Fire Installation Permit Application

Motor Vehicle Repair

CITY OF Vancouver WASHINGTON

www.cityofvancouver.us/departments/fire-department

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

Permitting Requirements

A **construction permit** is required to install or modify a motor vehicle repair room or booth. Maintenance performed in accordance with the WSFC is not considered to be a modification and does not require a permit. See WSFC Section 2311 for more information.

Separate permits are required for automotive, marine, and fleet motor fuel-dispensing facilities and operations involving spraying or dipping of flammable or combustible liquids.

Project Information

Site Address		Owner Name	
Other			

Applicant Information

Company Name			Address		
Contact Name					
Office Phone		Cellular		Email	

Contractor

Company Name			Address		
Contact Name					
Office Phone		Cellular		Email	

Building

Fire Sprinklers	☐ Yes ☒ No	Fire Alarm	☐ Yes ☒ No	Emergency Power	☐ Yes ☒ No
Vehicle Fuel Type	☑ Liquefied Petroleum Gas ☑ Liquefied Natural Gas ☑ Compressed Natural Gas ☑ Hydrogen ☑ Other Lighter-Than-Air Fuels				

Description of Work

Electronic Plan Standards

File Naming Standards:
Electronic plans and documents shall be named as specified in the City of Vancouver 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 – Motor Vehicle Repair (this document)
- ☐ Completed Hazardous Materials Management Plan (HMMP) documents and supplemental documents (*See Document Details* below)
- ☐ Plans to include a site plan and floor plans
- ☐ Supporting documents including listing sheets for equipment used.
- ☐ Maximum quantity declaration form for flammable and combustible liquids

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):**	
Operate a repair garage or motor vehicle fueling station?	☐ YES ☒ NO	☐ Facility Information Forms ☐ HMIS ☐ Site Map & Storage Plan ☐ Motor Vehicle Repair 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)?	☐ YES ☒ NO	☐ All HMMP documents
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 *Permitting Requirements* above)	☐ YES ☒ NO	☐ Facility Information Forms ☐ HMIS and SDS sheets ☐ Site Map & Storage Plan ☐ Flammable and Combustible Liquids Permit Application

Conduct spray-finishing or dipping operations?	☐ YES ☒ NO	☐ All HMMP documents ☐ Spraying or Dipping Permit Application is required (separately)

An HMMP must contain the following minimum elements:

- ☐ Facility Information Form: Business Activities Declaration page
- ☐ Facility Information Form: Business Owner/Operator Identification page
- ☐ Hazardous Materials Inventory Statement (HMIS)
- ☐ HMIS Hazard Class Summary Report
- ☐ Emergency Response/Contingency Plan
- ☐ Employee Training Plan
- ☐ Recordkeeping
- ☐ Facility Site Plan & Storage Map

Where required, complete the following supplemental forms:

- ☐ Tank Plan
- ☐ Owner's Statement of Intended Use
- ☐ Multi-tenant Building Control Area Agreement (if applicable)

Tire Storage over 6 feet above the floor or other commodities over 12 feet above the floor.

- ☐ High-piled combustible storage permit application separately required.

In addition to the HMMP documents listed above, provide the following documents:

- ☐ Listing documents for all proposed equipment to be used.
- ☐ Maintenance and cleaning plans in accordance with WSFC Chapter 57.
- ☐ Plans for drainage and disposal of liquids and oil-soaked waste.

Plan Details

The following is a list of information required on all plan submittals for review of a Motor Vehicle Repair 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 for evacuees, electrical room, gas meters, sprinkler riser, fire alarm control panel, Knox Box, roof access (if provided), and any outdoor hazardous material storage.
- ☐ Interior plans showing all access points, flammable and combustible materials storage rooms and/or cabinets, means of egress, and fire extinguisher types and locations.
- ☐ Fire-rated construction
- ☐ Type and volume of mechanical ventilation (if required).
- ☐ Natural ventilation plans (if required).
- ☐ 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)
- ☐ 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.
- ☐ Vehicle lift and pit locations.
- ☐ Type, size and locations of portable fire extinguishers.
- ☐ Battery storage details and quantities.
- ☐ Tire racking or piles exceeding 6 feet above the finished floor (Separate high-piled combustible storage permit is required)
- ☐ Welding equipment locations and types (Separate welding/hot work permit required)
- ☐ Fire sprinkler/ fire alarm system types or lack thereof.
- ☐ Waste liquid storage locations, maximum volume, and removal frequency.
- ☐ Location of exterior trash and recycling containers.

