
Heavy Industrial Lockout/Tagout (LOTO) Master Procedure Template

1.0 Objective & Intent

The objective of this Standard Operating Procedure (SOP) is to establish a mandatory, auditable lockout/tagout (LOTO) process for all heavy industrial machinery within the cabinet and millwork manufacturing facility. This procedure is designed to prevent the unexpected energization, start-up, or release of hazardous energy during maintenance, repair, cleaning, or setup activities. Compliance with this SOP ensures adherence to WorkSafeBC regulations (OHS Regulation Part 10) and mitigates the risk of severe injury or fatality from caught-in, struck-by, or electrocution hazards.

2.0 Operational Scope

This procedure applies to all maintenance personnel, electricians, machine operators, and any authorized employees performing service, repair, or cleaning tasks on heavy industrial equipment. It covers all machinery in the cabinet and millwork facility, including but not limited to: CNC routers, edgebanders, panel saws, sanders, dust collection systems, compressors, and hydraulic presses. This SOP is mandatory for any task that requires the removal of guards or exposes personnel to hazardous energy sources.

3.0 Hazard Identification & Mandatory PPE

- Electrical Shock: Contact with live circuits during maintenance or from stored capacitor discharge.
- Mechanical Entanglement: Unexpected machine start-up causing caught-in or caught-between injuries from rotating shafts, belts, or pinch points.
- Stored Energy Release: Hydraulic or pneumatic pressure release, spring-loaded mechanisms, or gravity-driven components.
- Thermal Burns: Contact with hot surfaces or steam from heated platens or hydraulic systems.
- CSA-Approved Steel Toed Boots (with puncture-resistant sole)
- Safety Glasses with side shields (Z87.1 rated)
- Class 00 or 0 Rubber Voltage Gloves with leather protectors (for electrical work)
- Hearing Protection (earplugs or earmuffs, NRR 25+ in high-noise areas)
- Cut-Resistant Gloves (ANSI A4 or higher) for handling lockout hardware

4.0 Required Safety Equipment & Tools

- Lockout/Tagout (LOTO) Kit: Includes multiple padlocks (keyed differently), hasps, and danger tags.
- Personal Lockout Lock (unique key, one key per employee)
- Group Lockout Box (for multi-source isolation)
- Voltage Tester (non-contact or multimeter, rated for the circuit voltage)
- Lockout Station (centralized storage for locks, hasps, and tags)
- Machine-Specific Isolation Point Diagrams (laminated and posted on each machine)
- Spill Kit (for hydraulic fluid or coolant leaks during isolation)

5.0 Step-by-Step Safety Procedure

1. Notify all affected personnel (operators, supervisors, adjacent workers) that a LOTO procedure is about to be initiated. Clearly communicate the machine, the reason for shutdown, and the expected duration.
2. Identify all energy sources for the specific machine using the posted isolation point diagram. This includes electrical, pneumatic, hydraulic, thermal, gravitational, and stored energy sources.
3. Shut down the machine using its normal stop/off controls. Ensure all moving parts have come to a complete stop before proceeding.
4. Isolate each identified energy source at its primary disconnect point. For electrical, turn the main disconnect switch to the OFF position. For pneumatic, close the ball valve. For hydraulic, close the isolation valve. For gravitational, block or secure the load.
5. Apply a personal lock and danger tag to each isolation point. Use a hasp if multiple workers are involved. Each lock must have a unique key held only by the person who applied it. Tags must include the worker's name, date, and reason for lockout.
6. Verify zero-energy state by attempting to start the machine using its normal controls. The machine must not operate. Then, use a voltage tester to confirm no electrical power at the machine's main power terminals. For pneumatic/hydraulic systems, check pressure gauges to ensure they read zero and bleed any residual pressure using the bleed valve.
7. Release any stored energy by manually bleeding hydraulic accumulators, discharging capacitors (if applicable), and blocking or cribbing any gravity-driven components. Confirm all energy is dissipated.
8. Perform the required maintenance, repair, or cleaning task. Only authorized personnel with their personal lock on the isolation point may work on the machine. No one else may remove or tamper with any lock or tag.
9. When the task is complete, inspect the work area to ensure all tools and materials are removed, all guards are reinstalled, and no personnel are in the danger zone. Remove all personal locks and tags in the reverse order of application. Each worker removes only their own lock.
10. Notify all affected personnel that the LOTO procedure is complete and the machine is ready for re-energization. Re-energize the machine by restoring each energy source in the correct sequence. Verify normal operation through a test run.

Regulatory Disclaimer: This document is a generic safety template provided for educational and informational purposes only. It does not constitute professional engineering, legal, or regulatory compliance advice. The end-user assumes all liability for validating all safety protocols against specific machinery manufacturer manuals and local occupational health and safety regulations (e.g., WorkSafeBC, CSA standards) before deployment.