UNGER
CONSTRUCTION CO.

Proof of Training

Print name: _____Signature: _____ Date: _____

Control of Hazardous Energies (CoHE) also known as Lock Out, Tag Out (LOTO) includes the Abandoned Lock Removal Procedure

Purpose

To establish appropriate control (lockout) of hazardous energies for equipment that is capable of storing, releasing and/or transferring hazardous energy. To ensure compliance with the code requirements of California OSHA Title 8 Section 3314 Cleaning, Repairing, Servicing and Adjusting Prime Movers, Machinery, and Equipment; and Federal OSHA 29CFR 1910.147, California OSHA, Title 8, 2320.4 De-energized Equipment or Systems.

Scope

This policy will apply to all work performed by Unger Construction employees and subcontractors including, but not limited to, the following activities: construction, installation, demolition, remodeling, relocation, refurbishment, testing, servicing, maintenance of equipment or machines, and at other times where the unexpected release of energy could cause an injury.

Objective

The objective of this policy is to protect workers from injury when lockout of energy is required and to ensure the safety of those working in or near danger zones. Work will not begin until all forms of hazardous energy are identified and controlled to a zero hazardous energy level.

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 Constructions 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.

Training

Before any employee is allowed to work on or near hazardous energies that could be inadvertently re-energized, they must first receive training on how to control those forms of hazardous energy. Each employee must demonstrate an understanding of the required training, and the ability to properly control all forms of hazardous energy.

Proof of training is available on the "S" drive. The training data base can be sorted by employee name or by subject. This ensures supervisors and employees are able to confirm they have the necessary training and if they don't which employees do. Employees that need training should contact their project manager or superintendent to make arrangements for them to be trained.

Retraining

The need for retraining will be indicated when: An employee's work habits or knowledge indicate a lack of necessary understanding, motivation or skills required to properly use CoHE, New equipment is installed that requires new or different means of isolation, Changes in the workplace make previous training obsolete, Changes in the equipment make previous training obsolete or Upon a supervisor request.

Requirements

Periodic inspections of the energy control procedures will be conducted and the results documented.

Lockout is required if the work being done requires a person to place any part of their body into an area where a danger zone exists. Locks and/or lockout devices must be attached to the energy control point[6]. There may be multiple energy control points that affect work in a danger zone; each point must be identified and controlled. The lockout must provide complete energy isolation, without possible override Note: push-buttons, selector switches, interlocks, emergency machine off (EMO), software controls and other control circuit type devices are not energy control points. Work will not begin until all forms of hazardous energy are identified and controlled. All employees and contractors must have individual locks and keys such that the individual is the **only** person who can open their lock. Supervisory or

foremen locks intended to protect a group of workers are not allowed. Groups of workers must utilize either a lock box or a multiple user locking device. Any person entering the danger zone, for any length of time, must apply their own lock and tag to the energy isolating devices. In situations where it is impossible to install a lock or apply a locking device contact an Unger's Safety Director.

The rule of thumb - whenever a circuit breaker, disconnect, or valve is turned off a lockout device must be applied. Lockout devices must remain in place until all work is complete and the system is ready to return to service. With respect to demolition of electrical circuits, the lockout device must remain in place until the conductor has been removed from the circuit breaker and the panel schedule updated to read "spare". With respect to chemical, pneumatic, and hydraulic, service the lockout device must remain in place until the pipe or tubing has been removed and the outlet of the valve sealed with a welded fitting or other leak-tight, tamper-proof device and the supply valve labeled "normally closed".

Working on Hazardous Production Material (HPM) Systems

Two-valve isolation from the source is required between pressurized HPM systems and personnel or occupied spaces; both of these valves must be locked out and tagged. When two-valve isolation cannot be achieved, an approved alternate measure (system de-pressurization, personal protective equipment (PPE), localized evacuation, etc.) will be used to ensure that no single point of failure can result in an HPM exposure.

