evacuation routes and assembly area(s).
- Interface with all contractors to ensure coordination of their emergency response procedures with this Emergency Response Plan.

Management

The Management will:

- Authorize the Safety Director to serve as the Emergency Response Coordinator. Provide a list of back-up coordinators if the emergency will impact evening and night operations.
- Assess the situation(s) and determine the level(s) of response necessary.
- Consult with the Safety Director and site supervisor, as needed, to assist in the assessment.
- Evaluate the data provided by the Safety Director regarding the situation.
- Provide authorization to respond, including, but not limited to, evacuation of additional areas, buildings, etc. in the vicinity, as needed.
- Establish an Emergency Operations Center (EOC) or determine if one has been established for the jobsite.
- Appoint an Incident Commander to manage the EOC or assign a company representative to the EOC if it has been established by others.



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Location Specific Reporting Instructions

Safety Coordinator: _____

Phone Number: 911 or _____

Employee Emergency

Notification Procedures: _____

Other: _____

Individuals calling in an emergency will:

- State the location (i.e. jobsite address or descriptors, building and floor and location on the jobsite, floor and/or room).
- Identify the type of situation requiring emergency assistance.

Employees are directed to address personal safety first. Calls should be made only when it is safe to do so. Procedures for specific threats are contained in this program.

Emergency Alarm/Employee Notification

The following system(s) are available at the jobsite/workplace to notify personnel of an emergency situation:

- Alarm Bell/Siren
- Voce Broadcast/Bullhorn
- Other: _____

D. ESCAPE ROUTES

When evacuation is necessary individuals will leave by means of the nearest exit using escape routes as designated by the supervisor and assemble at the pre-designated meeting areas.

E. SHELTER-IN-PLACE

Depending on the emergency (tornado, biological or chemical attack or civil disturbance), evacuation or in-place sheltering may be necessary. The supervisor shall identify "shelter in place" locations for employees to respond accordingly to alarms/emergency notifications based on the emergency procedures in this plan.

F. TRAINING

General

The Safety Director reviews the Emergency Response Plan with management. Supervisors train their employees to ensure they have a thorough understanding of the Emergency Response Plan. New employees receive training during their first day of employment.

Special

Personnel assigned to special tasks associated with a given emergency receive training regarding the hazards, control measures and their responsibilities in emergency response. Only employees who are trained in the use of fire extinguishers are directed to use them. All other personnel must evacuate buildings or follow the instructions of emergency response personnel.



EMERGENCY ACTION PLAN

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K. FIRE & EXPLOSION

On jobsites where a fire alarm system is in place, notification of a fire shall be provided through activation of the system by smoke, fire or a pulled alarm.

When an alarm is activated, everyone shall exit the buildings immediately via the appropriate exit-way.

When a fire has been observed and the alarm system has not been activated, employees shall exit the immediate area. As soon as it is safe, they will pull an alarm or follow the instructions in the Emergency Reporting and Notification Procedures.

Where they exist, doors shall be closed behind exiting employees to delay the spread of the fire.

Employees shall move to the safe area 200 feet from the building as identified by the supervisor before the job began.

A headcount will be taken by managers and supervisors to ensure everyone has exited.

Employees shall remain in the safe area until further instructions are provided by the Supervisor, Safety Director or other authority assigned to the area.

L. BOMB THREAT

Employees shall immediately report suspicious object or parcel or bomb threats to their Supervisor or the Safety Director. Suspicious packages shall be identified as having some of the following characteristics:

- Protruding wires, aluminum foil, oil stains and/or emit a peculiar odor.
- Address labels that display restricted endorsements (PERSONAL or PRIVATE.)
- Address labels that are: handmade, written with distorted handwriting or made with cut and paste lettering.
- Address labels that contain inaccuracies in the addressee's name and/or title.
- Display a return address or the return address may be fictitious.
- Having excessive postage.
- Wrapped unprofessionally and irregular shapes, bulges or soft spots in the form of a letter bomb, usually feel rigid and appear uneven or lopsided.

Suspicious Parcel or Object

When a suspicious parcel or object is identified, it shall:

- Not be touched or moved.
- Be isolated and, if possible the area evacuated.
- Kept away from others

Information about the package who handled it, when/ where it was discovered, etc. shall be noted and provided to the safety director or responding agency. Information about the package shall not be shared with any other individuals.

Verbal Telephone Threats

When a verbal telephone threat is received, the following actions are taken:

- The caller shall be kept on the line as long as possible so that you can gather more information. A record of words spoken by the caller should be



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- TURN OFF AND DO NOT USE cellular phones, radios, pagers.
- DO NOT TURN ON/OFF flashlights, lights, alarms, electrical equipment, elevators or other devices capable of producing static electricity, sparks, arcs or open flame.
- If possible, stay away from carpeted areas to avoid sparks of static electricity.
- Do not start vehicles.

Report

- When you are away from the gas leak contact your Supervisor or the Safety Director.
- Safety Director will notify Building Operations or the gas company, as appropriate.