Permit Conditions

Motor Vehicle Repair:

- ☐ Vehicles powered by liquefied petroleum gas (LP-gas) and the servicing of vehicles powered by LP-gas shall be in compliance with WSFC Chapter 23 and 61 and NFPA 58 (WSFC 2311.5).
- ☐ Liquefied natural gas (LNG) vehicle fuel system pressure shall be measured and recorded prior to entering the repair facility. The maximum allowable system pressure shall not be more than 170 psig (1172 kPa). Pressure greater than 170 psig (1172 kPa) shall be reduced by operating the vehicle or limited venting outdoors, as required (WSFC 2311.6.1).
- ☐ Compressed natural gas (CNG) vehicle fuel system pressure and the ambient temperature shall be measured and recorded prior to entering the repair facility. Pressure greater than the indicated maximum pressure in accordance with Table 2311.6.2 shall be reduced by defueling the vehicle (WSFC 2311.6.2).

TABLE 2311.6.2
TEMPERATURE COMPENSATED CYLINDER PRESSURE TABLE[a]

GAS TEMPERATURE °F	PRESSURE IN FULL 3,600 PSI CNG CONTAINER, psig
123.6	4,500
120	4,455
110	4,272
100	4,105
90	3,936
80	3,768
70	3,600
60	3,432
50	3,263
40	3,094
30	2,926
20	2,757
10	2,589
0	2,421
-10	2,253
-20	2,086
-30	1,919
-40	1,753

For SI: °C = (°F – 32)/1.8, 1 psig = 6.895 kPa.
a. 3,600 psi service pressure calculated from the standard gas composition used to create the gasoline gallon equivalent (GGE).

- ☐ The room, motor vehicle repair booth or motor vehicle repair space containing repair garage activities for the conversion or repair of vehicles that use CNG, LNG, hydrogen or other lighter-than-air motor fuels shall be in accordance with WSFC Section

2311. Repair garages for the repair of vehicles that use hydrogen fuel shall be in accordance with WSFC Section 2311 and NFPA 2 (WSFC 2311.8).

Exceptions:

1. Repair garages where work is conducted only on vehicles where the motor vehicle fuel tank and system have been defueled and the motor vehicle fuel tank has been purged with nitrogen gas, and where standard operating procedures to document and maintain the fueling status throughout repair operations are approved.
2. Repair garages where work is conducted only on vehicles where the motor vehicle fuel tank and system have been defueled and the motor vehicle fuel tank has been purged with nitrogen gas, and where standard operating procedures to document and maintain the fueling status throughout repair operations are approved. mounted to allow access to other parts of the vehicle that are not a portion of the fuel system shall be permitted.
3. Repair garages for hydrogen-fueled vehicles where work is not performed on the motor vehicle fuel tank and is limited to the exchange of parts and maintenance not requiring open flame or welding on the hydrogen-fueled vehicle. During the work, the entire hydrogen fuel system shall contain less than 400 cubic feet (11.3 m^3) of hydrogen.
4. Repair garages for natural-gas-fueled vehicles where work is not being performed on the motor vehicle fuel tank and is limited to the exchange of parts and maintenance not requiring open flame or welding on the natural-gas-fueled vehicle. During the work, the natural gas in the motor vehicle fuel tank shall contain a pressure of not more than 250 psi at 70°F (1724 kPa at 21°C).

