

Environmental Compliance and Occupational Safety (ECOS)

Safety Procedure: Lockout, Tagout, Tryout (LOTOTO)

Lock Out Tag Out training will be made available through the new online training platform, Safety Skills. Course LOT-1.2 Lockout / Tagout will be a required course for all Planning, Real Estate, and Facilities (PREF) employees enrolled in the training program. The ECOS department will be available to hold toolbox talk training sessions as requested.

Purpose

LOTOTO is a program designed to protect employees working on or near equipment, machinery or systems undergoing *maintenance* or *repair* by ensuring that the adequate energy isolating devices are properly installed.

The Environmental Compliance Occupational Safety department, ECOS, will be available to assist the individual trades of the facilities department, as well as laboratory and makerspace team members to address the specific pieces of equipment, machines and systems that will be worked on.

NOTE Only Qualified Employees will be allowed to conduct the LOTOTO procedure on the pieces of equipment, machines or systems being worked on. A work order should be placed to request needed repairs or maintenance. At times the manufacturer may be required to complete repairs and or maintenance.

The trades will be required to communicate with Supervisors when LOTOTO is to be performed and submit a LOTOTO form upon completion. The forms will be collected by the ECOS department as needed and filed by month and year. The ECOS department will communicate with Supervisors and at times perform a spot check to make sure all procedures are correctly followed.

Definition

LOCK OUT is defined as the physical restraint of all hazardous energy sources that supply power to a piece of equipment, machinery, or system being worked on. Examples of hazardous energy are:

- Electrical
- Mechanical
- Hydraulic
- Pneumatic
- Chemical
- Nuclear
- Thermal Energies

TAG OUT is defined as the application of a warning tag on the physical restraint device that documents the authorized LOTOTO personnel and date of work while also warning others not to start / use the piece of equipment, machine, or system being worked on.

TRY OUT is defined as the physical testing of the piece of equipment, machine or system being worked on after energy isolating devices are installed to ensure that all hazardous energy has been drained from the system prior to work commencing, and to verify that potential hazards no longer exist.

General Steps for LOTOTO Procedure

1. Identify all potential energy sources.

The authorized person performing the maintenance or repair must first locate the main and any stored energy source(s) for the piece of equipment, machine or system having maintenance or repair work performed. Examples of stored energy may include electrical equipment that has energy stored in capacitors, machines that run on hydraulic or pneumatic energy may still retain pressure between a closed energy isolating device and the machines moving parts or machines that run on chemical energy may still have fuel in the lines. All sources need to be identified to keep the worker safe.

2. Inform affected employees in the area.

The authorized person performing the maintenance or repair must communicate with the affected employees who will be affected by the shutdown. The authorized person should communicate what equipment is being locked and tagged, why it is being locked and tagged, the length of the shutdown and who can be contacted for more information.

3. Shut down the machinery.

The authorized person performing the maintenance or repair should perform the normal shut down / power off for the piece of equipment, machinery, or system that the maintenance or repair work will be performed on.

4. Isolate energy sources.

The authorized person performing the work will isolate the main energy source. This may be by shutting a breaker off or by closing a valve.

5. Remove stored energy.

The authorized person performing the work will remove stored energy by turning the piece of equipment, machine, or system on allowing the stored energy to be drained.

6. Lock and tag energy isolation devices.

The authorized person performing the work will place the proper LOTOTO device with a lock and fill out tag at the main energy source. The authorized person will be the one responsible for the key to the lock.

NOTE If multiple authorized people are performing the task each person should have their own lock and key. A lock box may be used to hold all keys with a designated employee in charge.

7. Restarting equipment, machine or system after work is completed.

Once the maintenance or repair is completed the following steps must take place to start the piece of equipment, machine, or system:

- A. Inspect the work area and remove all tools and material used.
- B. Make sure all affected employees remain at a safe distance.
- C. Make sure all controls are in an off or neutral position.
- D. Remove the locks and tags from the main energy source. Each person who placed a lock should be present to remove their lock when their part of the maintenance or repair is completed. No one should remove another person's lock without proper communication with the person. If the person cannot be reached, a Supervisor and ECOS needs to be notified. An absent person LOTOTO lock removal form must be completed.
- E. Turn the energy source on by turning the breaker on or opening the valve.
- F. Power the piece of equipment, machine, or system on to make sure it is working properly.
- G. Allow affected employees to return to area and communicated that maintenance or repairs have been completed.

NOTE If the equipment, machine, or system DO NOT turn on after step 7E of startup then steps 3-6 of LOTOTO will have to be repeated.

NOTE There may be times when a third-party contactor needs to perform the maintenance or repair work. The contactor can use their own locking material and tags but needs to communicate with a Northeastern facility supervisor and complete the required LOTOTO form. At the end of the task, the facility supervisor will collect the form and forward it to the ECOS department.



LOTOTO Form / Checklist

Date: _____

Work Order # _____

Single LOTOTO _____ Group LOTOTO _____ NU Facilities _____ 3rd Party _____ Company Name _____

Name of Authorized person(s): _____

Building: _____ Room # _____ Campus: _____

Reason for LOTO: Maintenance: _____ Repair: _____ Tie-In: _____

Description of work being performed: _____

Type of LOTO device used: _____

Main energy source: _____

Secondary / stored energy source: _____

All authorized or designated employees should initial next to each line below:

Informed affected employees of LOTOTO.	yes _____
Energy sources isolated.	yes _____
Stored energy removed.	yes _____
Proper Lock and tag installed.	yes _____

At completion of maintenance or repair:

All tools and materials used were put away.	yes _____
Controls in off or neutral position.	yes _____
All authorized people were present.	yes _____

If not checked "yes" Supervisor and ECOS notified.

yes _____ N/A _____

If not checked "yes" Absent Person LOTOTO removal form completed

yes _____ N/A _____

Locks and tags removed, and the energy source turned on.	yes _____
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Equipment, machine system turned on and working properly.	yes _____
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Communicated with affected employees that task is completed.	yes _____
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Signature of Authorized Person or Designated Employee

Date



Absent Person LOTOTO Lock Removal Form

Date: _____

Work Order# _____

Absent Person's Name: _____ Phone #: _____

Contact made with absent person: yes: _____ no: _____

If "NO" contact made with absent person's supervisor: yes: _____ no: _____

Supervisor's name: _____ Phone #: _____

Reason for absence: _____

Date absent person will return: _____

Is it safe to remove lock and energize equipment, machine, or system: yes: _____ no: _____

If "yes" determined by: Absent person: _____
Absent person's supervisor: _____
NU Trade Supervisor: _____ if checked: Name: _____
Phone #: _____

***NOTE* If absent person or supervisor CAN NOT be reached Lock SHOULD NOT be removed**

Lock removed: yes: _____ no: _____

Notes: _____

Name, (Print) of worker requesting lock removal: _____

Signature: _____

Signature of absent person's supervisor: _____