



Proof of Training

Print name: _____ Signature: _____ Date: _____

High Voltage Electrical Safety Program

Summary

Unger Construction's High Voltage (>600 volts) Electrical Safety Program is closely linked and integrated with our Electrical Safety and NFPA 70e Programs. In fact much of the information is the same. You need to have read, understood and demonstrated competency with the requirements of those programs to Unger Construction's Superintendent and the Safety Director before you will be authorized to work on electrical systems > 600 volts.

Working on the equipment in a de-energized state is required unless de-energizing introduces an increased hazard or is infeasible. This program is designed to help ensure that energized high voltage electrical work on an Unger Construction project is performed safely by authorized employees, who are trained and provided with the appropriate safe work procedures, protective equipment and other controls.

Purpose

The purpose of this program is to establish minimum standards to prevent hazardous electrical exposures to personnel and ensure compliance with regulatory requirements applicable to electrical systems. The program is intended to ensure the employees are protected against electrical shock, burns and other potential electrical safety hazards as well as comply with regulatory requirements.

Scope

This program applies to all of Unger Construction's subcontractors working with Unger Construction employees, vendors, visitors, and client representatives performing energized electrical work over 600 volts. This includes all maintenance, repair, and diagnostic procedures involving energized electrical equipment.

Responsibilities

Management (Board of Directors and Project Managers)

Management is responsible for ensuring that the materials (e.g., tools, equipment, personal protective equipment) and other resources (i.e., worker training materials) required to fully implement and maintain this program are readily available where and when they are required. Additionally, management will monitor the effectiveness of the program, provide technical assistance as needed, and review the program bi-annually.

Program Manager

Dave Simpson is responsible for the development, documentation, training and administration of the program. This position carries the responsibility of insuring this program is adhered to and that proper reporting is executed.

Supervisors (Superintendents and Foreman)

Supervisors are responsible for ensuring that a task specific job hazard analysis (JHA), also known as a safe work plan, is developed. The JHA will select, implement and document the appropriate site-specific control measures as defined within this policy. Supervisors will direct the work in a manner that ensures the risk to workers is minimized, adequately controlled and that practices defined by this policy will be followed. Supervisors are responsible for ensuring Unger Construction employees and subcontractors are following expectations. Supervisors will be held accountable for enforcing the requirements of this program. Undesirable behavior will not resolve itself, therefore supervisors must be directly involved with modifying behaviors inconsistent with program expectations. Supervisors will be held accountable for enforcing Unger Construction's disciplinary program.

Workers (Employees and Subcontractors)

Unger Construction has high expectations and requires safety excellence for each employee, crew, project and for our entire company. Workers are required to follow the minimum procedures outlined in this program. Workers are responsible for knowing the hazards and the control measures established in the JHA. Workers are responsible for using the assigned PPE in an effective and safe manner. Workers are responsible for stopping unsafe acts and correcting unsafe conditions on the spot as soon as they are discovered. Any deviations from this program must be immediately brought to the attention of your supervisor. Workers that choose to conduct themselves in a manner that is inconsistent with these expectations will be held accountable for those decisions and may incur disciplinary actions.

Hazardous Material Survey

Unger Construction requires hazardous materials surveys before demolition or renovation work begins. The survey shall include all of the following: A visual inspection of a facility or a portion thereof for suspect materials, sampling and laboratory analysis of any suspect materials found for the presence of asbestos. The hazardous materials survey will also furnish a written report that includes: a description of the area(s) visually inspected, a detailed description of any suspect material sampled, the results of any laboratory analysis of suspect materials, the method of analysis, and the total amount of asbestos containing material. Typically a floor or roof plan is included with the report to reference the written information visually.

The person conducting the survey must be certified pursuant to OSHA and/or EPA regulations. The survey may be performed by a certified Site Surveillance Technician (SST) under the supervision of a licensed consultant. Note: The survey may be performed by a certified Site Surveillance Technician (SST) under the supervision of a licensed consultant. Note: The survey needs to be kept in a project file so that it can be accessed when working on future projects.

If lead or asbestos have been confirmed to be present employees and subcontractors must follow Unger Construction's Lead and/or Asbestos program. If hazards such as asbestos or lead will be disturbed

during remediation, a properly licensed professional must perform the work and follow appropriate regulations.

Job Hazard Assessment (Safe Work Plan)

Unger Construction utilizes JHA's as our means of hazard assessment and establishing a safe work plan. JHA's are performed by supervisors and/or workers. Our library of hazard assessments is maintained on the "S" drive. Before beginning a new task refer to the JHA library, generally speaking all scopes of our work are covered. For situations that have not yet been covered select one that is substantially similar and use it as a baseline. JHA's on the "S" drive are organized by work area and job description. JHA's include strategies for elimination, substitution, engineering and administrative controls. After applying all appropriate reduction and elimination technique, the remaining hazards will be analyzed and the proper PPE to reduce the hazards will be selected. PPE will be identified for hazards that are in the process of being reduced or eliminated and/or when hazard-reduction efforts are not 100% effective in eliminating the hazards.