Chemical Attack

Typically notification of a terrorist act will come through local law enforcement agencies. Actions described below offer procedures to follow in the event of a threat. A chemical attack may occur without advance warning. Signs of a chemical attack include many people suffering from watery eyes, twitching, choking, difficulty breathing or losing coordination. Many sick or dead birds, fish or other small animals are also cause for suspicion. The following also provides procedures to follow when an incident occurs without warning.

If a threat of a chemical attack is received, the Safety Director will notify law enforcement.

If necessary and time allows for a safe evacuation of the jobsite, law enforcement will make the decision. Supervisors will be contacted regarding the evacuation.

If time does not permit a safe evacuation or an evacuation would require individuals to pass through

contaminated areas, supervisors will be contacted to instruct employees, other contractors and visitors where to seek shelter. Follow the procedures for in-place sheltering as provided below. Depending upon the security considerations, the PA system may or may not be used.

Supervisors or their designees will take the lead and ensure exterior doors/windows and air vents are closed as quickly as possible.

Staff assigned to the building will turn off all fans and heating and air conditioning systems. Some systems automatically provide for exchange of inside air with outside air. These systems, in particular, need to be turned off, sealed and/or disabled.

If informed there is a possibility or danger of explosion, close the window shades, blinds or curtains as appropriate.

All individuals will be directed to gather whatever essential disaster supplies are available in the building from offices, custodial closets, etc. This includes items such as nonperishable food, bottled water, battery-powered radios, first-aid supplies, flashlights, batteries, duct tape, plastic sheeting and plastic garbage bags.

Select interior room(s) above ground floor with the fewest windows or vents. Room(s) should have adequate space for everyone to be able to sit. Avoid overcrowding by selecting several rooms, if necessary. Large storage closets, utility rooms, pantries, copy and conference rooms without exterior windows will work well. Avoid selecting a room with mechanical equipment like ventilation blowers or pipes. This equipment may not be able to be sealed from the outdoors.



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Response Actions in Case of Spill

- If safe to do so, control the source to prevent further spillage.
- Cover and/or block any and all drains in the spill area to prevent material from entering sewer, storm-water or septic systems.
- Notify emergency contact and/or plant personnel per site procedures.
 - Fire/Rescue: 911 or local number
 - Plant Emergency Contact
- Use absorbent material to contain the spill, (Dry Litter, Absorbent pads or Synthetic Absorbents) or create temporary berms to contain spill.
- Secure the site from unauthorized person(s) to prevent unnecessary exposures.
- If safe to do so and the spill is minimal, clean up the spill and treat it as hazardous. Store in an approved container for proper disposal per approved procedures. If spill is too large, contact appropriate emergency response agencies for assistance.
- Report the spill to proper authorities or appropriate agencies.
 - Local Authority
 - Other Specific Agency: _____

Spill Reporting

As soon as practical, please forward the following information to the plant contact individual, company safety supervisor and/or owner for the proper reporting of accidental spillage and/or release of hazardous substances.

- Location of the spill and time it was discovered.
- Material or substance released in the spill.
- Cause of the spill or release.
- Description of the containment area and the meth-

ods used to contain the spillage.

- Estimate amount of volume released.
- List of personnel exposed during the spill, containment and cleanup, if applicable.
- Weather conditions
- Procedures for preventing future release and spillage of the material involved.

N. EARTHQUAKE

The following procedures shall be followed in the event of an earthquake.

Stay inside until the shaking stops and it is safe to go outside. Most injuries during earthquakes occur when people are hit by falling objects when entering or exiting buildings.

Drop, Cover and Hold On! Minimize your movements during an earthquake to a few steps to a nearby safe place.

If you are indoors, take cover under a sturdy desk, table or bench, or against an inside wall, and hold on. Stay away from glass, windows, outside doors or walls and anything that could fall, such as lighting fixtures, wall hangings or furniture.

If there isn't a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building. Doorways should only be used for shelter if they are in close proximity to you and if you know that it is a strongly supported load-bearing doorway.



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- Stay away from windows, doors and outside walls. Go to the center of the room. Stay away from corners because they attract debris.
- If caught outside with no shelter, lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of the potential for flooding.

Typical locations that offer a good shelter in place for tornados are: basements, hallways, corridors, and internal break rooms. Places to avoid include lobbies, near windows, away from large overhanging fixtures, etc.

P. HURRICANE PREPAREDNESS PLAN

Hurricane / Typhoon:

A storm or cyclone in which the maximum sustained surface wind is 74 mph (119 km/hr) or more. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline. It is important to know the difference between a Hurricane Warning where winds in excess of 74 mph are expected within 36 hours and a Hurricane Watch where winds are possible within 48 hours of announcement.

