

**Lock Out / Tag Out Program
Revision 1
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1. PURPOSE

- 1.1. Approximately 144 fatalities occur every year due to incidents involving the accidental release of hazardous energy in the work place. Failure to follow LOCK OUT / TAG OUT procedures can also lead to severe injuries such as contusions, lacerations, and amputations. OSHA believes the LOCK OUT / TAG OUT standard (29 CFR 1910. 147) will prevent 85 percent of the injuries or fatalities that occur from exposure to hazardous energy in the work place. That is about 122 fatalities, 28,400 lost workday injuries, and 31,900 non-lost workday injuries prevented each year.
- 1.2. Both authorized and affected personnel need to be aware of their duties and functions during LOCKOUT and TAGOUT procedures.
- 1.3. An effective LOCK OUT / TAG OUT program requires cooperation and commitment from all levels. The safety of affected and authorized employees depends on their understanding and respect for LOCK OUT / TAG OUT procedures.
- 1.4. Accidents Like These Do Not Need to Happen:
 - 1.4. A. An employee cleaning the unguarded side of an operating granite saw is caught into the moving parts and killed.
 - 1.4. A.1. Failure to shut down or turn off the equipment before performing maintenance.
 - 1.4. B. An employee in an asphalt-mixing machine was changing its paddles when another employee accidentally hit a toggle switch - which caused the door to the mixer to close and strike the first employee on the head, killing him.
 - 1.4. B.1. Failure to isolate equipment from energy sources.

2. SCOPE

- 2.1. This program applies to all BRISTOL COMMUNITY COLLEGE personnel who service or maintain machines and equipment in which the unexpected energizing or startup of the machine or equipment could cause injury to an employee. Electrical, hydraulic, pneumatic, steam, gravity or stored mechanical energy may create a hazardous situation if not properly de-energized. This procedure addresses the isolation of all sources that apply. Remember, there often may be more than one source. Such isolation may include, but not limited to, disconnecting electrical power, draining charged capacitors, closing pneumatic, hydraulic, or steam valves and bleeding residual pressure, disconnecting spring tension, etc.
- 2.2. This procedure does not apply to:
 - 2.2. A. Work on cord and plug connected equipment for which exposure to the hazards of unexpected energizing or startup of the equipment is controlled by the unplugging of equipment from the energy source and the plug being under the exclusive control of the employee performing the servicing or maintenance.
 - 2.2. B. Hot Tap operations involving the transmission and distribution systems for substances such as gas, steam, water or petroleum products when they are performed on pressurized pipelines, provided it can be demonstrated that the continuity of services is essential, shutdown of the system is impractical and documented procedures are followed which will provide proven effective protection for employees.
 - 2.2. C. Operations in which tagging out the equipment or machinery is the only method of safeguarding the employee from the hazards associated with the unexpected energizing or startup of the equipment.

3. DEFINITIONS

Affected / Unqualified Employee - An employee who operates or uses a machine or equipment that is under lockout or tagout while it is being serviced or maintained. Alternatively, an employee who works in an area where servicing or maintenance is being performed. An Affected Employee is NOT authorized to perform Lock Out / Tag Out procedures. Affected employees will not be allowed within the MAD's (Minimum Approach Distances) to exposed energized electrical sources unless the sources have been de-energized.

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

Other Authorized Employee - A person that is assigned the responsibilities of attaching a departmental lock, overseeing in the search for authorized employees to facilitate lock removal, ordering and restocking lockout equipment, and all other supervisory responsibilities.

Capable of being Locked-Out - An energy-isolating device will be considered capable of being locked out either if it is designed with a hasp or other attachment or integral part to which, or through which a lock can be affixed, or if it has a locking mechanism built into it. Other energy isolating devices will also be considered capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy control capability.

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

Facilities Lock - A standard device applied by another authorized employee for the purpose of de-energized control switches, valves, or other equipment to prevent accidental activation causing injury or death. This device is to be applied before an authorized employee's lock is removed. This device will be used on equipment that must be locked out for overnight or long-term situations.

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

Lock Out Device - A device utilized as a positive means, such as a lock, to hold an energy-isolating device in the safe position, preventing the energizing of a machine or equipment.

Normal Production Operations - The utilization of a machine or equipment to perform its intended production function.

Personal Lock - A standard device, only opened by the employee's key, used to prevent the operation, accidental energizing, or control switch, valve, or other equipment to be held out of service. This device is also used for isolating, securing or blocking a machine or equipment from energy sources. The device must be durable and capable of withstanding normal environmental forces. Personal locks will be issued with one key and must bear the authorized employee's identity.

