



Construction/Operational Permit Application



Spraying or Dipping

www.cityofvancouver.us/departments/fire-department

International Fire Code as adopted by VMC 16.04 (Washington State Fire Code)

Definitions

DIP TANK. A tank, vat, or container of *flammable or combustible liquid* in which articles or materials are immersed for the purpose of coating, finishing, treating and similar processes.

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 *International Building Code*.

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. The *fire code official* is authorized to define the limits of the spraying space in any specific case.

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.

Permitting Requirements

An **operational permit** is required to conduct a spraying or dipping operation utilizing flammable or combustible liquids (including paint, varnish, lacquer, stain, fiberglass resins) or the application of combustible powders regulated by WSFC Chapter 24 (WSFC 105.5.47).

A **construction permit** is required to install or modify a spray room, dip tank, or booth (WSFC 105.6.22).

A separate permit for flammable/combustible liquids is required for any paint mixing or storage room(s) associated with the spray finishing operation. In buildings other than Group A, E, I, or R occupancies, limited spraying spaces (areas less than or equal to 9 square feet in which operations for touch-up or spot painting are conducted) do not require permits.

Project Information

Site Address		Owner Name	
Other			

Applicant Information

Company Name		Address	
Contact Name			
Office Phone		Cellular	
		Email	

Contractor

Company Name		Address	
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Contact Name			
Office Phone		Cellular	Email
Application type:	<input type="checkbox"/> Installation <input type="checkbox"/> Operational <input type="checkbox"/> Both Installation and Operational		
Installation by:	<input type="checkbox"/> Contractor <input type="checkbox"/> Owner <input type="checkbox"/> Tenant	Type:	<input type="checkbox"/> Spray Booth <input type="checkbox"/> Spray Room <input type="checkbox"/> Spray Space <input type="checkbox"/> Spray area limited to 9 SF or less <input type="checkbox"/> Other _____
Related Permits:	RES _____	CMI _____	DEF _____ MPE _____

Description of Work

Electronic Plan Standards

File Naming Standards:
Electronic plans and documents shall be named as specified in the City of Vancouver [ePLANS](https://www.cityofvancouver.us/business/permits-licenses-and-inspections/eplans/) system:
<https://www.cityofvancouver.us/business/permits-licenses-and-inspections/eplans/>

Acceptable File Types:
Plans, calculations, specifications and supporting documents shall be uploaded as a PDF file.

Plan Sheet Standards:
All plans shall be drawn to scale, as identified in the checklist, and each sheet shall state the scale and show a measurable scale on the page for measurement calibrations.

Document Orientation:
All plans must be uploaded in "Landscape" format in the horizontal position with a north indicator. All other documents can be in "Portrait" format.

Stamped:
Where documentation contains a code analysis or engineering calculations, such documents shall be stamped by the design professional.



Minimum Submittal Checklist for Upload to ePLANS

- Completed Fire Installation Permit Application – Spraying or Dipping (this document) Check all *Permit Conditions* checkboxes that are applicable to your project
- Completed Materials Management Plan (HMMP) documents and supplemental documents (*See Document Details below*)
- Site plans and floor plans (*see Plan Details below*)

Document Details

HMMP Guide: <https://www.cityofvancouver.us/wp-content/uploads/2023/10/Hazardous-Materials-Management-Plan.pdf>
See Vancouver Fire Department HMMP Guide for direction on completing required HMMP and/or supplemental forms

Does your business...	If YES, please complete these pages of the HMMP (linked above):	
Conduct spray-finishing or dipping operations?	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> All HMMP documents <input type="checkbox"/> Spraying or Dipping Permit Application (this document)
Have on site (for any purpose) at any one-time, hazardous materials, including hazardous waste, at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in ASTs and USTs)?	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> All HMMP documents