When a Hurricane Watch is announced, take preliminary precautions and prepare to follow instructions in the event a Hurricane Warning is issued. These include:

- Plan evacuation route for personnel, be site specific
- Contact your local Emergency Management Office or American Red Cross for community hurricane preparedness plan

- Maintain vehicles with fuel for evacuation
- Maintain supplies for personnel to include:
 - Flashlights and batteries
 - Portable radio and batteries
 - First-Aid kit
 - Drinking Water and non-perishable food supplies
 - Can opener (manual type)
 - Remind employees to have all medicines and prescriptions needed
- Secure Tools, Equipment, and Vehicles remaining onsite
 - Secure all portable tools and equipment in storage units and lock for safety and security
 - Safety secure any material left onsite and exposed
- Turn off all temporary electrical wiring to prevent damage and/or exposure to live electrical potential during the emergency
- Tape or protect windows with minimum 1/2" plywood
- Ensure all tie-downs are in place and used

Follow all instructions from Emergency Management Office and State/Local Officials and Deputies responsible for the coordination and evacuation of individuals located within the Hurricane Warning/Watch region.

Q. WORKPLACE VIOLENCE

Intervention is the key to workplace violence situations. Employees shall report any pattern of behavior and attitude that causes concern to their supervisor and/or the Safety Director. The Safety Director will work with the appropriate entities to discuss procedures for diffusing the situation. For crimes in prog-



FALL PROTECTION

SAFETY MANUAL

A. PURPOSE AND SCOPE

Fall hazards are a major concern in our industry. This program has been developed to ensure that all employees are protected from these hazards while working on elevated surfaces and to comply with OSHA 29 CFR 1926 Subpart M Fall Protection.

B. RESPONSIBILITIES

Safety Director

The Safety Director will:

- Coordinate the type of fall protection (fixed protection systems or PPE) to be used on the jobsite with the general contractor/host/construction manager.
- Will ensure that all fall protection equipment meets required specifications for the intended use.
- Ensure that all personnel required to use fall protection equipment have been medically qualified and trained in the proper use of the equipment.

Supervisors

Supervisors will:

- Ensure that personal fall protection systems are used where required.
- Will inspect fall protection equipment on a weekly basis.

Employees

Employees will:

- Be trained to recognize fall hazards and the procedures to minimize these hazards.
- Use personal fall protection equipment as trained.
- Inspect their fall protection equipment before each use.

- Inform their supervisors of any conditions that may hinder their ability to work at heights or use personal fall arrest equipment.

C. INSTALLATION AND USE OF EQUIPMENT

All equipment will be installed and used in accordance with OSHA standards and the manufacturer's instructions.

The installation and use of equipment will be inspected and approved by a competent person. All equipment will be used only for the application for which it was designed.

D. FALL PROTECTION EMERGENCIES

Potential fall emergencies will be evaluated.

An equipment inventory will be conducted by the supervisor before each job where fall protection is required.

The supervisor will ensure that fall protection equipment or tools are available for post-fall recovery (ladders, scaffolds, man-lifts etc.), emergency phone numbers are posted and first-aid equipment and personnel are prepared to respond to a fall emergency.

E. TRAINING

Employees will receive annual training on the use of fall protection. Training will include information on the use of fall protection equipment, inspection, installation and maintenance, OSHA Safety Standards and company procedures. Training will consist of toolbox talks and hands-on demonstrations. Re-training will be provided as needed.



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impact energy of an employee free falling six (6) feet (or the free fall distance permitted by the system, whichever is less)

- Be inspected prior to each use for damage and deterioration
- Be removed from service if any damaged components are detected.

All components of a fall arrest system shall meet the specifications of the OSHA Fall Protection Standard, and shall be used in accordance with the manufacturer's instructions.

- The use of non-locking snaphooks is prohibited.
- Dee-rings and locking snaphooks shall:
 - Have a minimum tensile strength of 5000 pounds
 - Be proof-tested to a minimum tensile load of 3600 pounds without cracking, breaking or suffering permanent deformation.
- Lifelines shall be:
 - Designed, installed and used under the supervision of the Safety Director
 - Protected against cuts and abrasions
 - Equipped with horizontal lifeline connection devices capable of locking in both directions on the lifeline when used on suspended scaffolds or similar work platforms that have horizontal lifelines that may become vertical lifelines.
- Self-retracting lifelines and lanyards must have ropes and straps (webbing) made of synthetic fibers, and shall:
 - Sustain a minimum tensile load of 3600 pounds if they automatically limit free fall distance to two (2) feet; or
 - Must sustain a minimum tensile load of 5000

pounds where they do not limit free fall to 2', (includes ripstitch, tearing, and deforming lanyards).

- Anchorages must support at least 5000 pounds per person attached and shall be:
 - Designed, installed, and used under the supervision of the Safety Director
 - Capable of supporting twice the weight expected to be imposed on it
 - Independent of any anchorage used to support or suspend platforms.

Safety Monitoring Systems

In situations when no other fall protection has been implemented, the Safety Monitor shall monitor the safety of employees in these work areas. The Safety Monitor shall be:

- Competent in the recognition of fall hazards
- Capable of warning workers of fall hazard dangers
- Operating on the same walking/working surfaces as the employees and able to see them
- Close enough to work operations to communicate orally with employees
- Free of other job duties that might distract them from the monitoring function.

