



Santa Clara
UNIVERSITY

Lock Out/Tag Out (LOTO)

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Lock Out/Tag Out (LOTO) Safety Program

1. Purpose

The purpose of this program is to prevent injury to contractors, faculty, staff and students from the unexpected energizing, start-up, or release of stored energy.

This program provides the minimum requirements for SCU Staff, Faculty, Students and Contractors for safe LOTO practices also known as Energy Isolation.

2. Applicability

This Lockout/Tagout (LOTO) Program applies to all University employees and contractors who service, repair, install, adjust, or inspect machines or equipment where the unexpected startup or release of hazardous energy could cause injury. It covers recognized forms of hazardous energy present on campus, including electrical, mechanical, hydraulic, pneumatic, thermal, chemical, and stored or residual energy.

The program applies to work performed in any University-owned or operated building, facility, laboratory, utility space, housing or dining area, athletic facility, or outdoor area where hazardous energy exists. Authorized Employees must apply LOTO procedures when controlling energy sources, and Affected Employees must follow all communication and safety requirements.

Contractors must comply with Cal/OSHA LOTO requirements and coordinate their energy-control procedures with the University. This program does not apply to equipment that is unplugged and under the exclusive control of the employee performing the work or to activities that meet Cal/OSHA's "minor servicing" exemption.

3. Definitions

Affected Person – A person whose job requires them to operate or use a machine or equipment on which cleaning, repairing, servicing, setting up, or adjusting operations are being performed under lockout or tagout, or whose job requires the employee to work in an area which such activities are being performed under lockout or tagout.

Appropriate Department Director – The Director of the department which selects Authorized Person(s) and conducts LOTO.

Authorized Person – A qualified person who locks out or tags out specific machines or equipment in order to perform cleaning, repairing, servicing, setting-up, and adjusting operations on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing cleaning, repairing, servicing, setting-up and adjusting operations covered under this section.

Blind – Another form of blocking is the placement of a blind. A blind is a disk of metal placed in a pipe to ensure that no air, steam, or other substance will pass through that point if the piping system is accidentally activated/pressurized.

Blocked – Equipment is blocked by inserting a mechanical device to prevent inadvertent movement. Potential energy that may need to be blocked can come from suspended or rolling parts subject to movement or gravity, may be energy stored in springs, can cause movement due to air flow, etc. The block must be strong enough to support the entire load of the equipment components if the equipment moves. Blocks should have chain or some other means that can lock the block in place.

De-energize/Disengage – There is a difference between turning off a machine and actually disengaging or de-energizing a piece of equipment. When a control switch is turned off, the control circuit is off. However, there is still electrical energy at the switch, and a short in the switch or someone inadvertently turning on the machine may start the machine running again. In addition, control circuits may only control power relays on main power panels. Prior to maintaining, adjusting or repairing equipment, main power and control circuit power must be de-energized/disengaged. To de-energize/disengage equipment, the fuses/breakers must be removed or turned 'off' and the electrical box containing the fuse/breaker locked shut. A knife switch disconnect locked in the 'off' position is also considered de-energized.

Lockout – The use of devices, positive methods and procedures, which will result in the effective isolation or securing of prime movers, machinery and equipment from mechanical, hydraulic, pneumatic, chemical, electrical, thermal or other hazardous energy sources.

Maintenance and Service – constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and or servicing machines and equipment. These activities may also include lubrication or cleaning of machines or equipment and making adjustments or tool changes.

Testing Equipment – Once the equipment is locked, blocked and/or blinded, it must be TESTED to make sure the machinery is, in fact, de-energized. CAUTION: Return disconnects and operating controls to the off position after each test.

