



# Construction/Operational Permit Application



## Plant Extraction System

[www.cityofvancouver.us/departments/fire-department](http://www.cityofvancouver.us/departments/fire-department)

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

### Permitting Requirements

A plant extraction process includes the act of extraction of the oils and fats by use of a solvent, desolventization of the raw material, production of the miscella, distillation of the solvent from the miscella and solvent recovery.

An **operational permit** is required to use plant extraction systems regulated by WSFC Chapter 39 (WSFC 105.5.40). A **construction permit** is required for installation of or modification to plant extraction systems except maintenance performed in accordance with the WSFC (WSFC 105.6.17). This permit does not apply to dispensaries where these processes do not take place.

Separate permits are required for the installation of or modification to gas detection systems, the installation or operation of industrial ovens, the storage or use of compressed gases in excess of the amounts listed in WSFC Table 105.5.9, and to conduct flammable and combustible liquid operations described in WSFC 105.5.18 and WSFC 105.6.8.

### 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

Application type:  Installation  Operational  Both Installation and Operational

Related Permits:	RES _____	CMI _____	DEF _____	MPE _____
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### 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 – Plant Extraction System (this document) Check all *Permit Conditions* checkboxes that are applicable to your project
- Completed Hazardous Materials Inventory Statement (HMIS) and Hazardous Materials Management Plan (HMMP)
- Supporting documents listed below (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):	
Use plant extraction or carbon dioxide enrichment systems?	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> All HMMP documents <input type="checkbox"/> Plant Extraction System 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
Have on site (for any purpose) at any one-time, hazardous materials, including hazardous waste, requiring a permit in accordance with Section 105.5 of the International Fire Code?	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Facility Information Forms <input type="checkbox"/> HMIS <input type="checkbox"/> Site Map & Storage Plan

### 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
- Required supplemental forms
- All Safety Data Sheets

**A Technical Report acceptable to the Fire Code Official (manufacturer or licensed engineer)**

1. Manufacturer information.
2. Preparer of record of the technical report.
3. Date of review and report revision history.
4. Signature page, including all of the following:
  - a. Author of the report.
  - b. Date of report.
  - c. Dated signature of *registered design professional* of record performing the design or peer review.
5. Model number of the item evaluated. If the equipment is provided with a serial number, the serial number shall be included for verification at the time of site inspection.
6. Methodology of the design or peer review process used to determine minimum safety requirements. Methodology shall consider the basis of design and shall include a code analysis and code path to demonstrate whether specific codes or standards are applicable.
7. Equipment description. A list of every component and subassembly, such as fittings, hose, quick disconnects, gauges, site glass, gaskets, valves, pumps, vessels, containers, and switches, of the system or equipment, indicating the manufacturer, model number, material, and solvent compatibility. Manufacturer's data sheets shall be provided.
8. A general flow schematic or general process flow diagram of the process. Post-processing or winterization shall be included in this diagram. Primary components of the process equipment shall be identified and match the equipment list required in Item 7. Operating temperatures, pressures and solvent state of matter shall be identified in each primary step or component. A piping and instrumentation diagram (PID or P&ID) shall be provided.
9. Analysis of the vessel(s) if pressurized beyond standard atmospheric pressure. Analysis shall include purchased and fabricated components.
10. Structural analysis for the frame system supporting the equipment.
11. Process safety analysis of the extraction system, from the introduction of raw product to the end of the extraction process.
12. Comprehensive process hazard analysis considering failure modes and points of failure throughout the process. The process hazard analysis shall include a review of emergency procedure information provided by the manufacturer of the equipment or process and not that of the facility, building or room.
13. Review of the assembly instructions, operational and maintenance manuals provided by the manufacturer.
14. List of references used in the analysis.

Check if applicable:

- The presence of a gas detection system as required by 3905.1. NOTE: A separate permit is required for a gas detection system.
- The use of LPG
- The use of industrial ovens.
- The use and type of flammable liquids

**Plan Details**

The following is a list of information required on all plan submittals for review of a plant extraction 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 completed:

**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, facility evacuation meeting point locations, electrical room, gas meters, sprinkler riser(s), fire alarm control panel, Knox Box, roof access (if provided), and any outdoor hazardous materials storage.

- Interior plans showing all access points, hazardous materials storage rooms and/or cabinets, and hazardous equipment or operations areas.
- Fire-resistance rated construction.
- Process equipment, industrial ovens, tanks, etc.
- Locations of all control areas and Group H occupancies.
- Location(s) of the dedicated extraction room(s) within the floor plan.
- Details on fire suppression, smoke or fire detection, liquid detection, fire alarms, emergency alarms, thermal management, ventilation, exhaust, and deflagration venting systems, if provided.
- Existing fixed fire protection system features or proposed new installation (a separate construction permit is required for the installation of or modification to an automatic fire-extinguishing system)
- Emergency shut-off as required by 3905.2 & 5801.3.