Tag Out - 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 tag-out device is removed. If tag-out is used, the procedures established must

be “as effective as” lockout to be permissible. The tag or other warning device must be durable and identify the authorized employee that affixed the device.

4. RESPONSIBILITY

4.1. Identification of Equipment

4.1. A. The lead technician will make a survey of the facility to identify equipment that requires lock-out/tag-out during maintenance and servicing operations. The survey will include locating and identifying all isolating devices such as switches, valves, etc. to be locked and tagged out. When more than one energy source may be involved, a specific procedure will be developed for each machine or type of device requiring lock out / tag out if a procedure is not made available to BRISTOL COMMUNITY COLLEGE. The lead tech will notify the BRISTOL COMMUNITY COLLEGE Director of Facilities of any unique or unanticipated hazards that are identified prior to or during work. BRISTOL COMMUNITY COLLEGE will then notify the client of unanticipated or workplace hazards onsite and any steps taken to mitigate those hazards.

4.2. Affected & Authorized Employees

4.2. A. Are required to follow this energy control program.

4.2. B. Are to report deficiencies or problems with the program to the Director of Facilities immediately upon detection.

4.2. C. Will report to the Director of Facilities whenever they leave the equipment or machinery, which has been locked out.

4.3. Director of Facilities

4.3. A. Shall establish a “Key Control System” based on a “One Lock-One Key” policy.

4.3. B. Will periodically (at least annually) audit this program.

4.3. C. If tag-out is approved for use when lock-out is not possible, the Director of Facilities is to ensure the tag-out provisions of OSHA's Control of Hazardous Energy Source (29 CFR 1910.147) regulations are followed.

4.3. D. Assure this energy control program is reviewed with all personnel.

4.3. E. Shall conduct initial training of authorized and affected employees on this program.

4.3. F. Shall retrain appropriate employees whenever there is a change in this program.

4.4. General Responsibilities

4.4. A. If you are not an authorized person, it is important that you stay clear of the area. Do not try to bypass or defeat locks. Never interfere with locks or any other devices used to block energy. Locked out machines or equipment must remain de-energized. Never attempt to help in the procedure if you are not authorized.

4.4. B. Know the machinery you work on, including the different energy sources involved. In addition, know your company's policy for lockout and tagout procedures. Communicate any problems you come across with authorized personnel who are to perform the lock out and tag out procedure.

4.4. C. Authorized personnel are responsible for removing locks and tags after a machine or equipment has been reenergized. If an open lock is left on a latch or a tag is on machinery or equipment that is working, notify the Director of Facilities.

4.4. D. If you come across a situation that you are unsure of, do not attempt to power up a machine or equipment. If you do not see anyone around, don't assume that no one is near the machine or equipment. A person could be behind equipment or machinery or some distance away from the operating controls.

- 4.4. E. If you find a tag lying on the floor, contact the Director of Facilities immediately. Again, do not power up a machine if you suspect maintenance activities are taking place.
- 4.4. F. As an affected employee, you need to understand BRISTOL COMMUNITY COLLEGE's LOCKOUT and TAGOUT procedures and know what role you play in helping to prevent incidents. If you have any questions about Lock Out / Tag Out procedures at BRISTOL COMMUNITY COLLEGE, check with the Director of Facilities.
- 4.4. G. An effective LOCK OUT / TAG OUT program requires your cooperation. No matter what your role in the procedures, a respect and awareness of the potential hazards is necessary to prevent incidents from occurring at BRISTOL COMMUNITY COLLEGE.

A Study by the National Institute for Occupational Safety and Health (NIOSH) found that 63 percent of workers injured by the release of hazardous energy were production workers. They were not authorized personnel who maintain and service equipment.

