

**TOPIC: Cannabis Facilities – OSSC 3/#4, OSSC 5/#1**

**CODE(S): Oregon Structural Specialty Code, 2014 edition  
Oregon Fire Code, 2014 edition  
Oregon Mechanical Specialty Code, 2014 edition**

**APPROVED:** [Insert Date] \_\_\_\_\_, **Director**

**REFERENCE: Oregon Structural Specialty Code - Chapters 3, 5  
Oregon Fire Code - Chapters 1, 6, 50, 53  
Oregon Mechanical Specialty Code - Chapters 4, 5, 11,  
Appendix C**

**SUBJECT: Cannabis Facilities**

**QUESTION:** What are the building and permit requirements for cannabis production and processing businesses?

**RESPONSE:** Cannabis businesses are treated the same as other similar facilities under local and state codes. Code sections are applied based on the proposed use of a building and corresponding occupancy classification. This code guide explains building permit requirements for cannabis production and processing facilities. It does not address state or local licensing or other cannabis uses such as laboratories or retail uses.

## **I. General**

The definitions below are based on the Oregon Liquor Control Commission Oregon Administrative Rule (OAR) 845-025-1000, the 2014 Oregon Fire Code (OFC) and the 2014 Oregon Structural Specialty Code (OSSC). Some of the definitions have been modified to meet local applicability.

### **Definitions**

**Carbon Dioxide** is a colorless, odorless gas commonly used in cannabis production and extraction. The OFC addresses CO<sub>2</sub> as an asphyxiate. Asphyxiates are not identified as a hazardous material by the OSSC. However, the OFC considers CO<sub>2</sub> a hazardous material.

**Cannabinoid** is any of the chemical compounds that are the active constituents of marijuana.

**Liquefied Petroleum Gas (LPG)** is a liquefied flammable gas heavier than air. Propane and butane are LPGs that are commonly used in cannabis extraction. LPGs are regulated as a hazardous material under the OSSC and OFC. An LPG is a type of Volatile Organic compound (VOC).

**Marijuana** is all parts of Cannabis plant family and the seeds of the plant. It includes industrial hemp, as defined in Oregon Revised Statutes (ORS) 571.300.

**NFPA** National Fire Protection Association, Life Safety Code

**OLCC** Oregon Liquor Control Commission, which is the State agency responsible for licensing recreational production and sale of marijuana in Oregon.

**OHA** Oregon Health Authority, which is the State agency responsible for licensing the production and sale of medical marijuana in Oregon.

**Production** includes planting, cultivating, growing, manufacturing, and harvesting of cannabis plants.

**Processing** means compounding or converting cannabis into cannabinoid products, cannabinoid concentrates or cannabinoid extracts.

**Storage** includes structures where plants or any product processed from the cannabis plant after harvest are housed or dried.

## II. Occupancy Classifications

### OSSC Chapter 3

Building permit use classifications are evaluated and assigned by the Portland Building Official based on activities proposed for the internal building space. They provide Oregon Building Code life safety and construction standards. Cannabis facilities are generally assigned one or more of the following uses (please note that in non-sprinkled Type V-B buildings, the OSSC limits F-1, S-1, M and U occupancies to the first story of a building).

**F-1** or factory uses apply to buildings or portions of buildings used for growing or packaging cannabis and cannabis products that are not classified as H.

**H** occupancies apply to any commercial use where hazardous materials, such as flammable solvents, are present in quantities exceeding those identified in OSSC Tables 307.1(1) and 307.1(2). Uses in this category must meet OSSC Chapter 414 and include a hazardous materials report as further described in this code guide.

**S** occupancy applies to buildings or portions of buildings used for cannabis plant or product storage space that are not classified as hazardous, such as plant drying rooms.

**U** or agriculture uses apply to cannabis plants grown in a detached accessory structure such as a greenhouse where only natural lighting is provided. No artificial lighting, such as electrical lighting sources, can be part of the growing process. They also may not be part of a mixed occupancy building.

## III. Extraction and Production Room Ventilation

Per section 5307 of the OFC and Chapter 58 of the NFPA, gas must be stored, used, and handled in accordance with all local building and fire code amendments. Storage areas must be ventilated with either mechanical exhaust ventilation or natural ventilation.