No employees other than those engaged in the work being performed under the Safety Monitoring System shall be allowed in the area. All employees under a Safety Monitoring System are required to promptly comply with the fall hazard warnings of the Safety Monitor.

Warning Line Systems

Warning line systems consisting of supporting stanchions and ropes, wires or chains shall be erected around all sides of roof work areas.



FIRE PROTECTION/ PREVENTION PROGRAM

SAFETY MANUAL

A. PURPOSE AND SCOPE

The goal of the Fire Protection program is to establish safety rules regarding the prevention and response to workplace fires. This written program works to create and maintain a safe work environment as required in 29 CFR 1926 Subpart F as well as 1926.50 (First Aid), 1926.65 (Hazardous waste/emergency response) and 1926.35 (Emergency action plans).

B. RESPONSIBILITIES

Safety Director

The Safety Director will:

- Develop, implement and administer a site-specific fire prevention and protection program that will cover all jobsite offices and storage trailers, temporary warehousing and material laydown areas, vehicles and mobile equipment and work activities.
- Ensure firefighting equipment is installed and maintained at all jobsites, in vehicles and work areas.
- Identify fire hazards at the jobsite.
- Conduct fire safety training sessions that will include actual and potential fire hazards, causes of workplace fires and the procedure for work area inspections and hazard elimination or control.

Supervisor

The Supervisor will:

- Take prompt corrective actions whenever unsafe fire conditions or acts are identified.
- Inspect entire work area to ensure flammables are stored correctly and adequate fire protection is provided in all areas.

Employees

Employees will:

- Comply with all site fire prevention rules including, but not limited to, proper flammable storage.
- Know the emergency telephone number to call in case of a fire emergency.
- Report all fires immediately by way of telephone or radio and notify other nearby workers.
- Be trained to recognize potential fire hazards and the location and operation of the fire extinguisher that is located on the jobsite.
- Maintain a fire-safe work area.

C. FIRE EMERGENCY NOTIFICATION PROCEDURES

Employees will be trained in the established emergency notification procedures.

Emergency telephone numbers will be posted within each jobsite trailer that is equipped with a telephone as well as other jobsite locations such as the material laydown areas, vehicles and mobile equipment refueling areas, personnel change trailers and work areas.

All employees will immediately report all fires by calling the project's emergency phone number.

Employees will report a fire emergency on a site radio when no telephone is located nearby.

D. PORTABLE FIRE EXTINGUISHERS

Portable Fire Extinguishers rated for the potential hazard will be installed, maintained and inspected in accordance with 29 CFR 1926 Subpart F.



FIRE PROTECTION/ PREVENTION PROGRAM

SAFETY MANUAL

Smoking or open flames will not be permitted in flammable liquid storage areas. Signs prohibiting smoking must be posted.

G. TRAINING

Employee training will include, but is not limited to, the following:

- The ability to identify the causes of workplace fires
- The procedures for workplace inspections to eliminate or control fire hazards
- Identify and describe the three classes of fires and which type of fire extinguisher that should be selected to fight each class.
- Describe actions that should be taken in the event of a fire, the sounding of a fire alarm and what to do when responding to a fire victim.
- Demonstrate competence in the use of a portable fire extinguisher and how to fight a fire. Remember the "PASS" method, "P" - Pull, "A" - Aim (at the base), "S" - Squeeze (the trigger or handle) and "S" - Sweep (Side to Side).

NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION

SAFETY MANUAL

There are two Signal Words to be used:

- "Danger" – Most Severe Hazard
- "Warning" – Less severe than Danger

Pictograms must be in the shape of a square set at a point and have a black hazard symbol on a white background within a red frame that represent a distinct hazard. OSHA has designated nine pictograms under this standard.

HCS PICTOGRAMS AND HAZARDS

Health Hazard  ▪ Carcinogen ▪ Mutagenicity ▪ Reproductive Toxicity ▪ Respiratory Sensitizer ▪ Target Organ Toxicity ▪ Aspiration Toxicity	Flame  ▪ Flammables ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Self-Reactives ▪ Organic Peroxides	Exclamation Mark  ▪ Irritant (skin and eye) ▪ Skin Sensitizer ▪ Acute Toxicity ▪ Narcotic Effects ▪ Respiratory Tract Irritant ▪ Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  ▪ Gases Under Pressure	Corrosion  ▪ Skin Corrosion/Burns ▪ Eye Damage ▪ Corrosive to Metals	Exploding Bomb  ▪ Explosives ▪ Self-Reactives ▪ Organic Peroxides
Flame Over Circle  ▪ Oxidizers	Environment (Non-Mandatory)  ▪ Aquatic Toxicity	Skull and Crossbones  ▪ Acute Toxicity (fatal or toxic)



HAZARD COMMUNICATION

SAFETY MANUAL

The purchasing department will make it an ongoing part of its function to obtain SDSs for all new materials when they are first ordered.