4. Roles and Responsibilities

The following are the SCU Roles and Responsibilities in regards to LOTO:

Group	Responsibilities
Authorized Persons	<ul style="list-style-type: none"> ● Only workers who are —Authorized may conduct LOTO processes. ● A worker must be authorized when their duties include: <ul style="list-style-type: none"> ○ performing cleaning, repairing, servicing, setting-up and adjusting operations on equipment requiring LOTO for safe work activities. The worker's Supervisor determines

	<p>qualifications for authorization based upon the Supervisor's knowledge of the authorized person's skills, and the energy sources on the equipment.</p> <ul style="list-style-type: none"> • All Authorized Person(s) must be trained as outlined in the Training section of this program, be provided appropriate tools to conduct LOTO, and follow all procedures outlined in this program. • Authorized Person(s) may develop energy isolation procedures and conduct annual audits on existing procedures as detailed in section 6 of this document below. • A person may be considered Authorized with respect to certain equipment and safe-work methods on specific equipment, but not authorized for another equipment/location within the same Department. It is the responsibility of the Authorized Person's Supervisor to determine limitations of Authorization for each and every person working under their direction, and document this on the appropriate authorization form.
Employees, Faculty, Academic Staff, and Students	<ul style="list-style-type: none"> • Receive awareness training to not remove LOTO locks, barriers or tags, and to not attempt to restart or reenergize machines or equipment which are locked out or tagged out.
EHS	<ul style="list-style-type: none"> • Conduct annual review of LOTO Program; facilitate training on LOTO program and procedures.
Director of Facilities	<ul style="list-style-type: none"> • Reviews results of the annual LOTO Program review and monitors the resolution of any identified issues.

5. Requirements

Lockout/Tagout (LOTO) shall be used whenever servicing, maintenance, inspection, setup, adjustment, or other work activities could expose employees to the unexpected energization, startup, or release of hazardous energy. All hazardous energy sources must be identified, isolated, and controlled prior to beginning work.

Only Authorized Persons may apply lockout or tagout devices. Locks, tags, blocks, blinds, or other energy-control measures shall be applied, removed, and verified exclusively by the Authorized Person(s) performing the work. Affected Persons and other employees shall not attempt to operate, energize, or interfere with equipment that is locked or tagged out.

All forms of hazardous energy—including electrical, mechanical, hydraulic, pneumatic, thermal, chemical, gravitational, and stored or residual energy—shall be isolated,

dissipated, restrained, or otherwise rendered safe. Where de-energization alone does not eliminate the hazard, additional protective measures such as blocking, bleeding, grounding, or securing components shall be used.

Before work begins, the Authorized Person shall verify that energy isolation and control measures are effective and that the equipment is in a zero-energy state. Verification shall be performed using appropriate methods such as attempting to start the equipment, testing circuits, or visually confirming isolation, as applicable. Controls shall be returned to the “off” or safe position following verification.

Equipment-specific energy control procedures shall be developed and used when machines or systems involve multiple energy sources, complex isolation steps, or unique hazards. These procedures shall be followed consistently and maintained in a current condition.

Group lockout and shift-change procedures shall be implemented when more than one Authorized Person is involved or when work extends across shifts, to ensure continuity of protection for all affected personnel.

Contractors performing work on University property shall comply with applicable Cal/OSHA Lockout/Tagout requirements and shall coordinate energy-control activities with the University prior to beginning work. Contractor procedures must provide protection equivalent to this program.

Lockout/Tagout is not required for cord-and-plug equipment where unplugging completely controls the hazardous energy and the plug remains under the exclusive control of the employee performing the work. Minor servicing activities may be exempt only when they meet all applicable Cal/OSHA criteria and alternative protective measures provide effective protection.

Compliance with this program helps ensure a safe working environment and supports the overall health and safety of the University campus community.

6. Procedures

De-energizing Methods and LOTO Devices

Electricity

- Most preferred method for isolating electrical energy is the main electrical disconnect switch that can be physically locked in the Off/Open position with a single lock.
 - If more than one employee works on the equipment, a lockout adaptor or multiple-lock hasp, suitable for the installation of several locks must be used, enabling authorized employees to lock out the machine with their individual locks. Each authorized employee should retain their individual key.