<p>Have on site (for any purpose) at any one-time, hazardous materials, including hazardous waste, requiring a permit in accordance with Section 105.5.18 of the International Fire Code? (see <i>Permitting Requirements</i> above)</p>	<p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>	<p><input type="checkbox"/> Facility Information Forms <input type="checkbox"/> HMIS <input type="checkbox"/> Site Map & Storage Plan <input type="checkbox"/> Flammable and Combustible Liquids Permit Application</p>
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In addition to the HMMP documents listed above, provide the following documents:

- Narrative explaining system interlocks for spraying apparatus, drying apparatus, and ventilating systems for spray booths and spray rooms to accomplish *all* of the following:
 - Prevent operation of the spraying apparatus while drying operations are in progress.
 - Where the drying apparatus is located in the spray booth or spray room, prevent operation of the drying apparatus until a timed purge of spray vapors from the spray booth or spray room is complete. This purge time shall be based on completing not fewer than four air changes of spray booth or spray room volume or for a period of not less than 3 minutes, whichever is greater.
 - Have the ventilating system maintain a safe atmosphere within the spray booth or spray room during the drying process and automatically shut off drying apparatus in the event of a failure of the ventilating system.
- Narrative explaining the illumination arrangements meeting WSFC 2404.6.2.

Plan Details

The following is a list of information required on all plan submittals for review of a spraying or dipping permit. The plan shall be drawn to 1/8"= 1'-0" minimum scale. The applicant is required to submit all applicable information so an accurate and timely review may be done:

- General:**
- Site plan to include a north arrow, a measurable scale for calibration purposes, fire hydrants, emergency access lanes and doors, vehicle gates, Fire Department Connection, points of assembly/accountability for evacuees, electrical room, gas meters, sprinkler riser, fire alarm control panel, Knox Box, roof access (if provided), and any outdoor hazardous storage.
 - Interior plans showing all access points, hazardous materials storage rooms and/or cabinets, hazardous equipment or operations areas, proposed spray booth/room/space/ area dedicated to this use.
 - Fire-resistance rated construction.
 - Type and listing documents for spray finishing equipment, dip tanks, fluidized beds, factory engineered booths, etc.
 - Type and volume of mechanical ventilation (required). Mechanical ventilation shall be kept in operation at all times while spraying operations are being conducted and for a sufficient time thereafter to allow vapors from drying coated articles and finishing material residue to be exhausted. Spraying equipment shall be interlocked with the ventilation of the flammable vapor areas such that spraying operations cannot be conducted unless the ventilation system is in operation.
 - Method and material to filter exhaust air.
 - Exhaust termination height above roof and distance to openings.
 - Minimum of 3 feet clear space between the booth and combustible construction without storage (unless exceptions apply)
 - Spray booths and spray rooms shall be protected by an approved automatic fire-extinguishing system complying with Chapter 9. Protection shall extend to exhaust plenums, exhaust ducts and both sides of dry filters where such filters are used.
 - Portable fire extinguisher locations per WSFC Section 906 for an extra (high) hazard occupancy.
 - Classified electrical areas (e.g. Class I, Division 1, or Class II, Division 1, hazardous locations in accordance with NFPA 70). Method of electrical grounding as required by NFPA 70 both for equipment and Class I and II liquid containers. Electrical wiring and equipment in spray flammable vapor areas shall be of an explosion-proof type approved for use in such hazardous locations.
 - Areas of open flames and sparks, hot surfaces, or other ignition sources.
 - 'NO SMOKING or VAPING' sign locations.

- Locations of welding warning signs to read:

**NO WELDING
THE USE OF WELDING OR CUTTING
EQUIPMENT IN OR NEAR THIS AREA
IS DANGEROUS BECAUSE OF FIRE
AND EXPLOSION HAZARDS. WELDING
AND CUTTING SHALL BE DONE ONLY
UNDER THE SUPERVISION OF THE
PERSON IN CHARGE.**

- If powered industrial trucks are used in electrically classified areas, they shall be listed for such use (WSFC 2403.2.8)
- Liquid transfer details, valves that are to be closed when not in use, manually or automatic pumped or transferred liquids. Cleaning equipment, method, location, type of solvent.
- Indicate non-sparking tools and approved metal waste cans with self-closing lids that are to be emptied daily.

