

Safety Policy Manual

3.0 Definitions

Affected worker - An employee or contractor whose responsibilities require him/her to operate or use a machine, equipment or system on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized worker - A person who has received training and has been given the authority and responsibility to lock out and tag out machines or equipment in order to perform servicing or maintenance. An affected worker becomes an authorized worker when that person's duties include performing maintenance or service on a machine or equipment that must be locked or tagged out.

Capable of being locked out - An energy-isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices will 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.

Controlling contractor (Contractor) – A prime contractor, general contractor, construction manager or any other legal entity which has the overall responsibility for construction of the project (e.g. planning, quality and completion).

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 switch by which conductors of a circuit can be disconnected from all ungrounded supply connectors where no pole can be operated independently. Other examples include a slide gate, a slip blind, a line valve, a block, or any similar device used to block or isolate energy. This term does not include a push button, selector switch and other control circuit type devices.

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

Group Lock Box: A method of maintaining a lockout/tagout procedure when more than one person is involved. The lock box is used to store any keys used in the lockout/tagout procedure until the job is complete.

Lockout - The placement of a lockout device on an energy-isolating device, 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.

Primary Authorized Worker- An authorized worker who has overall responsibility for meeting the requirements of the lockout/tagout procedures when working in a group. The Primary Authorized Worker will attach a lock and tag when the equipment is de-energized before work begins and will be the last person to remove their lock and tag when the job is completed.

Servicing and/or maintenance - Workplace activities such as setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities may include, but not limited to the removal of fixed guards, equipment or parts lubrication, cleaning or un-jamming of machines or equipment and making adjustments or tool changes, where the worker may be exposed to the unexpected energization or start-up of the equipment or hazardous release of energy.

Tagout - The placement of a tagout device on an energy isolating mechanism 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, which can be securely fastened to an energy-isolating device to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed. The tagout device will include the worker's name and date applied.

4.0 Responsibilities

- 4.1 **EH&S** provides oversight of the control of hazardous energy program and will:
- Provide consultation and assistance to departments to comply with the requirements of this program and planning of work which has the potential to release hazardous energy
 - Assist with the coordination of required training.
 - Assist in the investigation of accidents or near miss events involving the release of hazardous energy.
 - Conduct periodic audits of the program to assess overall effectiveness
- 4.2 The **Facilities/Engineering and Real Estate** departments, responsible for oversight of the installation, commissioning, servicing, maintenance or decommissioning of equipment, systems and processes with the potential for unexpected release of hazardous energy must establish procedures to:

- a. Where required (see section 5.2), ensure that specific visual and written lockout/tagout procedures for the servicing and maintenance of machines, equipment, systems or processes have been developed and periodically inspected and to ensure their immediate availability to authorized workers.
- b. Maintain a current inventory of all machines, equipment and processes that require implementation of lockout/tagout procedures.
- c. Ensure that machines, equipment or processes that are newly installed or have undergone major repair, renovation or modifications are designed to accept a lockout device.
- d. Ensure the immediate availability of required equipment such as locks, tags, chains, lockout devices, personal protective equipment (PPE) when lockout/tag-out procedures are required.
- e. Ensure that all authorized workers who will be required to implement lockout/tagout procedures are provided training as required by this policy.
- f. Ensure that their contractors/vendors are informed of the lockout/tagout procedures applicable to their project(s) scope.
- g. Maintain records including equipment and system manufacturer documents, appropriate documentation of periodic inspections, specific lockout/tagout procedures and training.
- h. Monitor ongoing compliance with this policy.

4.3 The **RED+F Design and Construction department, including Project Management (PMs)**, responsible for oversight of the installation, commissioning, servicing, maintenance or decommissioning of equipment and systems with the potential for unexpected release of hazardous emergency shall:

- a. Ensure that newly installed or modified equipment or systems can accept a lockout device and where required (see section 5.2), have a visual and written lockout/tagout procedure developed and posted
- b. Ensure that their contractors and vendors are aware of the requirements of this policy and the NYULH Utility Shutdown policy.
- c. Ensure that their contractor, subcontractors or vendors have a lockout/tagout program, procedure, training and devices.
- d. Provide manufacturer's documentation for new systems and equipment to Facilities/Engineering, Real Estate or building management.
- e. Plan work on equipment and systems with the potential for unexpected release of hazardous energy with Facilities/Engineering, Real Estate or building management, and EH&S.

4.4 **Safety Officers, Facilities/Engineering Managers and Real Estate Tenant Coordinators** are responsible for:

- a. Attending and actively participating in training as required by this program.
- b. Understanding when equipment and systems need to be locked and tagged out for service and maintenance.