- If the disconnect switches are in a metal box, the box itself must be locked out in the closed position.
- Removal of fuses should be used as a means of isolation if no lockable disconnect device exists. If a fuse was removed in order to de-energize the equipment, the fuse box must be locked. If the controls are in a metal-covered box, a common hasp can be welded or riveted to the door, along with a lock staple. Then the switch can be opened and the door closed and padlocked. Fuse boxes can also be locked in this way. In some equipment, an electric control circuit will actuate a main power circuit. In such situations, both circuits must be locked and tagged out before safe-work can proceed.
- After applying the lock(s), the authorized employee shall verify that electrical energy has been interrupted by attempting to start the equipment and/or testing circuit parts using an approved test device before performing any work.

Pressurized Systems

- Machines activated by compressed air or steam will have valves that control movement. These valves will need not only to be locked out, but also bled to release any residual pressure.
- Physically disconnect the equipment from the supply plumbing if feasible. If physical disconnection is not feasible, use double valves or blind off supply lines with appropriate flange plates or pipe caps.
- After isolation and bleed-off, all bleed valves should be left in the open position and secured as needed to prevent recharge of the system until work is complete and equipment has been safely returned to service.

Mechanical Energy

- Blocks are placed under raised lifts or any equipment that might inadvertently move by sliding, falling or rolling. Blocks, special brackets, or special stands such as those commonly used under raised vehicles, must be used.
- Prior to installing blinds or blocks, steam, air, or hydraulic lines are bled down to return the system to atmospheric pressure. Coiled springs, spring-loaded devices, or suspended loads are released so that their stored energy will not result in inadvertent movement. Bleed valves must be locked "open". All components must be visually verified as stable and secured prior to performing work.
- Examples of blocks include:
 - Support rods for counterweights or elevated components
 - Bar through spokes of a wheel, flywheel or fan blades
 - Wedge-shape wheel-chalk for rolling components

When a Lock or Tag is Required

Equipment must be locked or tagged out whenever:

- Maintenance or service work is performed to ensure employees are protected from the unexpected energizing or start-up of the equipment or release of hazardous energy;
- Before removal or bypassing of any guard or safety device, or
- When a person is required to place any part of their body into a "point of operation" or other danger zone that exists during a machine operation cycle.
- Lockout or tagout shall also be used whenever the unexpected energization, startup, or release of stored energy could cause injury, including during the release, blocking, or neutralizing of all stored or residual energy (e.g., hydraulic, pneumatic, spring, gravity, thermal).
- All hazardous energy sources shall be isolated, locked out or tagged out, and rendered safe prior to beginning maintenance or servicing work.
- Exceptions to Lockout/Tag-out:
 - Normal production activities in which lockout cannot be feasibly conducted because of the nature of its operation, or if the operation is routine. Safeguards must be provided to assure that the work performed using alternative measures will provide effective protection.
 - Adjustments that need to be made while equipment is running.
 - Cord and plug type of equipment (operator has 'control' of cord). Removal of plug from outlet is sufficient.

Approved Lockout-Tagout Devices

Safety locks will be provided or issued to each authorized employee to be used only for lockout purposes.

- Safety locks will be standardized, approved and supplied by the Facilities Stockroom in Building 604
- One key will be given with the safety lock. Any duplicate keys will be destroyed. The making of duplicate keys is strictly prohibited.
- Each lock will be identified with the person's name engraved on the face and/or with a tag.
- Safety locks shall be used exclusively for lockout purposes and not be used for any non-LOTO application.
- Multiple lock adapters will be available for all jobs requiring more than one lock.
- Tags will be provided or issued to each authorized employee to be used only for tagout purposes. Tagout only tags must use tielocks or equivalent, having a minimum unlocking strength of at least 50 lbs.
- Tagout devices shall be used only when a lockout device cannot be applied, and tagout must provide a level of safety equivalent to lockout, including additional means such as removing valve handles, blocking switches, or opening disconnecting devices.
 - NOTE: Tags will not be used unless locks cannot be physically installed to isolation devices. These instances must be reported to the Supervisor, and efforts will be made to implement engineering changes to allow the use of locks in the future. Whenever replacement, major repair, renovation, or modification of a machinery or equipment is performed, or whenever new machinery/equipment is installed, energy isolation devices for such machines and equipment must be capable of accepting a lockout device. Safety Locks and Tags used for lockout –tagout purposes shall not be used for out of service equipment or for other extended purposes to limit access to

changes in settings.

