



Hazardous Energy - Lockout / Tagout (LOTO)

Scope:

This document covers the servicing and maintenance of conveyances and related equipment in which the unexpected energization or start-up of the conveyance and related equipment, or release of stored energy, could harm employees. The document establishes minimum performance requirements for the control of such hazardous energy. In construction, controls that are to be deactivated during the course of work on energized or de-energized equipment or circuits shall, at a minimum, be tagged.

Definitions:

Affected employee . An employee who is required to operate, use, or be in the area where a machine or equipment is being locked or tagged out for service or maintenance.

Authorized employee. A person who locks out or tags out machines or equipment to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

De-energized. Disconnected from all energy sources and not containing residual or stored energy and having no potential for energy to reaccumulate.

Energized. Connected to an energy source or containing residual or stored energy.

Energy isolating device. A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Energy source. Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Group Lockout. A procedure to ensure that when servicing and/or maintenance is performed by a crew, craft, department or other group, they are afforded a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

Company lock. A lock or locks unique and different from a personal lock provided to the authorized employees for use during shift changes, when away from the jobsite, or reassignment. This lock is not used for group lockout and is not used to protect authorized employees during work. It is used to secure equipment in a disabled state from the public and others while authorized employees are not present.

Lockout. The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device. A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds. A lock out device can be a personal or company lock.

Personal lock. A lock provided by the employer for use by a worker to ensure personal lockout protection. Each lock is operable only by a key or combination in the worker's possession.

Qualified person. One who has received training in and has demonstrated skills and knowledge in the construction and operation of electric equipment and installations and the hazards involved.

Servicing and/or maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Tagout. The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device. A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Troubleshooting/diagnostic work:

If troubleshooting, testing, or diagnostic work must be performed by an authorized person with the power "on," refer to your company's live electrical safe work practices policy. Once the problem is identified, follow your company policy to control or eliminate hazardous energy as applicable for the task and lockout/tagout the conveyance, or take acceptable alternative protection measures when it is not practicable to lockout the conveyance.

Cord and plug connected equipment:

Cord and plug connected equipment will be considered locked out when the equipment is unplugged from the energy source and the plug is under the exclusive control of the employee performing the work.

Mainline disconnect:

A Mainline disconnect cover shall only be opened or removed after the upstream source has been locked and tagged by an authorized employee(s). The absence of energy from the upstream disconnect must be verified. Always wear proper electrical PPE and refer to your company specific safety program for policy and procedures.

Test Instruments and Equipment:

All elevator personnel who will perform LOTO as part of their regular job activities, or may be required on occasion to shut a conveyance down and perform LOTO, must be authorized, trained, and equipped with the following:

- Test equipment: refer to the test equipment manufacturer's suggested manual on procedures and usage for testing equipment.
- Personal locks: as many as required to perform their job. A personal lock can only be removed by the employee who applied the lock.
- Company locks: as many as required to perform their job.
- A hasp that permits multiple employees to apply their lock to the disconnect at one time.
- Identifying tag, lock label, or similar information / warning source.

NOTE: When confronted with a disconnect that cannot be locked out using-conventional methods or can be easily bypassed when a lock is in place, other devices such as circuit breaker lockout devices, chains, lockout bars, etc., shall be used.

Lockout and Tagout (LOTO) – Sequence of Steps:

1. Gain control (remove from automatic operation) of the conveyance and ensure that it is secured from public access. Make sure all necessary PPE is available and worn, and diagnostic hardware is readily available prior to commencing energy shut down.
2. Identify and locate the specific conveyance and corresponding disconnect you intend to de-energize. Stand to the side, face away and exhale while switching off the disconnect.
3. Place the appropriate lockout device (or tagout device, if not capable of being locked out) to isolate the equipment. **NOTE: If more than one employee is working on the equipment that is locked out, each employee shall place his/her personal lockout device on the disconnect in accordance with the company's group lockout/tagout policy.**
4. Place the appropriate identifying tag, lock label, or similar information / warning source per your company LOTO program.
5. Identify a known, (LIVE) voltage source and test the functionality of the test equipment against this source.
6. Test and verify that the voltage has been disconnected (De-energized).

NOTE: If only de-energizing the mainline, be aware that the controller may still have live 110/120-volt circuit for cab lighting, fan, and battery backup devices. Also verify that voltage has been dissipated from capacitors and AC Drive units.

7. Verify the functionality of the test equipment to ensure the test equipment worked properly before and after the measurement. Check against a known, (LIVE), voltage source.
8. Ensure that all non-electrical potentially hazardous stored energy is relieved, disconnected, restrained and otherwise, rendered safe.
9. Perform work.
10. Re-energize the conveyance following these steps:
 - a. Replace all guards and remove all tools.

- b. Recheck to ensure control of the conveyance, that is secure from public access, and that all employees involved are safely positioned.
- c. The employee(s) who applied personal locks shall remove their own lock and tag.
- d. Stand to the side, face away and exhale when energizing.
- e. Check that the conveyance has been properly returned to service.

Alternate measures:

Alternative approaches to lockout/tagout are protective measures developed and implemented when it is not feasible to lockout equipment because of the need for electrical energy sources to be present to accomplish assigned work (e.g., inspecting, troubleshooting, observing). Refer to your company's procedures for alternative measures to reduce the risk of unexpected equipment startup or the release of hazardous energy.

Leaving a Conveyance Shutdown and LOTO:

When a conveyance must be left out of service regardless of whether physical parameters, settings or safety mechanisms prevent its operation, the equipment must always be de-energized, locked out with a company lock and affixed with an appropriate identifying tag, lock label, or other similar information/warning source.

Ensuring continuity of Lockout and Tagout:

When assigned to work on equipment that has been locked/tagged out with a company lock, remove the company lock and ensure personal lockout and tagout devices are applied prior to the start of work by following the Lockout and Tagout (LOTO) – Sequence of Steps described in the previous section.

Removal of Locks by Others:

Personal locks shall only be removed by the employee who applied the lock. When the employee(s) is/are not available to remove their lock(s), the lock(s) may be removed only by authorized elevator personnel, under the direction of the employer, providing the following has occurred:

1. Verified the employee(s) who applied the lock(s) are not at the facility,
2. Made every reasonable-effort to contact and inform the employee(s) that the lock(s) is/are being removed.
3. Thoroughly examined the machine and surrounding area to ensure removal of work tools, materials, and equipment, and that the machine components are operational.
4. Inspected all work that has been performed to ensure completion and that the conveyance can safely be re-energized.
5. Ensured that the employee(s) who locked out the conveyance has this knowledge before he/she/they resume(s) work at that facility.

Training:

The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. See OSHA 1910.147(c)(7) for training and communication guidelines.

Through the Alliance between OSHA's 10 Regional Offices and the Elevator Contractors of America (ECA), Elevator Industry Work Preservation Fund (EIWPF), International Union of Elevator Constructors (IUEC), National Association of Elevator Contractors (NAEC), National Elevator Industry Educational Program (NEIEP), and National Elevator Industry Inc. (NEII), collectively known as The Elevator Industry Safety Partners (EISP), the EISP developed this Industry Specific Best Practice for informational purposes only. It does not necessarily reflect the official views of OSHA or the U.S. Department of Labor. May 2026

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