5. TRAINING

- 5.1. Purpose of training
 - 5.1. A. Awareness introduction:
 - 5.1. A.1. When equipment needs to be serviced or maintained, LOCK OUT / TAG OUT procedures must be used to isolate energy sources and bring the machinery to a zero energy state. This awareness program will explain why Lock Out / Tag Out procedures are necessary, provide an overview of Lock Out / Tag Out procedures, and discuss your role in preventing incidents and injury. All employees will be trained to identify and understand the relationship between injuries and electrical energy.
 - 5.1. B. Procedures introduction:
 - 5.1. B.1. As an authorized employee, it is your responsibility to ensure that proper LOCK OUT / TAG OUT procedures are followed. This procedures program will discuss the importance of following proper procedures, the proper steps for LOCK OUT / TAG OUT, and special situations during LOCK OUT / TAG OUT. Only authorized and qualified employees may apply or remove locks and tags, and conduct any testing, troubleshooting, or measuring of voltage if it is conducted within the equipment's limited approach boundary.
 - 5.1. B.2. Training is documented and is to be maintained for the duration of employment with BRISTOL COMMUNITY COLLEGE.
 - 5.1. B.3. Retraining will be conducted at least every 3 years, or whenever there is a change in procedure, program, if the employee is unfamiliar with a new procedure, or if during an audit the employee is found to be not correctly trained.
- 5.2. Frequently Asked Questions
 - 5.2. A. When do I need to LOCK OUT / TAG OUT?
 - 5.2. A.1. You should LOCK OUT whenever you are working around a machine or system where unexpected or unintended motion, startup, or release of stored energy could occur. Examples of these situations include clearing blocked or jammed mechanisms, maintenance or repair work on equipment with moving parts, repairs or installation on electrical circuits, and certain confined space entries.
 - 5.2. B. What are AFFECTED EMPLOYEE(S) and AUTHORIZED EMPLOYEE(S)?

- 5.2. B.1. An authorized employee locks or implements a tagout system procedure on machines or equipment to perform servicing or maintenance. An authorized employee has received the proper training to perform lockout and tagout. An affected employee operates or uses a machine or equipment on which servicing or maintenance is being performed under LOCK OUT or TAG OUT, or is an employee who works in an area where LOCK OUT and TAG OUT is performed. An affected employee is not authorized to perform LOCK OUT / TAG OUT procedures.
- 5.2. C. What do I do if a TAG is unattached, torn, or defaced?
 - 5.2. C.1. You should notify the Director of Facilities whenever you notice any of these situations: a tag that is not properly attached to the isolating device, a tag that is torn or defaced, or a tag that is unattached and may be laying on the floor or equipment. The purpose of a tag is to communicate to others that lockout and tagout procedures are taking place. They do not isolate the energy source. Never attempt to bypass or alter a tag.
- 5.2. D. What is “ZERO ENERGY STATE?”
 - 5.2. D.1. ZERO ENERGY STATE is the term used when a machine or system has had residual or stored energy dissipated to a safe level, and lockouts have been installed and verified. Conductors are to be considered live until it has been tested and verified that they are de-energized.
- 5.2. E. What is the “ONE PERSON – ONE LOCK” system and why is it needed?
 - 5.2. E.1. This means that each authorized employee who will work on the equipment must attach his or her own lock to assure his or her safety. The one person – one lock system makes sure that everyone is accounted for when the system is ready to be re-energized.
- 5.2. F. Can an affected employee assist an authorized employee with lock out / tag out?
 - 5.2. F.1. No. An affected employee is not authorized to perform lock out / tag out procedures. This means you also may not assist in Lock Out / Tag Out procedures. Only authorized personnel can perform Lock Out / Tag Out procedures.
- 5.3. BRISTOL COMMUNITY COLLEGE’s LOCK OUT / TAG OUT program will teach authorized and affected personnel what they need to know:
 - 5.3. A. Affected personnel will learn...
 - 5.3. A.1. Why LOCK OUT / TAG OUT procedures are necessary
 - 5.3. A.2. An overview of LOCK OUT / TAG OUT procedures
 - 5.3. A.3. How to prevent incidents
 - 5.3. B. Authorized personnel will learn...
 - 5.3. B.1. The importance of following proper procedures
 - 5.3. B.2. Proper steps for LOCK OUT / TAG OUT
 - 5.3. B.3. Special situations during LOCK OUT / TAG OUT

5.5. Why Lock Out / Tag Out is Necessary

- 5.5. A. Industry relies on many types of energy to power the machines and equipment that manufacture goods. That energy may be in the form of...ELECTRICAL, PNEUMATIC, CHEMICAL, THERMAL, HYDRAULIC, MECHANICAL, AND/OR GRAVITY. When machines or equipment need to be serviced or maintained, this energy must be isolated so authorized personnel can safely perform the work.
- 5.5. B. Unlike small appliances or hand tools, industrial machinery requires more than turning off a switch and unplugging. They get their power from multiple energy sources that

interact with each other. If all energy sources are not isolated before servicing or maintenance is performed, an accidental release of energy could occur which may result in injury or even death.

