

Paint Booth

Spray finishing using flammable and combustible liquids can create an explosive atmosphere. When an atomized application, such as compressed air, hydraulic, or electrostatic methods, is used to spray, it can create an environment conducive to fire and explosions. That's why OSHA, NFPA, UL and local authorities now require the use of approved spray paint booths.

Paint booths are designed to protect people and reduce property damage from fire and explosions. An approved paint booth must meet certain criteria for fire prevention, fire suppression, and containment. This document outlines the basic requirements of an approved paint booth.



Construction

Booths should be UL listed, not the “homemade” variety. Walls, doors, ceilings, and floors must be constructed of non-combustible material of 18-gauge metal or heavier. The material should be smooth to facilitate ventilation and cleaning. While the booth should have no open sides, it should have a means of egress that meets the NFPA 101, Life Safety Code. Three feet of clearance should be maintained on all sides and above the spray booth.

Ventilation

Spray areas should have mechanical ventilation capable of confining and removing vapors and mists to a safe location, as well as confining and controlling combustible residues, dusts, and deposits. Ducts should be constructed of steel or smooth and sealed concrete. Exhaust fans should be nonferrous, and the electrical motors should be explosion proof. The electrical equipment, spray guns, and ventilation system should be interlocked so they cannot operate unless the ventilation fans are in operation.

Fire Suppression

The spray booth, exhaust plenums, exhaust ductwork, area behind filters, and mixing rooms must be protected with an approved automatic fire protection system. The extinguishing system can be water, foam, carbon dioxide, dry chemical, or a gaseous agent, but they must meet all applicable NFPA requirements for those specific systems. The system must activate a local alarm, transmit a signal to the

facility's fire alarm if one is provided, shut down the coating material delivery system, shut down all spray application operations, and stop any conveyors going into or out of the spray area. The system should be inspected and maintained annually by a reputable fire protection contractor.

Electrical

All electrical fixtures, switches, and junction boxes inside the booth must be UL-listed explosion proof and meet NFPA 70 standards. There should be no additional electrical devices inside the booth. Additional devices include portable fans, heaters, radios, portable electrical light fixtures, unapproved extension cords, etc.

Additional Requirements

There should be no overspray or residue on the sprinkler heads. All sprinkler heads should be covered with a thin paper bag or cellophane bag that has a thickness of 0.003 inches. These bags should be replaced when deposits or residue accumulate. Portable fire extinguishers should be provided outside the booth. “No Smoking” signs should be posted around the booth, and this policy should be strictly enforced. The ventilation filters should be replaced based on the manufacturer's recommendations.