The Safety Director or designee shall coordinate with other employers on the job site to make sure all SDSs are obtained, distributed and communicated.

G. LIST OF HAZARDOUS SUBSTANCES

A chemical inventory is compiled, periodically reviewed and updated as necessary. This list is based on materials defined in any applicable federal and state standards.

The inventory list is maintained on the job site along with the SDS information.

H. EMPLOYEE INFORMATION AND TRAINING

A copy of the program or employee HAZCOM handbook will be given to all employees during the orientation meeting. Subsequent to this, the program will be available from supervisors or the Company office.

All employees must participate in an orientation meeting for information and training on the following items prior to starting work with hazardous substances:

- An overview of the requirements of the Hazard Communication Standard, including their rights under this regulation.
- Information on where hazardous substances are present in their work areas.
- Information regarding the use of hazardous substances in their specific work areas.
- The location and availability of the written Hazard Communication Program.
- The physical and health hazards of all substances in use.

- Methods and observation techniques used to determine the presence or release of hazardous substances in the work area.
- The controls, safe work practices and personal protective equipment that are available for protection against possible exposure.
- Emergency and first-aid procedures to follow if employees are exposed to hazardous substances.
- How to read container labels and Safety Data Sheets (SDSs) to obtain the appropriate hazard information.
- Refresher training will be conducted annually.
- When new substances are introduced into the jobsite or workplace the Safety Director will review the above items with affected employees as related to the new materials.

The Safety Director will relay all the above information to new employees who will be working with hazardous substances, prior to their starting work.

I. NON-ROUTINE TASKS

Infrequently, employees may be required to perform non-routine tasks that involve the use of hazardous substances. Prior to starting work on such projects, each involved employee will be given information by his or her supervisor about hazards to which they may be exposed during such an activity.

This information will include:

- The specific hazards caused by the substance
- Protective and safety measures that must be utilized
- The measures the Company has taken to lessen the hazards, including special ventilation, respirators, and the presence of another employee, air sample readings, and emergency procedures.



HOUSEKEEPING

SAFETY MANUAL

A regular collection, grading and sorting of scrap will be conducted. Contract Documents will determine who has ownership of any material that is demoed or removed. No Employee is allowed to remove or take possession of any material removed during demolition or renovation without expressed written consent of the owner and/or the contractor.

Scrap containers will be kept near where the waste is produced to encourage orderly waste disposal and make collection easier.

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LADDERS AND STAIRWAYS

SAFETY MANUAL

- All parts of stairways will be free of hazardous projections, such as protruding nails.
- Spiral stairs should not be used on a construction site.
- Stairway systems and ladders and their use must comply with 29 CFR 1926 Subpart X.
- Understand the regulations governing the use of ladders and stairs.
- Inspection of ladders and the tagging for those found to be damaged or defective.
- Inspection of stairways for use and maintenance.

D. TRAINING

Employee training will include, but is not limited to, the following:

- Identification of the hazards associated with ladders and stairs.
- Use of the equipment safely.

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MATERIAL HANDLING

SAFETY MANUAL

A. PURPOSE AND SCOPE

The goal of the Material Handling Program is to reduce the number of material handling injuries and to increase efficiency. This can be accomplished by minimizing material handling by combining or eliminating operations.

This written program works to create and maintain a safe work environment as required by 29 CFR 1926 Subparts H, O, and CC.

B. RESPONSIBILITIES

Safety Director

The Safety Director will:

- Determine mechanical means for moving materials when possible in order to avoid injuries such as muscle pulls, strains and sprains.
- Have cranes, derricks, hoists, powered industrial trucks and conveyors handle loads too heavy or bulky to handle manually.
- Ensure required inspections are performed and documentation maintained for all cranes and derricks.
- Ensure that cranes and derricks are operated by competent persons.
- Ensure protection is made available from falling hazards.
- Ensure employee training is provided on the selection, inspection, use and maintenance of material handling equipment.
- Ensure that before assigning employees to jobs that require heavy and/ or frequent lifting, they have been cleared as physically able to perform these tasks.

Supervisor

The Supervisor will:

- Plan for the receipt, shipment and/ or storage of materials.
- Ensure materials are kept at a proper distance from hoist-ways, inside floor openings and exterior walls.
- Ensure materials are stacked according to load limits, keeping passageways clear and arranged to prevent sliding, falling or collapse.
- Ensure that when using any manual handling equipment employees will follow all manufacturers' instructions.

Employees

Employees will:

- Be trained in the selection, inspection, use and maintenance of material handling equipment.
- Use mechanical means to move material whenever possible.
- Follow manufacturers' instructions when using manual material handling equipment.
- Be trained to recognize hazards and to protect themselves and prevent accidents.
- Recognize and respond to signs, signals, barricades and other forms of warning found at the jobsite.

C. MATERIAL HANDLING ACTIONS

Handling and Storage

If a load is too large for one employee, two are to be assigned to the task or material handling equipment supplied.

PPE, such as gloves, hand leathers or other hand protectors, are to be used to prevent hand injuries.



