
Spray Booth Fire Suppression System Weekly Test

1.0 Objective & Intent

This SOP defines the safety protocols for performing the weekly test of the fire suppression system installed in the spray booth. The primary objective is to verify that the system is fully operational, free of obstructions, and capable of automatically discharging in the event of a fire, thereby protecting personnel and preventing catastrophic property loss.

This procedure is mandated under WorkSafeBC Occupational Health and Safety Regulation (OHSR) Part 24 – Fire and Explosion Hazards, and aligns with NFPA 33 – Standard for Spray Application Using Flammable or Combustible Materials. Failure to conduct this weekly test can result in regulatory penalties, increased insurance liability, and undetected system failures that could lead to severe injury or death.

The specific risk mitigated by this SOP is the failure of the fire suppression system to activate during a fire event due to mechanical faults, blocked nozzles, depleted extinguishing agent, or electrical malfunctions. Regular testing ensures that the system remains in a state of readiness at all times.

2.0 Operational Scope

This procedure applies to all spray booths located within the finishing department of the cabinet and millwork manufacturing facility. It covers all fixed fire suppression systems, including wet chemical, dry chemical, and clean agent systems, as well as their associated detection, alarm, and control panels.

Personnel authorized to perform this test include the Plant Safety Officer, designated maintenance technicians, and trained finishing department leads who have completed the company's fire suppression system training program. All testing must be documented on the SafeDesk digital compliance platform.

3.0 Hazard Identification & Mandatory PPE

- Unexpected system discharge: The fire suppression system may accidentally activate during testing, releasing extinguishing agent under high pressure, causing physical impact, respiratory irritation, or slip hazards.
- Electrical shock: Control panels and detection devices operate at line voltage (120V/240V AC). Exposed wiring or damaged enclosures present a shock hazard.
- Chemical exposure: Wet chemical agents (e.g., potassium carbonate solutions) can cause skin and eye irritation. Dry chemical agents (e.g., monoammonium phosphate) can cause respiratory irritation if inhaled.
- Slip, trip, and fall: Spilled extinguishing agent or tools left on the booth floor create slip hazards.
- Pinch points: Access panels, valve handles, and mechanical linkages can pinch fingers or hands.
- Mandatory PPE: CSA-approved safety glasses with side shields; chemical-resistant gloves (nitrile or neoprene); CSA-approved steel-toed boots; hearing protection (if testing alarms); flame-resistant coveralls (if working near active spray operations).

4.0 Required Safety Equipment & Tools

- Lockout/Tagout (LOTO) kit with personal lock and hasp for electrical isolation of the spray booth ventilation and conveyor systems.
- Digital multimeter (rated CAT III or higher) for verifying control panel voltage and continuity of detection circuits.

- System-specific test key or manual release actuator (as per manufacturer instructions).
- Spill containment pads and absorbent material for any accidental agent discharge.
- Flashlight for inspecting dark areas of the booth and suppression system components.
- SafeDesk mobile device or tablet for digital sign-off and documentation.
- Manufacturer's service manual for the specific fire suppression system model.

5.0 Step-by-Step Safety Procedure

1. Notify all personnel in the finishing department that a fire suppression system test is about to commence. Ensure no spray painting or finishing operations are active in the booth. Post a temporary warning sign at the booth entrance.
2. Isolate the spray booth's electrical supply to the ventilation fan and conveyor system using the LOTO procedure. Verify zero energy state by attempting to start the fan from the control panel.
3. Visually inspect the fire suppression system control panel for any fault indicators, alarm lights, or error codes. Record the panel status on SafeDesk. If any fault is present, do not proceed; contact the system manufacturer or a certified technician.
4. Open the access panel to the suppression system's agent storage tank or cylinder. Verify that the pressure gauge reads within the manufacturer's specified green zone (typically 100-150 psi for dry chemical). If the pressure is low, tag the system out of service and schedule a recharge.
5. Inspect all discharge nozzles inside the spray booth for obstructions, paint buildup, or physical damage. Use a flashlight to examine each nozzle. If any nozzle is blocked, clean it with a non-metallic brush or replace it per manufacturer instructions.
6. Test the manual pull station or manual release actuator by pulling the handle or turning the key (as applicable). Verify that the alarm sounds and the control panel indicates a manual activation signal. Reset the system according to manufacturer instructions.
7. Test the automatic detection system by simulating a fire condition using a heat gun or test smoke (if permitted by manufacturer). Hold the heat source near a detector and confirm that the alarm activates and the control panel registers the event. Do not allow the system to fully discharge; stop the test as soon as the alarm sounds.
8. After completing all tests, reset the control panel to normal operating mode. Ensure all alarms are silenced and the system is returned to automatic standby. Close and secure all access panels.
9. Remove LOTO devices from the electrical supply and restore power to the spray booth ventilation and conveyor systems. Verify that the fan operates normally and air flow is restored.
10. Complete the digital test record on SafeDesk, including the date, time, tester name, any faults found, and corrective actions taken. Remove the warning sign from the booth entrance and notify personnel that the test is complete.

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.