INDEPENDENT ELECTRICAL CONTRACTORS

Lockout/Tagout (LOTO) Safety Guide: Achieving and Verifying a Zero Energy State

Purpose: This guide outlines the required steps to safely de-energize, service, and restore electrical equipment using proper Lockout/Tagout (LOTO) procedures. Following these steps helps ensure a Zero Energy State and protects all personnel working on or near equipment.

Eight Steps to Safety (Lockout/Tagout Process)

- ☐ **Announce the Shutdown:** Notify all affected employees working on or near the equipment that a shutdown will occur.

- ☐ **Shut Down Equipment:** Turn off equipment using normal operating controls (ex. push buttons, switches).

- ☐ **Disconnect the Energy Source:** Isolate the equipment at the main energy source (breaker or disconnect).

    - **Always shut down equipment before disconnecting to prevent arcing or explosion.**

- ☐ **Apply Lockout Devices:**
    - Lock all energy-isolating devices
    - Use only approved LOTO locks (not general-use or manufacturer locks)
    - Maintain possession of your key at all times
    - Follow site-specific procedures for group LOTO if applicable

- ☐ **Apply Tags**
    - Attach a completed tag at each lockout point
    - Include name, date, and type of work
    - Ensure tags are secure and clearly visible
    - Tagout alone is not permitted!

- ☐ **Release Stored Energy:** Eliminate all residual energy sources, included:
    - Electrical (capacitors, batteries)
    - Mechanical (springs, flywheels, weights)
    - Fluid/pressure (hydraulic, pneumatic, steam)

- ☐ **Verify Isolation (Control Test):** Attempt to operate equipment using normal controls to confirm it does not start. Then, return controls to “off” or neutral position afterward.

- **Test for Absence of Voltage**
  - Use properly rated testing equipment
  - Follow the Live–Dead–Live method to confirm tester functionality
  - Verify zero voltage before beginning work

Safety Doesn't Stop with Locking Out
After you have locked out and tagged the equipment and completed your repairs, it is important to follow several final steps to ensure a completely safe working environment.

Steps to Take Before Restoring Energy
Once work is complete and equipment is ready:

- Announce that the equipment will be turned on again
- Remove all locks and tags
- Restore energy at the source
- Test equipment to confirm that it is working properly

Keep Everyone Safe

- Each worker should remove their own lock and tag
- If you are the last to remove a lock, notify your supervisor before restoring power
- During shift changes, allow time for those on the new shift to snap their locks in place before removing your own lock. Always take your lock with you at shift end
- If you must remove a lock, you did not install, follow Company Safety Manual procedures.

LOTO Equipment Standards
A Good Lock Should:

- Withstand extreme temperatures and environmental conditions
- Be strong enough that it cannot be removed without heavy force.
- Have one regular key.

A Good Tag Should:

- Display a clear, visible warning
- Be easy to read
- Resist damage from heat, chemicals, and wear
- Be securely fastened to prevent accidental removal

Key Takeaway
Effective Lockout/Tagout is not just a procedure, it is an important safety system. Following each step carefully ensures a true zero energy state and protects everyone on site.

When in doubt, stop and consult your supervisor or Company Safety Manual.