MATERIAL HANDLING

SAFETY MANUAL

- How to recognize hazards and to protect themselves and prevent accidents
- Selection, inspection, use and maintenance of material handling equipment
- How to properly position and stack materials
- Recognition of and response to signs, signals, barricades and other forms of warning found at a jobsite.

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MEDICAL / FIRST-AID

SAFETY MANUAL

- b. If victim is conscious ask how the injury occurred and the extent of the injuries.
 - c. If the victim is unconscious, check for breathing and pulse. Administer CPR and get the AED if one is available. Provide mouth to mouth resuscitation and/ or CPR if needed.
3. Call Emergency Medical Services, (EMS)
- a. Depending on geographic location, this may be 911 or you may need to dial a local number.
 - b. Give a thorough description of the accident scene, the victim's condition and what first-aid is being given. Provide the location of the victim to the authorities and any special instructions that EMS responders may need.

D. TRAINING

In addition to any basic or advanced first aid and BLS training given to employees, they will also receive training to include, but not limited to:

- Responding to emergency situations of the jobsite
- Correctly transmitting information involving a medical emergency to emergency personnel
- Knowing the correct number to call when accessing emergency personnel; If 911 is available or there is a local number.
- Blood-borne Pathogen Training if they are a First Responder or there is a possible exposure with their job duties and responsibilities.

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PERSONAL PROTECTIVE EQUIPMENT

SAFETY MANUAL

Specialized PPE will be provided as needed by the employer for employees. This may include, but is not limited to:

- Head protection
- Hearing protection devices
- Fall protection devices
- Hand protection equipment
- Life-lines and harnesses
- Respirators
- Specialty footwear
- Specialty illumination equipment
- Any other specialty equipment or devices required to be safe on the jobsite
 - Rubber insulating gloves and protectors
 - Rubber insulating blankets
 - Rubber insulating line hose
 - Rubber insulating hoods
 - Insulating shields and/or barriers
 - Rubber insulating sleeves, if required
 - Rubber matting for use around an electrical apparatus.

PPE that has been modified in a way that is not supported by the manufacturer or that reduces its effectiveness will be repossessed, repaired or destroyed.

Any PPE that has been previously worn or used will not be reissued to another employee until it has been inspected, repaired, if necessary, according to manufacturers recommendations, cleaned, sterilized and repackaged.

Employee Compliance and Enforcement

The Supervisor will conduct daily field inspections to ensure employees are wearing all necessary PPE.

All PPE will meet or exceed the applicable requirements of NIOSH, OSHA, ANSI and/or any other applicable agency or standard.

Employee Safe Work Practices

Employees will follow these safety rules:

- An appropriate hard hat will be worn when there is danger of impact, falling or flying objects or electrical shock
- Impact-resistant safety glasses with side shields will be worn when there is danger of materials striking the eye
- Non-vented safety goggles will be worn if working with materials or chemicals that could damage the eyes
- Face shields will be worn, as needed, to protect the face from flying objects
- Proper shoes or boots will be worn to protect against foot injuries
- Protective clothing, appropriate for the task at hand, will be worn, where specified in the job briefing document.

D. TRAINING

Employee training will include, but not be limited to:

- Recognizing hazards on the jobsite that require PPE
- How to determine the appropriate PPE to avoid potential injuries,
- The correct way to inspect, put on, remove, use, care, store, clean and maintain each piece of PPE, as needed
- The limitations of the PPE employees are required to use.



PERSONAL PROTECTIVE EQUIPMENT

SAFETY MANUAL

- Read and follow all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations. Note: If a respirator is used improperly or is not kept clean, the respirator itself can become a hazard to you.
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and the level of protection it provides.
- Not wear respirators into atmospheres containing contaminants for which the respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect against gases, vapors, or very small solid particles of fumes or smoke.
- Keep track of the assigned respirator so that you do not mistakenly use someone else's respirator.
- Be medically evaluated prior to respirator use.
- Be responsible for properly cleaning, storing and maintaining their respirators.
- The employee reports medical signs or conditions related to respirator use
- At the request of a supervisor, Physician or Licensed Health Care professional (PLHCP) or a respirator program administrator
- When observations or information indicate a need for an evaluation
- When a change in the workplace conditions increase the physiological burden on an employee

Exception: This does not apply to an employee whose only use of respirators involves the **voluntary use of filtering face pieces (dust masks)**.

Medical evaluations will be kept on file in personnel records and by the medical evaluator.

Respirator Selection

Respirators will be selected based on Hazard Assessment, that are NIOSH-certified and used in accordance with the conditions of certification. A representative number of respirator models and sizes will be available to ensure that employees will be able to select a comfortable, properly fitted respirator.

Fit Testing

Note: this is an option that can be selected by the Company.

All employees wearing a tight fitting face piece respirator must pass a Qualitative or Quantitative fit test.

The fit test will be given after the medical evaluation is completed and before respirator use is permitted. Re-testing will be done annually or when there is a change in physical condition that could affect respirator fit.