- c. Collaborating with authorized workers and facilitating energy control procedures, including the notification of affected personnel.
- d. Participate in the planning of work on equipment and systems with the potential for unexpected release of hazardous energy.

4.5 **Managers/Supervisors** of personnel who work on energized machines, equipment, systems or processes must:

- a. Identify and maintain a list of authorized workers under their supervision.
- b. Where required (see section 5.2), conduct and document periodic inspections to ensure that lockout/tagout procedures are properly developed, implemented and maintained.
- c. Ensure that required lockout/tagout equipment is available, properly maintained and used.
- d. Qualify as an authorized worker and approve authorized workers under 2-750(W Tm 0 g 0 11 and maintaine g.

- e. A single lockout device shall achieve a lockout condition.
- f. The lockout device is under the exclusive control of the authorized worker performing the servicing or maintenance.
- g. The servicing or maintenance does not create hazards for other workers.
- h. The department responsible for the machine or equipment, in utilizing this exception, has had no accidents involving the unexpected activation or re-energization of the machines, equipment or processes during servicing or maintenance work.

5.3 Periodic Inspections of Procedures

Where a written energy control procedure is required for a machine or equipment (see exception in section 5.2), a periodic inspection of that written procedure shall be conducted and documented at least annually by the Manager/Supervisor or designee. The purpose of the periodic inspections shall be to ensure the procedures are accurate and performed correctly by the authorized workers. The following requirements shall be complied with when performing the review.

- a. The inspection must include a representative sample for each energy source. Machines, equipment, systems or processes that utilize the same lockout/tagout procedures do not have to be inspected individually.
- b. The inspection shall include a review, between the inspector and EACH AUTHORIZED WORKER, of that worker's responsibilities under the energy control procedure being inspected.

equipment, system or process cannot be locked out, please refer to Section 7.5: "Procedures when equipment cannot be locked out".

- i. The authorized worker(s) shall ensure that the energy isolating device is marked or labeled to identify the machine, equipment, system or process supplied and the type and magnitude of the energy being controlled, unless they are so positioned or arranged that those elements are evident.
- j. A tagout device shall be affixed to the locking device, energy source, or as close as possible to the device if it cannot be affixed directly. The tagout device must be affixed in such a manner that it will clearly indicate that the operation or movement of the energy isolating device from the "SAFE", "OFF" or "CLOSED" position is prohibited.
- k. After the lockout/tagout devices have been applied, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, or otherwise rendered safe by bleeding, draining, discharging, disconnecting, etc. The authorized worker(s) shall ensure that all workers are clear of the area surrounding the machine, equipment, system or process prior to releasing the stored energy.

NOTE: The authorized worker(s) and supervisor shall be familiar with what to expect when the stored or residual energy is released and the effect(s) of releasing the stored energy will have on the machine, equipment, system or process prior to releasing the stored energy. The machine or equipment and personnel shall be properly positioned prior to releasing the stored energy.

- l. The authorized worker(s) shall verify that the machine or equipment is isolated by attempting to operate the machine or equipment by checking switches, valves, etc. The authorized worker(s) shall ensure the area surrounding the machine, equipment, system or process is clear of all unauthorized workers prior to verification.
- m. If there is a possibility of re-accumulation of stored energy, verification of isolation by checking the on/off switch or other equivalent means shall continue until the activity is completed, or until the possibility of such accumulation no longer exists.

NOTE: The authorized worker(s) shall ensure that all workers are safely clear of the work area and not at risk prior to verification.

- n. Servicing and maintenance work on the machine or equipment may then be

performed.

- o. Where service or maintenance of a machine or equipment requires more than one authorized worker, a group lockout/tagout procedure (see section 7.2) is employed and, the primary authorized worker must leave the work area, another authorized worker shall be given the primary authority and responsibility for the work assignment. The procedures for personnel changes shall be followed (see Section 7.3). If another authorized worker is unavailable to assume the primary role, all work shall cease and all affected or impacted worker(s) and department(s) shall be notified. The lockout/tagout procedure shall be repeated in its entirety upon returning to the work area.