Basic procedure to lockout

1) Identify and document all forms of hazardous energy
2) Identify danger zone
3) Identify the source of each hazardous energy
4) Identify the proper control point of each hazardous energy
5) Notify workers of intent to de-energize
6) Obtain lock(s), tag(s), and locking and/or blocking devices
7) Shut down, de-energize, dissipate any residual energies
8) Apply lock, tag, and locking and/or blocking devices. Confirm each workers key is unique.
9) Verify effectiveness of lockout by attempting to restart
10) Verify that zero hazardous energies are present (pre-test meter, measure, post-test meter)
11) Don (put on) proper PPE
12) Begin work

Basic procedure to remove lockout

1) Notify workers of intent to re-energize
2) Conduct visual inspections to confirm that the danger zone is clear of workers.
3) Conduct visual inspections to confirm tools, support or test equipment are clear of the danger zone.
4) Remove electrical jumpers, bypass lines and other such devices.
5) Reposition any safety devices (interlocks, valves, guards, covers, sensors)
6) Unlock or remove blocking devices
7) Re-energize
8) Confirm the system is operating properly and safely.
9) Doff (take off or remove) and decontaminate PPE

When the person who applied the lockout is not available to remove it, due to lost key, absence, or any other reason, the abandoned lock procedure must be utilized. The removal of a lockout device has serious consequences and must not be taken lightly see the Unger Construction policy for Abandoned Lock Removal.

Definitions

Hazardous Energy

Includes but is not limited to: chemical, (reactive, corrosive, flammable, radioactive, poisons, oxidizers) or other Hazardous Production Materials. Routes of exposure could include (inhalation, dermal, ingestion) Electrical energy; potentially hazardous voltage (>50 volts), hazardous static electrical potentials, or capacitors Ionizing radiation or X-ray equipment. Mechanical motion; Moving links, bars, chains, belts, sliders, wheels, shafts, gates, rams, blades, pistons. Non-Ionizing radiation; such as radio frequency (RF), ultra violet (UV), laser, static magnets or electromagnetic fields. Potential or stored energy; Pressure (above ambient pressure), vacuum (below ambient pressure), gravity (falling objects), springs, batteries, or capacitors. Thermal energy; Very hot or very cold temperatures (> 140*F/60 C or <32*F/0 C. Arc Flash; An arcing fault that releases radiant heat energy. It can be caused by a dropped tool, accidental contact with conductors or the buildup of dirt, dust, corrosion or particles within the conductors of switch gear.

Danger zone

The area or work space where, if the hazardous energy were inadvertently released, the energy would flow to the person(s) in the zone and cause harm is considered the danger zone.

Examples of danger zones: for electrical-type work, danger zones are areas where a person could receive an electric shock if the work inadvertently became re-energized. For work on lines that contain hazardous chemicals, the danger zone is that area or space where a person could be exposed to the hazardous liquid, vapor, gas, and/or mist form of the chemical if the line were opened before it had been completely drained, cleaned, and purged. For work in permit confined spaces, the entire confined space is considered a danger zone. For work on robots or robotic equipment, the entire volume that is swept out by the movement of the robotic parts is considered a danger zone.

Zero hazardous energy

Confirmation that all forms of hazardous energy have been completely depleted, discharged, or otherwise determined to be in a non-hazardous state.
Lockout Device

A device which utilizes a positive means such as a lock to hold an energy isolating device in the safe position to prevent the re-energization of a machine or equipment including blank flanges and bolt slip blinds; the federal OSHA regulation specifies that the lockout device must be substantial so that it cannot be easily removed or defeated without excessive force or unusual techniques (e.g. bolt cutters, hacksaw)

Energy Control Point

The energy control point is the single point at which hazardous energy flow can be effectively and positively blocked so that it can no longer cause injury.

Interlocks

An arrangement in which the operation of one part or mechanism automatically prevents the operation of another Regardless of the number interlocks or the complexity of software controls interlocks are not an acceptable means of protection and are not to be used as a control of hazardous energy.

Tag

Tags are used to identify who placed the lock. Tags must include the name and the phone number of the owner of the lock.

Energy Isolating Device

A mechanical device that physically prevents the transmission or release of energy; examples of energy isolating devices are a manually operated circuit breaker, a disconnect switch, a valve, a mechanical blocking device, or any similar device used to block or isolate hazardous energy.