Respirator Use

No employee will be allowed to wear a tight-fitting face piece respirator with a beard or when any facial hair

Medical Evaluations

Medical evaluations will be given to determine the employee's ability to wear a respirator. This evaluation is confidential and will not be seen by the Company. The evaluation includes a medical questionnaire to be completed by the employee and returned to the Medical Evaluator. The Medical Evaluator will contact the employee if a medical exam is required. Medical exams will be necessary if an employee responds "yes" to Questions 1 through 8 on the questionnaire or:



PERSONAL PROTECTIVE EQUIPMENT

SAFETY MANUAL

HEARING CONSERVATION

A. PURPOSE AND SCOPE

This program is developed to comply with 29 CFR 1910.95 and 29 CFR 1926.52 Occupational Noise Exposure to ensure the protection of employees from hearing loss. The extent to which the elements of this program will be implemented depends on the noise levels present. Whenever employee noise exposure equals or exceeds the 8 – hour time-weighted average (TWA) noise level of 85 decibels, A scale – slow response; i.e., the action level, this program will be implemented in its entirety. When noise does not exceed these levels, but hearing protectors are provided for comfort responsibilities and actions will be limited to training, selection and the safe use of the protectors.

B. RESPONSIBILITIES

If necessary, personal monitoring will be conducted by:

If necessary, audiometric testing will be provided by:

Safety Director

The Safety Director will:

- Conduct noise monitoring as needed, but may rely on noise exposure data from the host employer, and arrange for a proper hazard assessment to determine the proper type of hearing protection to be used.
- Train employees to recognize potential workplace environmental noise hazards.

- Train the employees in the proper selection, use, care, cleaning, storage and limitations of the hearing protection.
- Make a copy of the standard and all records related to the standard available to all employees upon request and as needed.

Supervisor

The Supervisor will:

- Ensure that employees who are exposed to hearing hazards have and use the appropriate hearing protection.
- Ensure that a copy of the standard is posted as needed.

Employees

Employees will:

- Be trained to recognize workplace environmental noise hazards and the appropriate measures to protect themselves including, but not limited to, hearing protection.
- Use hearing protection when conditions warrant its use.

C. ACTION DETAILS

A copy of the standard and all records related to the standard are available to the employees upon request from: _____.

The standard has been posted at _____.

The exposure measurements and audiometric tests shall be kept on file at _____.



SCAFFOLD SAFETY PROGRAM

SAFETY MANUAL

A. PURPOSE AND SCOPE

Falls are the leading cause of fatalities in the construction industry and represent a major hazard in all industries. This program is in accordance with OSHA's Scaffold Standard 29 CFR 1926 Subpart L which includes platform and suspended scaffolds as well as aerial lifts. It establishes those responsibilities and is a basic component of the company's safety and health program.

B. RESPONSIBILITIES

Safety Director

The Safety Director will:

- Ensure that equipment is provided for safe erection, dismantling, and use of scaffolds, including fall protection systems as needed.
- Ensure scaffolds are erected in accordance with Subpart L of 29 CFR 1926, OSHA Scaffold Standard.
- Make certain that scaffolds which are beyond the scope of the conditions described in 29 CFR 1926 Subpart L will be designed by a registered, professional engineer.
- Provide a competent person to perform inspections and ensure compliance with Subpart L, OSHA's Scaffold Standard.

Supervisor

The Supervisor will:

- Ensure that damaged or unsafe scaffolds and/or components will be clearly tagged "DO NOT USE" and removed from service.
- Ensure that scaffolds constructed by other trades which employees are instructed to use are inspected and approved by a competent person before employees are allowed to use them.

- Make certain all employees are trained in the safe erection, dismantling, and use of scaffolds.
- Ensure that current operating and safety manuals are placed in each lift to be used by lift operators.

Employees

Employees will:

- Participate in all training programs associated with the erection, dismantling and use of scaffolds.
- Obey the rules for the safe erection, dismantling, and use of scaffolds as identified in Subpart L, OSHA Scaffold Standard.
- Check with the company's competent person each day before using a scaffold to ensure it has been inspected and approved.
- NOT USE scaffolds erected by other trades unless approved by the company's designated competent person.
- Report all hazards immediately to their supervisor.
- Inspect and operate lifts according to the manufacturers' operating and safety manuals
- Receive training in recognizing the hazards associated with the operation of and/or working near aerial and scissor lifts.

C. AERIAL LIFTS

Aerial lifts include boom-supported aerial platforms, such as cherry pickers or bucket trucks. The major causes of fatalities are falls, electrocutions, and collapses or tip overs. To avoid these potential fatalities, the following safe work practices will be observed:

- Elevating work platforms will be maintained and operated in accordance with the manufacturer's instructions.



SCAFFOLD SAFETY PROGRAM

SAFETY MANUAL

- Proper use of the scaffold and handling of materials on the scaffold
- The importance of observing the maximum intended load and the load-carrying capacities of the scaffold in use.
- The ability to recognize the hazards associated with the type of aerial lift in use
- Identification of procedures to control or minimize hazards associated with aerial lift use.