## Permit Conditions

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

### Processing and Extraction:

- Extraction processes utilizing flammable gases or flammable cryogenic fluids shall not be located in any building containing a Group A, E, I or R occupancy (WSFC 3903.2).
- The extraction equipment and extraction processes utilizing hydrocarbon solvents shall be located in a room or area dedicated to extraction (WSFC 3903.3).
- Post-processing and winterization involving the heating or pressurizing of the miscella to other than normal pressure or temperature shall be approved and performed in an appliance listed for such use. Domestic or commercial cooking appliances shall not be used (WSFC 3903.4).
- The use of flammable and combustible liquids for liquid extraction processes where the liquid is boiled, distilled or evaporated shall be located within a hazardous exhaust fume hood, rated for exhausting flammable vapors. Electrical equipment used within the hazardous exhaust fume hood shall be rated for use in flammable atmospheres. Heating of flammable or combustible liquids over an open flame is prohibited (WSFC 3903.5).  
*Exception:* The use of a heating element not rated for flammable atmospheres, where documentation from the manufacture, or approved testing laboratory indicates the element is rated for heating of flammable liquids.
- Liquefied petroleum gases shall not be released to the atmosphere except where released in accordance with Section 7.3 of NFPA 58 (WSFC 3903.6).

### Systems and Equipment:

- Systems or equipment used for the extraction of oils from plant material shall be listed and labeled in accordance with UL 1389 and installed in accordance with the listing and the manufacturer's installation instructions (WSFC 3904.2).
- Systems or equipment used for the extraction of oils from plant material shall be approved for the specific use. The system shall be reviewed by a registered design professional. The registered design professional shall review and consider any information provided by the system's designer or manufacturer. A technical report as listed below shall be prepared and submitted to the fire code official for review and approval. The firm or individual preparing the technical report shall be approved by the fire code official prior to performing the analysis (WSFC 3904.2.2).
- A technical report, reviewed and approved by the fire code official is required prior to the equipment being located or installed at the facility. The report shall be prepared by a registered design professional or other professional approved by the fire code official (WSFC 3904.2.2.1).
- The technical report shall contain all of the following (WSFC 3904.2.2.2):

1. Manufacturer information.
  2. Preparer of record of the technical report.
  3. Date of review and report revision history.
  4. Signature page, including all of the following:
    - a. Author of the report.
    - b. Date of report.
    - c. Date and signature of registered design professional of record performing the design or peer review.
  5. Model number of the item evaluated. If the equipment is provided with a serial number, the serial number shall be included for verification at the time of site inspection.
  6. Methodology of the design or peer review process used to determine minimum safety requirements. Methodology shall consider the basis of design, and shall include a code analysis and code path to demonstrate whether specific codes or standards are applicable.
  7. Equipment description. A list of every component and subassembly, such as fittings, hose, quick disconnects, gauges, site glass, gaskets, valves, pumps, vessels, containers and switches, of the system or equipment, indicating the manufacturer, model number, material and solvent compatibility. Manufacturer's data sheets shall be provided.
  8. A general flow schematic or general process flow diagram of the process. Post-processing or winterization shall be included in this diagram. Primary components of the process equipment shall be identified and match the equipment list required in Item 7. Operating temperatures, pressures and solvent state of matter shall be identified in each primary step or component. A piping and instrumentation diagram (PID or P&ID) shall be provided.
  9. Analysis of the vessel(s) if pressurized beyond standard atmospheric pressure. Analysis shall include purchased and fabricated components.
  10. Structural analysis for the frame system supporting the equipment.
  11. Process safety analysis of the extraction system, from the introduction of raw product to the end of the extraction process.
  12. Comprehensive process hazard analysis considering failure modes and points of failure throughout the process. The process hazard analysis shall include a review of emergency procedure information provided by the manufacturer of the equipment or process and not that of the facility, building or room.
  13. Review of the assembly instructions, operational and maintenance manuals provided by the manufacturer.
  14. List of references used in the analysis.
- Prior to operation of the extraction equipment, where required by the fire code official, the engineer of record or approved professional shall inspect the site of the extraction process once equipment has been installed for compliance with the technical report and the building analysis. The engineer of record or approved professional shall provide a report of findings and observations of the site inspection to the fire code official prior to the approval of the extraction process. The field inspection report authored by the engineer of record shall include the serial number of the equipment used in the process and shall confirm that the equipment installed is the same model and type of equipment identified in the technical report (WSFC 3904.2.2.3).

**Safety Systems:**

- For extraction processes utilizing flammable gases as solvents, a gas detection system complying with WSFC Section 916 shall be provided (WSFC 3905.1). A gas detection alarm shall be initiated where any sensor detects a concentration of gas exceeding 25 percent of the lower flammability limit (WSFC 916.8).
- Activation of the gas detection system shall result in all the following (WSFC 3905.1.1):
1. Initiation of distinct audible and visual alarm signals in the extraction room.
  2. Deactivation of all heating systems located in the extraction room.
  3. Activation of the mechanical ventilation system, where the system is interlocked with gas detection.
  4. De-energize all light switches and electrical outlets.

- Failure of the gas detection system shall result in the deactivation of the heating system; activation of the mechanical ventilation system where the system is interlocked with the gas detection system; and initiation of a trouble signal to sound in an approved location (WSFC 3905.1.2).
- Extraction processes utilizing gaseous hydrocarbon-based solvents shall be provided with emergency shutoff systems in accordance with WSFC Section 5803.1.3 (WSFC 3905.2).

**General:**

- This permit is valid only for the equipment identified, the location identified and the owner identified. It is not transferrable.
- Any proposed changes shall be submitted as a new permit application.

**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: \_\_\_\_\_