

LOCK-OUT TAG-OUT (LOTO) PROGRAM

Concepts & Applications

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Safety experts consider **Lock-Out Tag-Out (LOTO)** procedures fundamental to employee life safety in the commercial real estate operations profession. An effective Lock-Out Tag-Out program starts with the property's site management team and extends to contractors and project management teams overseeing construction and other projects.

The **purpose of the Lock-Out Tag-Out program** is to protect contractors and maintenance staff from the hazardous energy associated with building-based operating systems and equipment sources including **electrical** (panels, controllers, switches, wiring), **mechanical** (motors, fans, pumps), **thermal** (steam, hot water) and other forms of energy. The unexpected start up or release of stored energy, e.g., electricity, can cause serious injury or death to building maintenance staff and contractors servicing or operating machines and equipment within our buildings. Examples include:

- Prior to servicing an electrical motor controller, a contractor reviews electrical system drawings that indicate electrical power is isolated, when in fact the electricity source is still energized.
- A maintenance technician is working on a boiler's internal components and a contractor, unaware of the work, opens a hot water supply valve exposing the technician to scalding hot water.
- A building engineer performing maintenance in a large Air Handling Unit (AHU) is severely injured by the motor and fan unit when the air handling unit automatically starts as programmed in the Building Automation System (BAS)

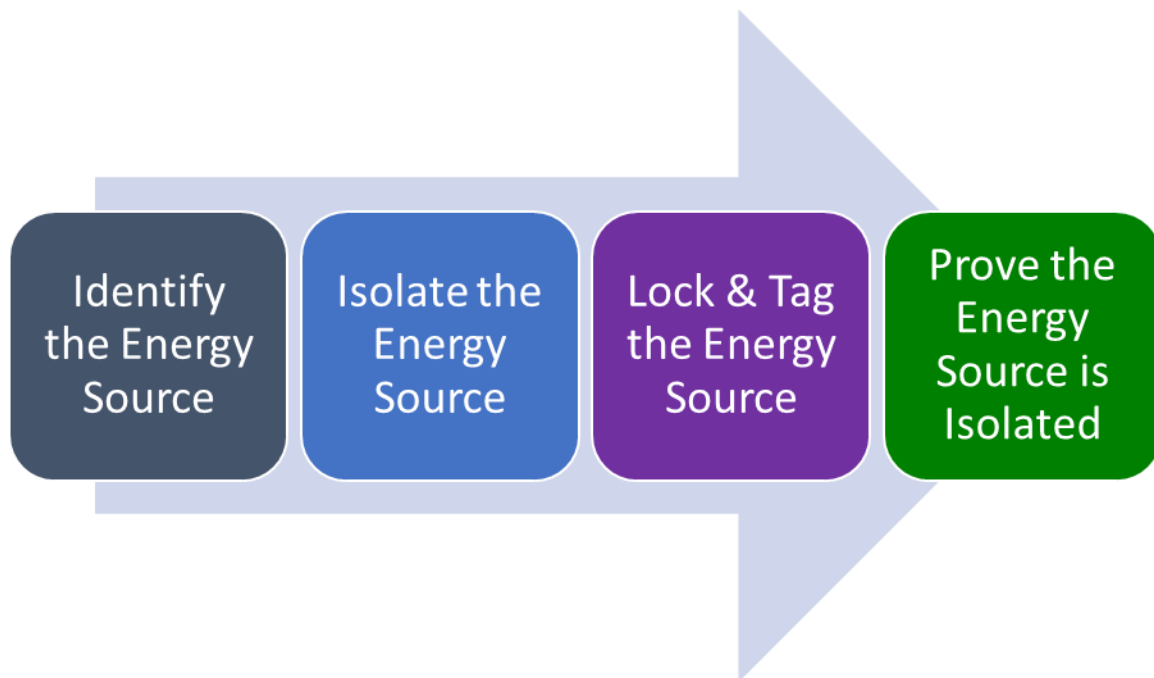
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An actively managed Lock-Out Tag-Out program, including building system specific policies and procedures, provides assurance that machines and equipment are shut off and not started up again during periodic and non-scheduled service, maintenance, and repair. Two fundamental components of a lock-out tag-out program include the **LOCK** - applied to the controlling device (circuit breaker, controller, valve) to ensure it is **locked in a safe, off, de-energized position** and the **TAG** - affixed to the locked device clearly indicating the device must **not be turned on, opened, or re-energized**.

In order to be absolutely sure the hazardous energy source is disconnected and made safe - **Isolated** - the following basic steps must be performed