Permit Conditions

The following is a list of WSFC requirements related to spraying or dipping operations. Use this form to confirm that all applicable requirements are met. Non-applicable requirements can be left blank.

Spray-finishing operations (the application of flammable and combustible liquids by means of spray apparatus in continuous or intermittent processes):

- Spray-finishing operations conducted in buildings used for Group A, E, I or R occupancies shall be located in a spray room protected with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 and separated vertically and horizontally from other areas with a 1-hr fire resistive assembly in accordance with the IBC. In other occupancies, spray-finishing operations shall be conducted in a spray room, spray booth or limited spraying space approved for such use. (WSFC 2404.2)

Exceptions:

1. Automobile undercoating spray operations and spray-on automotive lining operations utilizing Class IIIA or IIIB combustible liquids conducted in areas with approved natural or mechanical ventilation shall be exempt from the provisions of Section 2404 when approved.
 2. In buildings other than Group A, E, I, or R occupancies, approved limited spraying space in accordance with Section 2404.9.
 3. Resin application areas used for manufacturing of reinforced plastic complying with Section 2409 shall not be required to be located in a spray room, spray booth or spraying space.
- Spray booths, spray rooms and spray spaces shall not be alternately utilized for different types of coating materials where the combination of materials is conducive to spontaneous ignition, unless all deposits of one material are removed from the booth, room, or space and exhaust ducts prior to spraying with different materials (WSFC 2404.5.1).
 - Where spraying spaces, spray rooms, or spray booths are illuminated through glass panels or other transparent materials, only fixed luminaires shall be utilized as a source of illumination (WSFC 2404.6.2).
 1. Glass panels: panels for luminaires or for observation shall be of heat-treated glass, wired glass or hammered wire glass and shall be sealed to confine vapors, mists, residues, dusts and deposits to the flammable vapor area. Panels for luminaires shall be separated from the luminaire to prevent the surface temperature of the panel from exceeding 200°F.
 2. Exterior luminaires: Luminaires attached to the walls or ceilings of a flammable vapor area, but outside of any classified area and separated from the flammable vapor areas by vapor-tight glass panels, shall be suitable for use in ordinary hazard locations. Such luminaires shall be serviced from outside the flammable vapor areas.
 3. Integral luminaires: Luminaires that are an integral part of the walls or ceiling of a flammable vapor area are allowed to be separated from the flammable vapor area by glass panels that are an integral part of the luminaire. Such luminaires shall be listed for use in Class I, Division 2, or Class II, Division 2, locations, whichever is applicable, and shall be suitable

for accumulations of deposits of combustible residues. Such luminaires are allowed to be serviced from inside the flammable vapor area.

4. Portable electric lamps: Portable electric lamps shall not be used in flammable vapor areas during spraying operations. Portable electric lamps used during cleaning or repairing operations shall be of a type approved for hazardous locations.

Spray rooms and spray booths:

- Spray rooms shall be constructed in accordance with IBC Section 416 and shall comply with WSFC Section 2404 (WSFC 2404.3.1) including the following:
 - Shall be constructed of approved noncombustible materials.
 - Aluminum shall not be used.
 - Where walls or ceiling assemblies are constructed of sheet metal, single-skin assemblies shall be not thinner than 0.0478 inch (18 gage) (1.2 mm) and each sheet of double-skin assemblies shall be not thinner than 0.0359 inch (20 gage) (0.9 mm). Structural sections of spray booths are allowed to be sealed with latex-based or similar caulks and sealants.
- Combustible floor construction in spray rooms and booths shall be covered by approved, noncombustible, non-sparking material, except where combustible coverings, including but not limited to thin paper or plastic and strippable coatings, are utilized over non-combustible materials to facilitate cleaning operations in spray rooms (2404.3.1.1).
- Electrical wiring and equipment located outside of, but within 3 feet of opening in a spray booth or a spray room, shall be approved for Class I, Division 2, or Class II, Division 2, hazardous locations, whichever is applicable (2403.2.1.3)
- Metal parts of spray booths, exhaust ducts, and piping systems conveying Class I or II liquids shall be electrically grounded in accordance with NFPA 70. Metallic parts located in resin application areas, including but not limited to exhaust ducts, ventilation fans, spray application equipment, workpieces and piping, shall be electrically grounded.
- The interior surfaces of spray booths shall be smooth and shall be constructed so as to permit the free passage of exhaust air from all part of the interior and to facilitate washing and cleaning and shall be designed to confine residues within the booth (2004.3.2.2).
- Means of egress shall be provided in accordance with Chapter 10. Except means of egress doors from pre-manufactured spray booths shall not be less than 30 inches in width by 80 inches in height (2404.3.2.4)
- A clear space of not less than 3 feet shall be maintained on all sides of spray booths. This area shall be kept free of any storage or combustible construction.
 - A spray booth may be located directly against an interior partition, wall, or floor/ceiling assembly that has a fire-resistance rating of not less than 1 hour, provided the booth can be adequately maintained and cleaned.
 - A spray booth may be located closer than 3 feet to an exterior wall or a roof assembly provided the wall or roof is constructed of non-combustible material and the booth can be adequately maintained and cleaned.
- The aggregate area of spray booths in a building shall not exceed the lesser of 10 percent of the area of any floor of a building or the basic area allowed for a Group H-2 occupancy without area increases in accordance with the WSFC (2404.3.2.6).
- The area of an individual spray booth in a building shall not exceed the lesser of the aggregate size limit or 1,500 square feet (WSFC 2404.3.2.6).
- One individual booth up to 500 square feet is allowed in any building (2404.3.2.6, Exception)

Ventilation:

- Mechanical ventilation shall be kept in operation at all times while spraying operations are being conducted and for a sufficient time thereafter to allow vapors from drying coated articles and finishing material residue to be exhausted. Spraying equipment shall be interlocked with the ventilation of the spraying area such that spraying operations cannot be conducted unless ventilation system is in operation (2404.7.1).
- Air exhausted from spraying operations shall not be re-circulated unless they comply with the exceptions in 2404.7.2.

- Ventilation system shall be designed, installed, and maintained so the average air velocity over the open face of the booth, or cross-sectional area in the direction of airflow during spraying operations is a minimum of 100 linear feet per minute (2404.7.3).
- Each spray booth/spray room shall have an independent exhaust duct system discharging to the outside (2404.7.5).

Exceptions:

1. Multiple spray booths having a combined frontal area of 18 sf or less are allowed to have a common exhaust then identical spray-finishing material is used in each booth. If more than one fan serves one booth, fans shall be interconnected to operate simultaneously.
2. Where treatment of exhaust is necessary for air pollution control or energy conservation, ducts may be manifolded if *all* of the following conditions are met: (1) The sprayed materials used are compatible and will not react or cause ignition of the residue in the ducts; (2) Nitrocellulose-based finishing material shall not be used; (3) A filtering system shall be provided to reduce the amount of overspray carried into the duct manifold; (4) Automatic sprinkler protection shall be provided at the junction of each booth exhaust with the manifold, in addition to the protection required by Chapter 24.

NOTE: *This is not intended to be an all-inclusive list. The WSFC requirements listed are intended to ensure that we have adequate information to begin a review of the application. Additional information may be required.*

I understand that all applicable codes apply and that other regulatory codes may also apply. Errors and/or omissions on the plans and corrections from field inspections are the responsibility of the owner/contractor. All work is subject to compliance with City of Vancouver ordinances and laws of the State of Washington.

APPLICANT NAME: _____ APPLICATION DATE: _____

APPLICANT SIGNATURE: _____