- p. When the work is completed, the authorized worker(s) shall ensure the following procedures are followed:
 - 1. Ensure that all components are operationally intact.
 - 2. Clear the machine or equipment of all non-essential tools and materials.
 - 3. Ensure that all workers are safely positioned or removed.
 - 4. Verify that machine controls are in neutral to prevent movement upon re-energization.
 - 5. Replace machine or equipment guards, if appropriate.
 - 6. Before starting the machine/equipment, inform all affected workers and appropriate area managers that work has been completed and the estimated time at which lockout/tagout devices will be removed.
 - 7. Remove the lockout and tagout device(s). Note: Each individual or group shall remove his/her own lockout and tagout device.
 - 8. Energize the machine, equipment, system or process and notify appropriate managers/affected dep(i)-17(d)-1o-16(e)-17(d)g6(e)-17(d)g6(e)-17 that the e

- e. If equipment will be re-energized, supervisor or designee shall remain with equipment while equipment is being restarted.
- f. Notify affected workers
- g. Document the removal using the “Lock Removal Notice” (Appendix B). Completed forms shall be retained by the authorized worker’s department. The frequency of lock removals shall be periodically evaluated to determine if corrective action is needed.

7.2 Group Lockout

Machines, equipment, systems, process and circuits may require servicing and/or maintenance by more than one authorized worker. Each authorized worker performing service and/or maintenance must apply his/her personal lock. Every authorized worker who applies a personal lock shall verify that the machine, equipment, system, process or circuit has attained a zero energy state or observe the verification process.

- a. Multiple lock application may be accomplished using:
 - Multiple lock devices (hasps) that accommodate several personal locks;
 - The use of general locks and a lock box. For example, if a machine with multiple energy sources is going to be serviced by multiple personnel, it may be useful to use general locks at the energy sources. Keys for the general locks are held in lock boxes to which employees attach their personal locks.

- b. Group Lock Box Process

If a group lockbox is used for the maintenance or servicing task, a “Primary Authorized Worker” shall be designated by the Manager/Supervisor performing the lockout and responsible for the workers under the protection of the group lockout.

When more than one trade, contractor, vendor or department is involved, the responsibility of the overall lockout/tagout control shall be assigned to an authorized worker designated by the department supervisor or PM with the overall responsibility for the job.

The Primary Authorized Worker(s) shall follow the notification, shutdown and lockout steps and then place all keys to the group locks into a group lockbox. They shall then affix his/her personal lock on the group lockbox.

All of the authorized workers conducting maintenance or servicing on the equipment must verify/be shown by the Primary Authorized Worker that the machine was locked out and hazardous energy controlled appropriately and then affix their individual locks to the group lockbox until their portion of work is completed.

7.4 Procedures when equipment cannot be locked out

Note: Live electrical work shall only be performed by qualified and NFPA 70e trained electrical personnel utilizing required personal protective equipment and protective measures. Live electrical work in excess of 480v shall be planned as indicated below.

The following procedures must be used when equipment, machines, systems or process(es) with hazardous energy cannot be locked out:

- a. The Manager/Supervisor or PM shall plan this work with the authorized facilities trade staff or contractor/vendor personnel, Facilities/ Engineering, Real Estate or building management, and EH&S. Every feasible option for locking out the equipment shall be considered before moving forward with other non-lockout options.
- b. Additional safety procedures shall be implemented to reduce the likelihood of inadvertent energization, i.e. removal of an isolating circuit element, blocking of a control switch, removal of a valve handle.
- c. The tagout of the energy isolating device(s) must provide equivalent protection as a lockout device would provide.
- d. The energy isolating device should be within view of the authorized worker(s) or the “buddy” system or another additional safety procedure must be used.

7.5 Testing and Positioning

When power must be temporarily restored to a machine or system to test or position the machine, equipment or components, the following sequence of actions shall be followed. This procedure is for **ONLY** for adjustments and observations that can be made without placing workers at risk or coming into contact with energy sources. **This shall be verified and documented as part of that machine/equipment’s specific lockout/tagout procedure and must be verified at least annually.**

- a. Clear the machine or equipment of tools and materials.
- b. Notify all affected workers that the lockout/tagout device(s) are being removed and ensure that they are safely positioned or cleared from the area.
- c. Remove the lockout device as specified in the lockout removal section of this procedure.
- d. Energize and proceed with testing or positioning.
- e. When testing or positioning is completed, de-energize all systems, verify and reapply the energy control measures.

8.0 Training

8.1 Authorized Workers

Authorized Workers must have the knowledge and skills necessary for the safe application, use, and removal of energy isolating devices. Each authorized worker must be able to safely perform the work required by any energy control procedure that they may be called upon to use, however rarely. All workers (including supervisors) authorized to perform lockout/tagout procedures shall be trained in the following:

- a. Recognition of hazardous energy sources.
- b. Type and magnitude of energy sources associated with machinery or equipment on which they will work.
- c. Energy control procedures including means and methods of isolating and/or controlling energy.
- d. Means of verification of effective energy control.
- e. Where to obtain written lockout/tagout procedures and copies of this policy.