Lock Box

An approved container into which a key or set of keys could be placed.; lock boxes must be capable of being locked with a hasp or other means of attachment to which, or through which, a lock and/or lockout scissors can be affixed. Lock boxes shall be substantial enough to prevent unauthorized entry without excessive force or unusual techniques, such as bolt cutters or other metal cutting devices.

Example: seven common keyed locks1 might be required to lockout three energy sources (electrical, chemical, mechanical) for a particular system. All seven locks can be opened with 1 key. In this example in order to verify that “the key” is indeed the only key that can open the common keyed locks the duplicate keys must be cut in half. “The key” would be placed inside a lock box. Thirteen keys would have been destroyed (the top half of the destroyed keys placed on a key ring, and attached inside the lock box, verifying 1 unique key.) Each individual placing his or her personal lock on the lock box controls access to “the key”.

Types of Locks and their proper application

Control of Hazardous Energies Locks

Control of hazardous energies locks will not be utilized for any other purpose (locking tool boxes, lockers, chaining equipment, etc.) The lock must be durable and uniquely identified, with a single key, which stays with the employee at all times. Note: Most locks are issued with 2 keys. The availability of a second key to open a worker’s personal lock is a compromise of this program. The second key should be kept away from the job site (at home) or destroyed.

Common Keyed Locks

A group of locks in which any one of the locks can be opened by the same key must be used in conjunction with a lock box. The common keys are kept in the lock box and the individual workers attach their locks to the lid of the lock box preventing others from getting to the key without their permission.

Shift Change Locks

Can be used when work is extended beyond ones shift and a relief person has not arrived to complete the work. Shift change locks can also be used when repairs are extended due to parts availability. Note: control of hazardous energy locks cannot be removed until the hazard has been eliminated (work finished) or a shift change lock has been applied. Whenever a shift change lock is utilized it is imperative that the individual install their control of hazardous energies locks in tandem with the shift change lock. At no time will a worker be protected solely by a shift change lock. Exchanging keys to a control of hazardous energy lock with the relief person or removing the lock and applying a tag in lieu of a lock is unacceptable.

Watchdog or Custody Locks

Locks used to control access (such as electrical panel doors) or to prevent unauthorized start-up such as a facility service bulk chemical delivery system (BCDS). These locks are not used to control of hazardous energy and can be common keyed.

Abandoned Lock Removal Procedure

Purpose

To establish specific procedures for removing a control of hazardous energy lockout device without a key.

Scope

This policy will apply to all work performed by Unger Construction employees and subcontractors including, but not limited to, the following activities: construction, installation, demolition, remodeling, relocation, refurbishment, testing, and servicing or maintenance of equipment or machinery and at other times when lockout devices are removed without a key.

Objective

To protect workers from injury when lockout devices need to be removed without a key, in other words removal by someone other than the person who installed it.

Requirements

The removal of a lockout device has potential serious consequences and is not considered normal procedure. A thorough evaluation is required, even if the worker simply misplaced their key. Due to the serious implications, the highest ranking member of the work team (i.e. manager, superintendent, etc.) is the only person authorized to remove a lockout device without a key. Removal of a lockout device by

someone other than the person who applied the device will be grounds for disciplinary action, up to and including termination, if this policy is not strictly adhered to.

Once convinced the situation is under control the ERT member will issue the bolt cutters to the manager or superintendent. Note: The ERT member does not cut the lock. The manager or superintendent, who has control over the lockout device cuts the lockout device. In the event that the ERT member is not convinced that the lockout device can be safely removed, the projects safety representative must be contacted to conduct a job hazard analysis (JHA) and determine the proper course of action.

The basic procedure to remove a lockout device

Notify workers of intent to re-energize. Conduct visual inspections to confirm the danger zone is clear of workers. Conduct visual inspections to confirm tools, support or test equipment are clear of the danger zone. Remove electrical jumpers, bypass lines and other such devices. Reposition any safety devices (interlocks, valves, guards, covers, sensors)

The lock may not be cut until all forms of hazards are identified to be at zero hazardous energy level The Abandoned lock removal form has been completed. Cut the lockout device, Re-energize, Confirm the system is operating properly and safely. After removing the lockout device the abandoned lock form must be sent to Unger Constructions Safety Director.