- System locks will be made available to authorized Supervisors for the purpose of providing lockout continuity across multiple shifts and/or for coordinating complex lockout procedures involving multiple teams or interface with site contractors.
 - System locks are keyed alike and may not be used for personal lockout under any circumstances.
 - System locks shall not be installed without a multiple locking hasp and tag. Employee's performing lockout shall apply safety locks to the hasp (and hold a single key) for the duration they are exposed to potentially hazardous energy.
 - System locks can remain beyond a single shift and may be removed by persons other than the installer, If the conditions noted below are met:
 - The authorized employee who applied the lock is not on the premises; and
 - Reasonable efforts have been made to contact the employee; and
 - The equipment has been inspected to ensure it is safe to re-energize; and
 - The employee is informed of the lock removal before resuming work.

7. Training

- **All Employees whose work operations may be in an area where energy control procedures may be utilized** - Receive awareness training to not disturb LOTO equipment, including the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out, unless authorized to do so.
- **Authorized Personnel** - Receive detailed LOTO training on hazardous energy control procedures and on the hazards related to performing activities required for cleaning, repairing, servicing, setting-up and adjusting prime movers, machinery and equipment.
- **Contractors** - Receive orientation training in accordance with SCU's Contractor Safety Program.
- Retraining shall be provided whenever there is a change in an employee's job assignment; a change in machines, equipment, or processes that present a new hazard; a change in energy control procedures; or when periodic inspections, observations, or other indications reveal deviations from or inadequacies in an employee's knowledge or use of lockout/tagout procedures

8. Recordkeeping and Documentation

Periodic Inspections

- Inspections shall be made periodically (at least annually) by appropriate department Directors or their designated authorized employees and records maintained certifying that all equipment-specific lockout procedures are

being performed correctly. The appropriate department director or their designated authorized employee conducting the inspection shall be someone other than the one(s) utilizing the hazardous energy control procedures being inspected.

- The periodic inspection shall include a review between the inspector and authorized employees of their responsibilities under the hazardous energy control procedure being inspected.
- The records shall include the equipment or machine on which the energy control procedure was inspected, the date of the inspection, and each of the employees included in the inspection and the authorized employee performing the inspection

Annual Reviews

EHS will conduct a review at least annually of the written program, equipment inventory, employee training, and specific operating procedures to ensure the system remains current and effective.

9. Key References and Resources

- [8 CCR 3314](#) – Control of Hazardous Energy for Cleaning, Repairing, Servicing, Setting-Up
- [8 CCR 2320.4](#) – De-Energized Equipment or Systems
- [Attachment 1 – Hazardous Energy Control Tag Criteria](#)
- [Attachment 2 – Inventory of Single Source Equipment](#)
- [Attachment 3 – Single Source Isolation Procedure](#)
- [Attachment 4 – Inventory of Two or More Energy Sources](#)
- [Attachment 5 – Group Lockout/Tagout Procedure](#)
- [Attachment 6 – Multiple Source Energy Isolation Procedure](#)
- [Attachment 7 – Emergency Lock Removal Authorization Form](#)

10. Program Revision History Approval

No.	Date	Responsible Person	Revision Description
2	03/02/2026	Andrew Siersema	Complete Program Revision
1	06/01/2017	Dave Mathe	Update Attachments
New	07/06/2010	Joe Sugg	New

11. Program Approval

<i>Signature on file in EHS office</i>	03/02/2026
Signature	Enter Date
Sam Nordberg Sr. Director, Environmental Health and Safety	