- 5.5. C. The goal of lock out and tag out procedures is to prevent energy from accidentally being released while machines and equipment are being maintained and serviced. Locks and tags help to prevent equipment or machinery from accidentally being started up while work is being performed. Locks prevent switches from being activated or valves from being turned on. Tags warn that machinery or equipment has been de-energized so work can be performed.
- 5.5. D. Failure to safely control energy can lead to severe injuries and even death. By understanding and following the proper procedures for LOCK OUT and TAG OUT, you are helping to protect your safety and your co-workers' safety.

6. Lock out / Tag out Procedures - Seven Simple Steps

6.1. Lockout and tagout procedures can only be performed by authorized employees who have received the proper training. Authorized employees are trained to recognize the types of hazardous energy sources in the work place and know how to isolate and control that energy. Yet, it is also important that all affected employees who work in the area understand the purpose of LOCK OUT / TAG OUT at their facility. By following the steps for lockout and tagout procedures, you can avoid accidents caused by failure to properly lockout and tagout hazardous energy sources. These steps include...

- Step 1 - Proper Planning
- Step 2 - Notify all Affected Personnel
- Step 3 - Shutdown at Operating Controls
- Step 4 - Isolate All Energy Sources
- Step 5 - Lock and Tag All Isolating Devices
- Step 6 - Dissipate All Stored or Residual Energy
- Step 7 - Verification of Isolation

Step 1 – Proper Planning

Proper planning is key to the success of a Lock Out / Tag Out procedure. Authorized personnel need to consult with written procedures or the proper personnel to determine the types and magnitude of energy involved, the hazards of the energy to be controlled, and how to control the energy. The more information gained by authorized personnel involved in the job, the fewer chances of an incident occurring. All energy sources to the equipment or machinery must be identified before Lock Out / Tag Out procedures begin. Planning should help the authorized personnel to answer questions such as the following:

- What equipment is needed besides locks?
- Are there any hazardous substances that need to be drained?
- Should protective equipment be worn?
- Could energy re-accumulate while work is being performed?
- How many locks do I need?

Step 2 – Notify All Affected Personnel

After this, all affected personnel need to be notified. This lets personnel know that Lock Out / Tag Out procedures are going to be performed and prevents the chances of someone accidentally starting up machinery or equipment. It is important that affected personnel understand the situation and do not participate in or interfere with the process.

Step 3 – Shutdown at Operating Controls

The next step is to turn off the machine at the operating controls. But shutting down at the machine is only the first step. It does not bring the machine to a “zero energy state.” Startup could occur if a co-worker accidentally hit the start button.

Step 4 – Isolate All Energy Sources

You must then isolate all energy to the equipment as close to the source as possible. This means taking steps to make sure energy has no way to reach the machine or equipment. Some equipment may have more than one energy source – one for the controls and one for the motor. All energy sources must be isolated to prevent the operating controls from being reenergized. Energy isolating devices include circuit breakers; disconnect switches, line valves, blocks, and more. Block springs, equipment that could fall due to gravity, or machine parts that operate with hydraulic or pneumatic energy. Blocks should be strong and durable enough to prevent the movement of any part. Blocks and pins prevent the movement of machine parts caused by pressure from hydraulic and pneumatic energy as well as the force of gravity. Blank or Blind a pipe, line, or duct by fastening a solid plate or “cap” over it after the supply lines have been depressurized and disconnected. Slip gates and slip blinds are used in piping systems to isolate chemical energy when valves cannot close off the line. First, bleed the line to relieve any fluid pressure. Remove the flange bolts to separate the pipes, then insert the slip blind –which is sometimes referred to as a pancake – between the two pipes and replace the flange bolts.

Step 5 – Lock and Tag Each Isolating Device

As each energy source is isolated, an authorized employee to prevent it from being operated must apply a lock to the energy-isolating device. The lockout device should identify the employee applying the lock; or locks can also be identified with tags. If more than one person will be involved in the procedures, each person will place a personal lock on a hasp. If 10 people work on the job, then there will be 10 locks on the hasp.

This “one person – one lock” system is needed so that everyone is accounted for before the machine or equipment is re-energized. This prevents the switch from accidentally being thrown by someone who may not be aware that work is being performed on that machine or equipment. The purpose of tags is to warn others not to operate or move energy isolating devices from the “safe” or “off” position. Tags used with locks should identify the employee applying the tag and warn against energizing the machine or equipment. If tags are not used, the authorized worker’s identification should be on the lock or a work permit.