For complex or moderate to high hazard tasks, tasks where an additional level of safety planning is needed, the safety director will perform the JHA with the supervisor and workers.

Requirements

Only a Qualified High Voltage Electrical Worker is allowed to work on energized conductors or equipment connected to energized high-voltage systems. Whether a person is considered to be a "qualified" person will depend upon various circumstances. It is possible and, in fact, likely for an individual to be considered "qualified" with regard to low voltage <600 volts, but "unqualified" to work on high voltage equipment. Working on high voltage systems is a two person job; no worker shall be assigned to work alone. An employee who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties.

Determining which employees are Qualified High Voltage Electrical Workers and are allowed to work on energized systems. Unger Construction will work together with the Safety Manager of the Electrical Subcontractor to determine who is a designated Qualified High Voltage Electrical Worker. A Qualified High Voltage Electrical Worker is person who has a minimum of two years' experience with high voltage circuits and equipment, knowledge level and familiarity with the tools and equipment for performing energized electrical work on high voltage systems and who has demonstrated based upon observation consistent electrical safe work practices and other safe behaviors to Unger Constructions Superintendent and Safety Director.

Preparation and Planning

An approved Job Hazard Analysis (JHA), Standard Operating Procedure (SOP), Energized Electrical Work (EEW) Permit is required for all high voltage activities.

Pre-work Discussion

Before starting the tasks a pre-work discussion will take place between the Qualified High Voltage Electrical Workers and Unger Constructions superintendent. The discussion will ensure the workers Understand; how to use special tools and special work procedures for greater than 600 volts; know the clearance requirements for high voltage equipment, barrier and barricading requirements; the hazards associated with high voltage equipment, procedures and tools for extracting personnel from energized circuits and providing rescue and resuscitation.

During the time that work is being performed on any exposed conductors or exposed parts of equipment connected to high voltage systems, a Qualified High Voltage Electrical Worker, or an employee in training, “the observer” must be in close proximity. The primary role of the observer is a second set of eyes to help prevent an accident and to render immediate assistance in the event of an accident. The observer must be provided with and use personal protective equipment (PPE) that is appropriate for the specific work to be performed. Review the tables in NFPA 70e.

Pre-work Inspection

The electrical tools and protective equipment must be specifically approved, rated, and tested for the levels of voltage of which an employee may be exposed. Insulating equipment shall be marked with the latest test date or the next test due. Tools, PPE and insulating equipment must be inspected per Unger Constructions Electrical Safety Program before work can begin. Protective shields, barricades to isolate unauthorized employees or pedestrians from entering the work area and work space clearances as specified in NFPA 70e shall be inspected. Additionally, the inspection will ensure clear escape path from the work space to a safe exit point.

Test Equipment Inspection

All electrical test equipment must be inspected for damage before use. The equipment must not be used if it is damaged or if its functionality is questionable. Equipment must be handled in a manner that will not damage the equipment. Prior to each use, electrical test equipment, such as voltmeters, must be verified to be functional. This is accomplished by testing the voltmeter on a known voltage to verify correct readings. After metering or testing is completed, the voltmeter should again be tested on a known voltage to verify functionality of the voltmeter.

Overriding Safety Interlocks

Overriding safety interlocks are often required when performing metering, in emergency situations, or when troubleshooting equipment with the power on (i.e., energized electrical work). The following safe work practices shall be followed: Overriding safety interlocks shall only be performed by Qualified High Voltage Electrical Workers who are experienced with the equipment being serviced and understand the consequences of overriding the interlocks (NOTE: Interlocks must not be used as the sole means of de-energizing equipment); Work areas must be marked with labels, tags, or barriers when such work is being performed; All safety interlocks should be restored after the work has been completed; and Positive confirmation should be made to verify that each interlock functions as intended.

Emergency Response

In case of an emergency, contact your supervisor and Unger Construction's superintendent or foreman. They will activate the emergency response team and call for external emergency services.

Performing the Work

The work shall be performed per the approved Job Hazard Analysis (JHA), Standard Operating Procedure (SOP) and Energized Electrical Work (EEW) Permit. Changes in conditions or changes in plan will require work stoppage and approval of the alternate means and methods by Unger Construction and the clients' representatives. It is likely that the work will be stopped the workers asked to back out and return the systems to normal conditions such that the work approval team can have the appropriate time to review the proposal and evaluate collateral impacts of the change.

Overhead Power Lines

Special requirements are required for work on overhead voltage lines. In general, this work should only be performed by personnel (the utility company or their representative) who are experienced in this type of electrical work and have the appropriate tools including hoists and fall protection.

Unattended Operations

No exposed live electrical equipment shall be left unattended unless properly barricaded as outlined in NFPA 70E.