8.2 Affected Workers

Affected Workers are workers (e.g., machine operators and material handling specialists) who do not implement energy control procedures but are assigned to operate or interact with machines that are serviced and maintained pursuant to energy control procedures. It also includes those employees who are assigned to work in areas where energy control procedures are utilized to service or maintain machinery. Affected employee training must include the following:

- a. General awareness of this policy's scope and purpose
- b. How to recognize lockout/tagout devices
- c. How to recognize when energy control procedures are being used
- d. Importance of not tampering with lockout/tagout devices
- e. Importance of not starting or using equipment that has been locked out or tagged out

NOTE: The Manager or PM shall obtain evidence of control of hazardous energy and lockout/tagout training from the contractor or vendor to perform work.

8.3 Other worker training (i.e. lockout/tagout awareness training)

All other workers who may be in areas where energy control procedures may be utilized must receive training on this policy's scope and purpose, general information on energy control procedures and their importance, and the prohibition against removing a lockout/tagout device and attempting to re-start, re-energize, or operate machinery involved in a lockout/tagout procedure.

8.4 Training Frequency

- a. Training of authorized and affected workers must be provided initially and prior to performing any work that requires use or understanding of lockout/tagout procedures.

- b. Refresher Training: Retraining is required if a periodic inspection reveals, or a supervisor/manager has reason to believe, that there have been deviations from the application of the energy control procedure or inadequacies in a worker's knowledge of or use the energy control procedure. Additionally, retraining must be provided for authorized and affected workers whenever there is a:
 - Change in job assignment
 - Change in machine, equipment, or process that present a new hazard
 - Change in the lockout/tagout procedures

9.0 Out of Service Equipment

Equipment that must be locked out because it is out-of-service and is not being serviced or maintained **is not** part of the lockout program. All locks and tags used for out-of-service equipment shall be different and easily distinguished from the locks and tags identified in the lockout/tagout program. Out-of-Service equipment monitoring and management shall be the responsibility of the Department Manager/Head to which the equipment is assigned.

10.0 Contractors/Vendors

Whenever contract/vendor personnel are to be engaged in activities covered by the scope and purpose of this program, the Manager or PM contracting and overseeing the vendor (e.g., Facilities, Real Estate, RED+F Design and Construction) shall ensure that they are informed of and comply with the requirements of this program and plan their work including providing an MoP, their written lockout/tagout program and evidence of training for their personnel and any subcontractor personnel.

Related NYULH Safety Policies

- 120: Construction Safety Requirements
- 138: Confined Space Entry
- 157: Electrical Safety
- 169: Enterprise Utility and Essential Equipment Shutdown

Appendix A	Lockout Periodic Inspection Form
Appendix B	Lock Removal Notice
Appendix C	Shift Change Lock Check out Form
Appendix D	Lockout Isolation Procedures Checklist

LOCKOUT PERIODIC INSPECTION FORM

Instructions:

This periodic inspection/certification shall be conducted to ensure the procedures are accurate and performed correctly by the authorized workers. The machine specific procedure must be followed when performing the inspection to ensure it is accurate. This inspection must be performed by an authorized worker other than the one(s) utilizing the energy control procedure being inspected.

**Equipment
Name/ID #**

Date:

Authorized Workers Being Inspected

Name	Signature
1.	
2.	
3.	
4.	
5.	
6.	

**PASS
Y/N**

Steps for Machine Shutdown

- Notify affected workers that the machine is about to be shut down and locked out.
- Shut down the machine using normal stopping procedure (i.e. activate the stop button, etc.).
- Isolate all energy sources by closing, blanking and blinding, or otherwise turning switches/disconnects to the “OFF” or “CLOSED” position.
- Apply locks, tags, and/or devices to the energy disconnects for each energy source present.
- Check that all moving parts have stopped. Relieve or disconnect any residual hazardous energy that could be present.
- Verify zero energy state. Attempt to restart at all activating controls, start buttons, etc. and return them to the “off” position.

Steps for Restoring Energy

- Check for others. Check the area surrounding the shut off unit to assure that no one will be exposed to danger when that machine is started up.
- Notify all affected workers that locks/tags are going to be removed and the machine is ready for operation.
- Remove LOTO equipment.
- Test the machine. Perform any necessary testing of the restored machine to ensure it is in operable condition.
- Notify management that work is completed and the area has been returned to operational

LOCKOUT PERIODIC INSPECTION FORM

Is the equipment specific procedure accurate? Yes No

If no, list
deficiencies:

Other Comments:

Inspector Name:

**Inspector
Signature:**