Never touch or interfere with equipment or machinery that is tagged. If you find a tag lying on the floor, contact the Director of Facilities immediately.

Tags should also include the following information:

- The Date
- Names of the Workers Involved
- DIRECTOR OF FACILITIES’s Name
- Equipment Being Worked On

Step 6 Dissipate All Stored or Residual Energy

After locks have been placed on the main isolating devices, all downstream energy identified in the planning stage must be released so the system reaches a “zero energy state.” A machine is in a zero energy state when residual – or leftover – energy has been released. Methods for releasing residual energy include the following:

- Blocking from energy or gravity
- Relieving pressure

- Opening drains
- Bleeding lines and leaving all vent valves open
- Cycling the system to make sure all energy is dissipated

Step 7 – Verification of Isolation

The final step before maintenance or servicing can be performed is to verify that all steps have been followed and all energy has been locked out or dissipated. This final check must be performed to release any stored energy and to make sure you have isolated the correct energy source. This involves a deliberate attempt to start the machine or equipment to make sure that all energy is isolated. Check all start buttons or other controls to see if the machine starts. The machine is cycled to verify that all energy is released. Make sure all start switches have been returned to the “neutral” or “off” position after checking them.

The machine or equipment is then tested. With electrical components, measurements may need to be taken with a voltmeter to make sure there is no electrical energy in the machine. Tests shall be conducted with equipment rated at or above the levels of the equipment with which they will be connected. Test instruments, equipment, and their accessories shall meet the requirements of ANSI/ISA-61010-1-Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use -Part 1 General Requirements, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 Volts and below. Verification of functionality of the test equipment is required prior to performing the test and after the test.

Finally, authorized personnel perform a final visual inspection of the machine or equipment to make sure all locks are firmly attached and that motion has stopped to moving parts such as flywheels.

- 6.2. While all steps for lockout and tagout must be conducted in the correct order, BRISTOL COMMUNITY COLLEGE may use different procedures than those already mentioned.

7. SPECIAL SITUATIONS

- 7.1. Special situations can sometimes call for different procedures to be followed than those already mentioned. However, no matter what the situation, it is important that you respect the potential hazards of the energy you work with.
- 7.2. Not Able to Be Locked Out
 - 7.2. A. In rare cases, a machine or equipment cannot be locked out due to its design. Tags must be used in these cases. However, tags are only warnings that are placed on isolating devices. They do not lock out isolating devices like locks do. Never interfere with a piece of equipment or a machine that is tagged.
- 7.3. Lock Out / Tag Out Exceptions
 - 7.3. A. Some repetitive, routine tasks may not require Lock Out / Tag Out procedures if the proper safeguards are used. Tasks such as un-jamming, lubricating, or cleaning can be done if the operator uses the proper tools and does not bypass machine guards. If you must bypass machine guards and place any part of your body near the point of operation, Lock Out / Tag Out procedures must be used.
 - 7.3. B. If a machine needs to be energized to test or position it, locks or tags can be temporarily removed from the energy-isolating device. The area should be cleared of all tools and materials before locks and tags are removed. An Energized Electrical Work Permit must be filled out in writing and issued prior to the start of any live electrical work. After the procedure is completed, all systems must be de-energized and locks and tags reapplied.
- 7.4. Lock Box

7.4. A. An alternative example to a group lockout situation is to put the keys to the locks on the isolating devices in a box. This box is then locked with a departmental lock by the person assigned to oversee the lockout procedure. A personal lock for each authorized employee involved in the procedure is then attached. The departmental lock assures that the system is locked out during a shift change. It may not be removed until all personal locks are removed. Whatever the lockout method used, it must assure that no single employee could re-energize the system while others are still working on it.

7.5. Contractors

7.5. A. Outside contractors may have procedures that differ from BRISTOL COMMUNITY COLLEGE. Before any work is done, both the employer and contractor need to coordinate their procedures. A contractor's procedures must be as safe as those established at the facility.

7.6. Shift or Personnel Changes

7.6. A. A system being worked on must remain locked out during a shift or personnel change. The person leaving the job site should not remove his/her lock until the arriving worker has locked out.

