

Spray Booth Installation Requirements & Inspection

INTRODUCTION

Due to the hazardous nature of flammable materials spraying, the California Fire Code and other regulatory codes have specified minimum requirements for their installation. Before new spraying projects are conducted, it is important to identify whether the scope of the operation requires a spraying space, booth or room and how the operation could impact neighboring spaces.

Scope & Applicability:

- **Materials:** Applies to the spraying of flammable or combustible liquids with **flashpoints below 95° F (35°C)**.
- **Equipment:** All forms of spraying apparatus are within the scope of regulations.

Outside the scope: Spraying of solvents or materials with flashpoints above 95°F. Other flammable finishings such as powder coatings, dipping, electrostatic apparatus etc. are not considered here but could carry provisions elsewhere.

Cited Regulations:

- California Fire Code, Chapters 24, 57, 62
- Title 8, California Code of Regulations, Sections 2540, 5446, 5452
- National Fire Protection Agency Standard 33

DEFINITIONS

Class I liquid-Flammable liquid with a flashpoint below 100°F and boiling point below 100°F.

Class II liquid-Combustible liquid with flashpoint above 100°F and boiling point below 140°F.

Class III liquid-Combustible liquid with a flashpoint above 140°F and boiling point below 200°F.

Limited Spraying Space-An area in which operations for touch-up or spot painting of a surface area of 9 square feet (0.84 m²) or less are conducted.

Spray Booth-A mechanically ventilated appliance of varying dimensions and construction provided to enclose or accommodate a spraying operation and to confine and limit the escape of spray vapor and residue and to exhaust it safely.

Spray Room-A room designed to accommodate spraying operations, constructed in accordance with the California Building Code and separated from the remainder of the building by a minimum 1-hour fire barrier.

Spraying Space-An area in which dangerous quantities of flammable vapors or combustible residues, dusts or deposits are present due to the operation of spraying processes.

For any questions or clarifications, please contact EH&S at 949.824-6200, email fibrahim@uci.edu.

Date of Inspection:

Follow-up Date:

EH&S Surveyor:

Dept.	
Building:	Room Number:

Principal Investigator Name:

Principal Investigator Phone/Email:

Staff Performing Operation Name(s):

Staff Phone/Email(s):

DESCRIPTION OF SPRAYING OPERATION

Spraying Area: Room/Booth/Space (Circle One)

Spraying Material:
Name:

Hazard Class: **Flashpoint:**

Cleaning Material:
Name:

Hazard Class: **Flashpoint:**

Spraying Apparatus:
Apparatus Name/Type:

Spraying Pressure:

Surface Area(s) being Finished:

Respiratory Hazard Evaluation:

N/A- Not Applicable **✓** - Compliance **R**-Requiring Correction

Fire Prevention-Hazardous Materials

Spray Booth Installations

1. GENERAL SAFETY REQUIREMENTS	Status	Comments
1.1 Ignition source control must be assessed by operating personnel; including all open flames (none within 20 ft), electrostatic sources, hot surfaces etc.		
1.2 All metal parts of spray booths are grounded.		
1.3 Provisions for handling flammable liquids are observed from the UCI <i>Chemical Hygeine Plan</i> and UCI chemical class SOP for flammables.		
1.4 Provisions for handling organic peroxides are observed from UCI <i>Chemical Hygeine Plan</i> and UCI chemical class SOP for organic peroxides.		
1.5 Electrical wiring inside spray booth is Class I, Division 1 or Class II, Division 1 .		
1.6 Electrical wiring outside spray booths in areas up to 5 feet to the sides and 3 feet vertically must be classified as and adhere to Class I, Division 2 or Class II, Division 2 electrical standards.		
1.7 Personal Protective Equipment is clean and not shared amongst employees		
1.8 Standard operating procedures (SOP) are in place and signed by all users of the spray booth. SOPs need to be specific at least to the level of: <input type="checkbox"/> The supervisor; <input type="checkbox"/> The operation; <input type="checkbox"/> Material being sprayed; <input type="checkbox"/> Material used for cleaning;		
1.9 Combustibles are not kept to the minimal level and are not within the spray room.		
2. BOOTH CONSTRUCTION	Status	Comments
2.1 Construction is of noncombustible material (excluding Aluminum which is not allowed). If sheet metal is to be used it must not be thinner than 1.2 mm or 18 guage in thickness. Additionally, installation must meet all manufacturer's requirements.		
2.2 Interior surfaces are smooth so as to permit the passage of air and facilitate cleaning.		
2.3 Floor is covered by a noncombustible surface.		
2.4 Means of egress- the main exit from the spray booth is at least 30 inches wide and 80 inches long.		
2.5 There is a minimum of 3 feet of clear space around all sides of the booth, allowing all parts of the booth to be cleaned.		
2.6 Size-For a limited booth, the total surface area to be sprayed is limited to 9 square feet.		
2.7 Windows must be approved by EH&S as non combustible and vapor/dust proof (prefereably heat treated glass, wire glass or hammered wire glass).		
2.8 Electric motors that are driving the exhaust fans are kept outside the booth.		

N/A- Not Applicable ✓ - Compliance R- Requiring Correction

3. PROTECTIVE FEATURES	Status	Comments
3.1 Both spray booths and rooms must have an automatic fire extinguishing system approved by UCI EH&S and campus fire marshal.		
3.2 Portable fire extinguishers are provided.		
3.3 Sprinklers must be protected during spraying operations with a special bag (provided by EH&S).		
3.4 Ventilation		
a. Air Velocity across the open face of the booth or during spraying operations is at least 100 feet per minute .		
b. Minimum ventilation of the booth is six air changes per hour .		
c. Ventilation is operated during spraying and for a sufficient amount of time afterwards to exhaust flammable vapors.		
d. The mechanical ventilation is interlocked with the spraying equipment such that spraying cannot be operated unless the ventilation is on.		
e. Spray booths must be designed with an exhaust duct, exhaust ducts must terminate outside to an <i>area 10 feet</i> from building openings and 6 feet from exterior walls and roofs.		
4. USE, MAINTENANCE AND HOUSEKEEPING	Status	Comments
4.1 Equipment, areas, or components accumulating combustible/flammable sprays must be cleaned before the next operations including all surfaces, exhaust fan blades, exhaust ducts and others.		
4.2 Cleaning with Class I liquids* is performed with the ventilation on.		
4.3 Cleaning is not performed outside with Class I liquids ; permissible for Class II and III liquids.		
4.4 Drying operations need to be designed such that the drying apparatus does not raise the temperature of the flammable to a hazardous level .		
4.5 Use of different sprays/finishes in one OR more than one consecutive session must be approved by EH&S due to potential hazardous interactions.		
4.6 Hazardous waste containers appropriate for flammable material are in place; this may include a metal waste can with a lid.		
4.7 Hazardous waste procedures are in place-all cleaning material, filters and components that interact with flammable sprays must be disposed of as hazardous waste.		
5. PROHIBITIONS	Status	Comments
5.1 Portable electrical lamps		
5.2 Interlock of fire alarm system with the vapor area exhaust system		

*See definitions on first page.

N/A- Not Applicable **✓** - Compliance **R**-Requiring Correction