

Dust Containment Enclosure Setup For Renovations

1.0 Objective & Intent

This SOP defines the safety protocols for the setup, maintenance, and removal of dust containment enclosures during renovation activities within a cabinet and millwork manufacturing facility. The primary objective is to control airborne particulates, including wood dust, drywall dust, and other renovation debris, to prevent respiratory hazards, fire risks, and cross-contamination of clean work areas.

This procedure aligns with WorkSafeBC regulations under the Occupational Health and Safety Regulation (OHSR), specifically Part 5 (Chemical Agents and Biological Agents) and Part 8 (Personal Protective Clothing and Equipment), and Part 20 (Construction, Excavation, and Demolition). Failure to properly contain dust can result in overexposure to respirable crystalline silica, wood dust, and other particulates, leading to chronic lung disease, fire hazards from combustible dust, and regulatory penalties.

2.0 Operational Scope

This procedure applies to all maintenance personnel, renovation crews, and subcontractors performing renovation, demolition, or construction activities within the facility that generate airborne dust. It covers the setup of temporary containment enclosures using polyethylene sheeting, zippered doorways, and negative air pressure systems.

Locations include any interior renovation zone, including production floors, finishing rooms, storage areas, and administrative spaces. This SOP does not apply to routine production dust collection systems (e.g., baghouses or cyclones) or outdoor renovation activities.

3.0 Hazard Identification & Mandatory PPE

- **Respirable Dust Inhalation:** Wood dust, drywall dust, silica, and other particulates can cause silicosis, asthma, and lung cancer. Use NIOSH-approved N95 or P100 respirators as per exposure assessment.
- **Combustible Dust Explosion:** Accumulated fine wood dust can ignite. Enclosures must be constructed with non-combustible or fire-retardant materials where possible, and ignition sources must be eliminated.
- **Trip Hazards:** Polyethylene sheeting, tape, and framing materials can create slip/trip hazards. Keep walkways clear and secure all edges.
- **Sharp Objects:** Staples, utility knives, and metal framing can cause lacerations. Use cut-resistant gloves when handling materials.
- **Electrical Hazards:** Extension cords and power tools used near enclosures may be damaged or create shock risks. Use GFCI-protected circuits and inspect cords.
- **CSA-Approved Steel Toed Boots**
- **Safety Glasses or Goggles (Z87.1 rated)**
- **Cut-Resistant Gloves (ANSI A4 or higher)**
- **NIOSH-Approved N95 or P100 Respirator (based on exposure assessment)**
- **Hard Hat (if overhead work or framing is involved)**
- **Hearing Protection (if using power tools or HEPA vacuums)**

4.0 Required Safety Equipment & Tools

- Fire-retardant polyethylene sheeting (6 mil minimum) for walls and ceiling
- Zippered doorway kits or overlapping flap doors for access
- Duct tape and double-sided tape for sealing seams
- Staple gun and staples (pneumatic or manual) for attaching sheeting to framing
- HEPA-filtered negative air machine (at least 1 air change per hour for the enclosure volume)
- HEPA vacuum with HEPA filter for cleanup inside enclosure
- Extension cords (GFCI-protected) and power strips
- Utility knife with retractable blade
- Measuring tape and level
- Warning signs and barricade tape for perimeter
- Personal dust monitor (optional but recommended for high-risk tasks)

5.0 Step-by-Step Safety Procedure

1. Conduct a pre-task hazard assessment. Identify all potential dust sources, electrical hazards, and combustible dust accumulation areas. Review the renovation scope and determine the required enclosure size and negative air pressure requirements.
2. Clear the work area of all unnecessary materials, equipment, and personnel. Remove or cover any sensitive equipment or finished products with plastic sheeting. Post warning signs at all entry points to the containment zone.
3. Erect the containment frame using fire-retardant polyethylene sheeting. Attach sheeting to walls, ceiling, and floor using double-sided tape and staples. Ensure all seams are overlapped by at least 6 inches and sealed with duct tape. Create a zippered or overlapping flap door for access.
4. Install the HEPA-filtered negative air machine. Position the machine inside the enclosure with the exhaust ducted to the outside or into a HEPA-filtered return. Verify that the machine is rated for the enclosure volume (minimum 1 air change per hour). Seal any gaps around the exhaust duct penetration.
5. Turn on the negative air machine and verify negative pressure. Use a smoke pencil or tissue test at the door opening to confirm air is flowing into the enclosure. Adjust the machine or add additional units if necessary. Document the pressure reading.
6. Set up a HEPA vacuum inside the enclosure for immediate cleanup of dust generated during renovation. Ensure the vacuum is equipped with a HEPA filter and is grounded to prevent static discharge. Do not use standard shop vacuums without HEPA filters.
7. Inspect all electrical cords and tools for damage before use. Use only GFCI-protected circuits. Keep all cords off the floor where possible or tape them down to prevent tripping. Do not run cords under plastic sheeting where they can overheat.
8. Begin renovation work inside the enclosure. Continuously monitor dust levels using a personal dust monitor if available. If dust escapes the enclosure, stop work immediately, identify the breach, and reseal. Maintain negative pressure at all times.
9. Upon completion of renovation, perform a thorough HEPA vacuuming of all surfaces inside the enclosure, including walls, ceiling, and floor. Allow the negative air machine to run for at least 30 minutes after vacuuming to capture remaining airborne particulates.
10. Remove the enclosure carefully. Start by removing the negative air machine and sealing the exhaust duct. Then, remove the plastic sheeting from the top down, folding it inward to contain dust. Dispose of all plastic sheeting and tape in sealed bags. Conduct a final visual inspection and HEPA vacuum the area again.

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.