☐ For vehicles powered by gaseous fuels, the fuel shutoff valves shall be closed prior to repairing any portion of the vehicle fuel system. Vehicles powered by gaseous fuels in which the fuel system has been damaged shall be inspected and evaluated for fuel system integrity prior to being brought into the repair garage. The inspection shall include testing of the entire fuel delivery system for leakage (WSFC 2311.8.1).

Fuel and Combustible Liquids:

☐ The storage and use of flammable and combustible liquids in repair garages shall comply with WSFC Chapter 57 (WSFC 2311.2).

☐ Cleaning of parts shall be conducted in listed and approved parts-cleaning machines in accordance with Chapter 57 (WSFC 2311.2.1).

☐ Waste oil, motor oil, and other Class IIIB liquids shall be stored in approved tanks or containers, which are allowed to be stored and dispensed from inside repair garages (WSFC 2311.2.2).

☐ Tanks storing Class IIIB liquids in repair garages are allowed to be located at, below or above grade, provided that adequate drainage or containment is provided (WSFC 2311.2.2.1).

☐ Crankcase drainings shall be classified as Class IIIB liquids unless otherwise determined by testing (WSFC 2311.2.2.2).

☐ Garage floor drains, where provided, shall drain to approved oil separators or traps discharging to a sewer in accordance with the International Plumbing Code. Contents of oil separators, traps and floor drainage systems shall be collected at sufficiently frequent intervals and removed from the premises to prevent oil from being carried into the sewers (WSFC 2311.2.3).

☐ Crankcase drainings and liquids shall not be dumped into sewers, streams or on the ground, but shall be stored in approved tanks or containers in accordance with Chapter 57 until removed from the premises (WSFC 2311.2.3.1).

☐ Self-closing metal cans shall be used for oily waste (WSFC 2311.2.3.2).

☐ Spray finishing with flammable or combustible liquids shall comply with WSFC Chapter 24 (WSFC 2311.2.4).

☐ Sources of ignition shall not be located within 18 inches (457 mm) of the floor and shall comply with WSFC Chapters 3 and 35 (WSFC 2311.3).

☐ Facilities for repairing or replacing hydrogen fuel tanks on hydrogen-fueled vehicles shall have equipment to defuel vehicle storage tanks. Where work must be performed on a motor vehicle's fuel tank for the purpose of maintenance, repair or cylinder certification, defueling and purging shall be conducted in accordance with WSFC Section 2309.6 and NFPA 2 (2311.8.11).

Motor Vehicle Repair Rooms and Booths:

- ☐ Motor vehicle repair rooms shall be enclosed with not less than 1-hour fire barriers constructed in accordance with Section 707 of the International Building Code, or horizontal assemblies constructed in accordance with Section 711 of the International Building Code, or both, with 1-hour-rated opening protectives (WSFC 2311.8.3).
- ☐ Motor vehicle repair booths shall be constructed of approved noncombustible materials. 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 motor vehicle repair booths shall be sealed in an approved manner (WSFC 2311.8.4.1).
- ☐ The interior surfaces of motor vehicle repair booths shall be constructed to permit the free passage of exhaust air from all parts of the interior (WSFC 2311.8.4.2).
- ☐ Means of egress shall be provided in accordance with WSFC Chapter 10 (WSFC 2311.8.4.3).
  Exception:
  1. Means of egress doors from premanufactured motor vehicle repair booths shall be not less than 30 inches (762 mm) in width by 80 inches (2032 mm) in height.
- ☐ Motor vehicle repair booths shall be installed so that all parts of the booth be provided with ready access for cleaning. A clear area of not less than 3 feet (914 mm) wide shall be maintained on all sides of the motor vehicle repair booth. This clear area shall be kept free of any storage or combustible construction (WSFC 2311.8.4.4).
  Exceptions:
  1. This requirement shall not prohibit locating a motor vehicle repair booth closer than 3 feet (914 mm) to or directly against an interior partition, wall or floor/ceiling assembly that has a fire-resistance rating of not less than 1 hour, provided that the motor vehicle repair booth can be adequately maintained and cleaned.
  2. This requirement shall not prohibit locating a motor vehicle repair booth closer than 3 feet (914 mm) to an exterior wall or a roof assembly, provided that the wall or roof is constructed of noncombustible material and the motor vehicle repair booth can be adequately maintained and cleaned.
- ☐ Where such spaces are not separately enclosed, noncombustible spray curtains shall be provided to restrict the spread of flammable gases (WSFC 2311.8.5).
- ☐ Motor vehicle repair booths or spaces installed in a room or area protected by an automatic sprinkler system shall have the protection extended to include the inside of the motor vehicle repair booth or space (WSFC 2311.8.6).