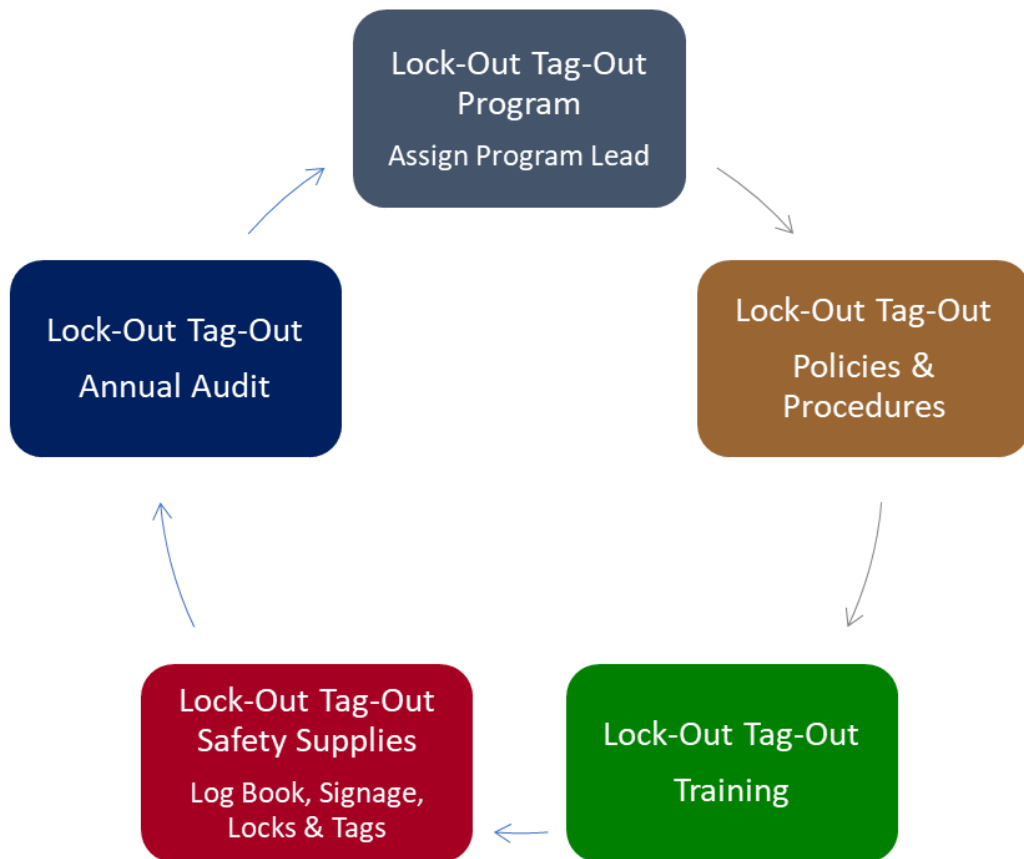
Lock-Out Tag-Out Equipment Isolation | Fundamental 4-Step Process

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The **primary responsibility** for providing the required resources, training, and overall protection of workers exposed to hazardous energy sources is the **worker's employer**. **Occupational Safety and Health Administration - OSHA 29 CFR Standard** allows each employer with flexibility to develop a hazardous energy control program that meets the specific needs of the type of systems and equipment being maintained and serviced.



OSHA 29 CFR Lock-Out Tag-Out - 5 Basic Program Requirements

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Log Book Criteria Lock-Out Tag-Out					
Identifies location of machinery, equipment, or system being serviced	Brief description of machinery, equipment, or system being serviced	Name of authorized person applying LOTO devices	Date-Time authorized person applied LOTO devices	Name of authorized person removing LOTO devices	Date-Time authorized person removed LOTO devices

U.S. federal government **Occupational Safety and Health Administration (OSHA)** is the regulatory authority responsible for establishing mandatory guidelines for industrial and commercial real estate employers' safe work practices. OSHA web-site - <https://www.osha.gov/> provides guidance and specific requirements to building owners and service companies employing workers in the service trades exposed to hazardous energy sources. **OSHA 29 CFR** (Code of Federal Regulations) section 1910 provides specific code requirements pertaining to **Control of Hazardous Energy: Lock-Out Tag-Out**. One of the primary programs, outlined in OSHA 29 CFR 1910, outlines the requirements to protect employees working on electrical circuits and equipment.

[OSHA Code of Federal Regulations 29 CFR Standard | Control of Hazardous Energy](#)

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Summary of employer specific requirements to ensure safety of their employees and workers exposed to hazardous energy in compliance with OSHA 29 CFR Lock-Out Tag-Out

OSHA 29 CFR LOCK-OUT TAG-OUT SUMMARY OF EMPLOYER-SPECIFIC PROCEDURAL OBLIGATIONS
Develop, implement, and enforce a hazardous energy control program.
Provide and use lock out devices for equipment that can be locked out. Tag Out devices can be used only if the tag out program provides the equivalent employee protection.
Ensure both new and overhauled equipment is capable of being locked out.
Develop, implement, and enforce an effective Tag-Out program if machines and equipment are not capable of being locked out.
Develop, document, implement, and enforce energy control procedures.
Use only lock-out tag-out devices authorized for the particular equipment or machinery and ensure devices are durable, standardized, and substantial.
Ensure lock-out tag-out devices identify individual users.
Establish a policy that permits only the employee who applied a lock-out tag-out device to remove it.
Inspect energy control procedures at least annually.
Provide effective training as mandated for all employees covered by the OSHA 29 CFR standard.
Comply with additional OSHA energy control provisions when machines or equipment must be tested or repositioned, when outside contractors work on site, in group lock out situations, and during shift or personnel changes.

“OSHA estimates that over 120 deaths and 50,000 injuries are prevented each year due to compliance with the OSHA 29 CFR Lock-Out Tag-Out standard.”