7.7. Expanding or contracting LO/TO procedures that are in effect

7.7. A. If it becomes necessary to change switching, blocking, tagging or grounding while a Lock Out/Tag Out is in effect, the Person in charge (DIRECTOR OF FACILITIES) / Lead Technician will first obtain the consent from all persons who have locks or tags on the equipment stating:

- The designation of each switch and device which will be open, blocked and properly tagged to effect the change.
- The designation of all grounding switches which will be closed and location of all portable grounds which will be placed, if any, and tagged to effect the change.
- The designation of each switch and device from which tags will be removed and which will be closed to effect the change.
- The designation of all grounding switches and locations of all portable grounds from which tags will be removed and which will be opened or removed to effect the change.
- When the change will be made

7.7. B. If the above is satisfactory to the qualified persons, the new switching, blocking, tagging and grounding shall be carried out. The Director of Facilities shall inform all persons who have locks or tags on the equipment of the changes and the specific time of the expansion or contraction of the Lock Out / Tag Out. After this, the original switching, blocking, tagging and grounding shall be changed or removed.

8. EQUIPMENT STARTUP AND OPERATION

8.1. When maintenance or servicing is completed, steps must be taken to insure the safety of others before locks and tags are removed. Make sure all tools and other unnecessary items have been cleared away from the machine or equipment and that all machine guards have been reattached. Make sure all employees stay clear of the area. Affected employees should be notified after locks and tags are removed and before the system is re-energized.

8.2. Each authorized employee involved in the process must then remove his or her lock. If an employee has left on a lock who is no longer working on the system, all possible efforts must be made to locate the owner of the lock. The lock can only be removed under the direction of the employer and the owner of the lock must be made aware of the situation before he/she resumes work at the facility. You must take responsibility for your lock. Keep the key with you at all times. Never give your key to another employee. In addition, always remove your lock when you are finished.

Lockout/Tagout: Controlling Hazardous Energy



What is hazardous energy?

Hazardous energy is any energy source that, if not isolated or controlled, could create a hazard. Common energy sources are electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other sources in machines and equipment that can be hazardous to workers. During the servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in serious injury or death to workers.

How can you protect workers from hazardous energy?

Failure to control hazardous energy accounts for nearly 10 percent of the serious accidents in many industries. Proper lockout/tagout (LOTO) practices and procedures safeguard workers from hazardous energy releases. OSHA's Lockout/Tagout [Fact Sheet](#)* describes the practices and procedures necessary to disable machinery or equipment to prevent hazardous energy release. The OSHA standard for The Control of Hazardous Energy (Lockout/Tagout) ([29 CFR 1910.147](#)) for general industry outlines measures for controlling different types of hazardous energy. The LOTO standard establishes the employer's responsibility to protect workers from hazardous energy. Employers are also required to train each worker to ensure that they know, understand, and are able to follow the applicable provisions of the hazardous energy control procedures:



- Proper lockout/tagout (LOTO) practices and procedures safeguard workers from the release of hazardous energy. The OSHA standard for The Control of Hazardous Energy (Lockout/Tagout) ([29 CFR 1910.147](#)) for general industry, outlines specific action and procedures for addressing and controlling hazardous energy during servicing and maintenance of machines and equipment. Employers are also required to train each worker to ensure that they know, understand, and are able to follow the applicable provisions of the hazardous energy control procedures. Workers must be trained in the purpose and function of the energy control program and have the knowledge and skills required for the safe application, usage and removal of the energy control devices.
- All employees who work in an area where energy control procedure(s) are utilized need to be instructed in the purpose and use of the energy control procedure(s), especially prohibition against attempting to restart or reenergize machines or other equipment that are locked or tagged out.
- All employees who are authorized to lockout machines or equipment and perform the service and maintenance operations need to be trained in recognition of applicable hazardous energy sources in the workplace, the type and magnitude of energy found in the workplace, and the means and methods of isolating and/or controlling the energy. Employees also need to be trained on how to comply with additional energy control provisions in the OSHA standards when machines or equipment must be tested or repositioned, when outside contractors work at the site, in group lockout situations, and during shift or personnel changes.
- Specific procedures and limitations relating to tagout systems where they are allowed.
- Retraining of all employees to maintain proficiency or introduce new or changed control methods.

The control of hazardous energy is also addressed in a number of other OSHA standards, including General Industry - Electrical (1910 Subpart S), Special Industries (1910 Subpart R), and Electric Power Generation, Transmission, and Distribution (1910.269); Construction - Electrical (1926 Subpart K), Electric Power Transmission and Distribution (1926 Subpart V), and Concrete and Masonry Construction (1926 Subpart Q); Marine Terminals (1917 Subpart C); and Longshoring (1918 Subpart G).



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