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TRENCHING AND EXCAVATIONS

SAFETY MANUAL

The competent person will consult with a Registered Professional Engineer (RPE) for trenches over 20'.

Inspections of equipment and trench conditions will be performed by the competent person at the start of each shift or as needed by changing conditions.

Sufficient means for exiting excavations 4 feet deep or more shall be provided and are within 25 feet of lateral travel for employees.

Soil conditions will be determined by visual and manual tests to determine stability of soil and surrounding trench conditions.

NOTE: If visual and manual tests are not performed, soils shall be classified as type "C".

Ramps and walkways will be provided for employee use in accordance with OSHA standards.

Employees will not be permitted to work in excavations where water has accumulated or is accumulating unless adequate precautions have been taken. Diversion ditches, dikes, or other means shall be used to prevent surface water from entering an excavation and to provide drainage to the adjacent area.

Tests will be performed for the presence of oxygen and air quality in excavations as needed. The competent persons on site will be qualified in identifying confine/hazardous spaces due to the presence of flammable/combustible gases, toxics, oxygen deficiency and oxygen enriched environments.

While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees. Adjacent structures shall be supported to prevent possible collapse.

Employees will not be permitted under loads that are handled by lifting or digging equipment. Employees

will not be allowed to work near the excavation above other employees unless the lower level employees are adequately protected.

Records for the protection systems used will be maintained on site.

Appropriate emergency rescue equipment will be available to meet existing or potential conditions.

C. SLOPING

Where sloping is used to protect employees from cave-ins the angle of incline shall be determined using the following; soil type, environmental conditions of exposure, and application of surcharge loads. Where soil type is the predominant factor the following angles will be observed.

<u>Soil or Rock Type</u>	<u>Maximum Allowable Slopes (H:V) For Excavations Less Than 20 Feet Deep</u>
Stable Rock	Vertical (90°)
Type A	¾:1 (53°)
Type B	1:1 (45°)
Type C	1½:1 (34°)

D. SOIL CLASSIFICATIONS

The following describes the types of soils our company may work in.

Type A

Cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater.



TRENCHING AND EXCAVATIONS

SAFETY MANUAL

- Recognition of hazards that could affect the safety of a trench or excavation
- Correct methods of access and egress of a trench or excavation
- The appropriate forms of PPE necessary while working in and around a trench or excavation
- The correct placement of materials and excavation materials to the edge of the trench or excavation
- The correct protective system to be used and its correct installation

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VEHICLE SAFETY POLICY

SAFETY MANUAL

- Supervisors will be notified immediately of any legal citations received while operating a vehicle on or off the job.
- All accidents will be reported following established company procedures.
- The Company Substance Abuse policy must be observed at all times. Vehicle will not be used while under the influence of alcohol, illegal drugs or hazardous prescription medication. Employees will not ride with anyone under the influence of alcohol, illegal drugs or hazardous prescription medication.
- All traffic laws will be obeyed and vehicles operated in a safe and courteous manner at all times.
- If personal vehicles are used on company business employees shall ensure that their vehicles meet all standards established for company vehicles.

D. TRAINING

All employees that will use company vehicles will receive training conducted by a qualified person. The training program will cover, at a minimum, the following elements:

- Pre-trip and post-trip inspections on all vehicles they are assigned to operate
- Hazards of driving while impaired
- Use of protective equipment, emergency equipment and vehicle safety systems
- Hazards associated with vehicle operation and the action to take in the event of an emergency
- Checking the weight of vehicles to prevent overloading
- Distributing and securing loads properly
- Special training for drivers who haul hazardous substances
- Establish a plan to monitor the vehicle safety program.

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WELDING AND HOT WORK

SAFETY MANUAL

ated with any particular type of hot work. The Company will also rely on any hazard assessment information that can be provided by the Host Employer.

D. HOT WORK PERMIT AREAS

Hot work areas will be inspected before hot work begins and/or during hot work activities. The fire alarm systems or devices may be disabled as directed by the Host Employer. Restrictions on duration of any hot work are usually at the discretion of the Host Employer. Most hot work permits are:

- Specific to a hot work activity
- In the designated area
- For the designated time frame.

Where hot work activities are to be performed, the Safety Director or his/her designee will meet with the Host Employer to discuss any additional precautions that may have to be implemented to protect the safety and health of Company employees who may be working in the vicinity of the hot work activities. This could include using barrier tape to designate the area(s) where special clothing or personal protective equipment is required to work within the designated area. If it is decided that special precautions are necessary to protect Company employees, the affected employees will be notified and given an opportunity to discuss their concerns during the job briefing.

E. TRAINING

All employees working in the vicinity of hot work activities will be informed of the:

- Health and safety hazards of an employee associated with the type of hot work that may occur
- Proper selection of protective clothing and personal protective equipment that may be required to work in the vicinity of hot work activities
- Elements of this Hot Work Guidance Program.