Mechanical Ventilation:

- ☐ Mechanical ventilation shall be required in accordance with the International Mechanical Code where Class I or LP-gas are stored or used within a building having a basement or pit wherein the flammable vapors could accumulate. Mechanical ventilation shall be provided at a minimum rate of 1 ½ cubic feet per minute per square foot (WSFC 2311.4.3).
- ☐ Mechanical ventilation shall be required in accordance with the International Mechanical Code and NFPA 2 where repair garages are used for the repair of hydrogen fueled vehicles (WSFC 2311.8.2).
- ☐ Mechanical ventilation shall be required when repair garages used for the repair of CNG, LNG, or other lighter-than-air motor fuels other than hydrogen (WSFC 2311.8.8). Mechanical ventilation shall be kept in operation at all times unless the system is interlocked with a gas detection system or the repair garage is only used for repair of vehicles fueled by liquid fuels or odorized gas, such as CNG, where the ventilation system is electrically interlocked with the lighting circuit (WSFC 2311.8.8.2).
  Exception:
  1. Natural ventilation shall be permitted in lieu of mechanical exhaust ventilation if submitted natural ventilation plans are approved.
- ☐ For indoor locations, air supply inlets and exhaust outlets for mechanical ventilation shall be arranged to provide uniformly distributed air movement with inlets uniformly arranged on walls near floor level and outlets at the high point of the room in

walls or the roof. Failure of the ventilation system shall cause the fueling system to shut down. The exhaust ventilation rate shall be not less than 1 cubic foot per minute (0.03 m^3/minute) per 12 cubic feet (34 m^3) of room volume (WSFC 2311.8.8.1).

Gas Detection System:

- ☐ Repair garages used for repair of vehicles fueled by non-odorized gases, including, but not limited to, hydrogen and non-odorized LNG, shall be provided with a gas detection system that complies with WSFC Section 916. The gas detection system shall be designed to detect leakage of non-odorized gaseous fuel. Where lubrication or chassis service pits are provided in garages used for repairing non-odorized LNG-fueled vehicles, gas sensors shall be provided in such pits (WSFC 2311.8.9).
- ☐ Activation of the gas detection alarm shall result in all of the following (WSFC 2311.8.9.1):
    1. Initiation of local audible and visual alarms in approved locations.
    2. Deactivation of heating systems located in the repair garage.
    3. Activation of the mechanical exhaust ventilation system, where the ventilation system is interlocked with gas detection.
- ☐ Failure of the gas detection system shall automatically deactivate the heating system, activate the mechanical exhaust ventilation system where the system is interlocked with the gas detection system and cause a trouble signal to sound in an approved location.

Classified Electrical Area:

- ☐ Areas within 18 inches (450 mm) of a ceiling within a motor vehicle repair room or motor vehicle repair booth shall be designed and installed in accordance with the requirements for Class I, Division 2, classified locations, as set forth in NFPA 70 (WSFC 2311.8.10).

  Exceptions:
    1. Rooms with exhaust ventilation of not less than 1 cubic foot per minute per square foot (0.3 m^3/ min/m^2) of floor area, with suction taken from a point within 18 inches (450 mm) of the highest point in the ceiling in repair garages for vehicles that use CNG, liquefied natural gas (LNG) or other lighter-than-air motor fuels.
    2. Rooms used for the repair of hydrogen-fueled vehicles that have an approved exhaust ventilation system in accordance with the International Mechanical Code and NFPA 2.

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: _____