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## A. Ventilation and Exhaust

### OMSC Chapters 4 and 5; OFC Chapters 1 and 50, and Section 5307; NFPA Chapter 55

1. **Ventilation.**
  - a. The ventilation rate must equal 1CFM/SF.
  - b. Normal ventilation rates while working must be at the following rates per occupancy: F = 60CFM/Person; H= 1CFM/SF exhaust; U =60 CFM/Person.
2. **Natural ventilation.** Natural ventilation is allowed on an exterior wall.
3. **Make-up air.** Make up air is required for more than 150 cfm exhaust and must comply with OMSC section 501.4.
4. **Exhaust discharge.** Exhaust discharge must be 10 feet away from all operable building opening and all property lines. Intake air must be 10 feet from an exhaust outlet or property line and adjoining grade. All exhaust and relief air must be filtered or scrubbed.
5. **Exhaust** must be taken from a point within 12 inches above the finished floor.
6. **Isolation and Excess flow valve.** Isolation valve and excess flow valve must be installed in the piping system at the source of air flow.
7. **Equipment layout.** Equipment locations including generators, bottles, chemical injection tanks and charcoal filter units must be shown on plans.
8. **Room access.** A room access control summary for CO<sub>2</sub>, LPG and related equipment storage areas must be provided.
9. **Gas location.** The size, number and storage location of CO<sub>2</sub> or LPG gas tanks located on the premises must be shown on plans. CO<sub>2</sub> tanks that have a product volume in excess of 5 cubic feet require a separate state boiler installation permit.
10. **Grow Areas.** Grow areas designed to incorporate CO<sub>2</sub> generating systems must meet the unvented appliances requirement. Combustion air volume must comply with equation 3-2 in OMSC appendix C.
11. **Recommendation.** If RH is over 60% a smooth hard wipe-able surface is recommended for mold control.

## B. Emergency and Back-Up Ventilation Systems and Alarms

Emergency ventilation is required unless the combined grow room space is less than 1,600 SF of the total building area and each individual grow room is less than 600 SF and CO<sub>2</sub> is generated by propane or natural gas. The requirements include:

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1. All emergency systems must be on emergency power or battery back-up. Backup systems must be able to operate continuously for 90 minutes.
2. Emergency exhaust systems must be equipped with a manual bypass outside of the room(s) and activated automatically.
3. Emergency exhaust systems must be sized at 1CFM/SF for a CO<sub>2</sub> rich environment and 3 CFM/SF for VOC rich environment. The system must be equipped with manual bypass switch and automatic system activation controls.
4. Isolation and excess flow, or automatic shut-off control valves must be installed for the piping system.
5. Emergency shutoffs must be located at the entrance of the grow room and gas storage room. These shutoffs must be clearly marked. When materials are stored outside of buildings and are piped into a building, an emergency shutoff valve must be installed at an approved location outside of the building. When the emergency shutoff is activated it must trigger the mechanical exhaust system. An excess flow valve must be installed in the piping system and at the source of the flow.
  - a. The emergency systems ventilation rate for CO<sub>2</sub> storage per 100-pound system is 1,000 cfm.
  - b. Emergency ventilation must discharge to the outdoors with vents located a minimum distance of 10 feet to a property line or building opening.

### C. CO<sub>2</sub> and LPG Detection and Alarms

#### OMSC Chapter 5; OFC Chapter 53; NFPA Chapter 55

1. **Detectors.** Continuous gas detection is required in areas where gas can accumulate. Detectors must be shown on plans, and they must activate audible and visual alarms when CO<sub>2</sub> reaches 5000 ppm, CO reaches 9 ppm. Alarms must activate when sensors detect hydrocarbon concentration levels exceeding 25% of the lower flammability limit. Extraction room gas detection is only required when a LPG or hydrocarbon is used for the extraction process.
  2. **Warning sign.** A warning sign must be posted at the entrance to the building, room, enclosure, or confined area where CO<sub>2</sub> or LPG, cylinders, piping, and equipment are located. The warning sign must be at least 8 inches (200 mm) wide and 6 inches (150 mm) high and state the following: "CAUTION Hazardous GAS. Ventilate the area before entering. A high carbon dioxide gas concentration in this area can cause suffocation." The sign location must be shown on the appropriate building plan. The sign must state that all personnel must leave the premises when there is power outage.
  3. **Extraction room.** The room or enclosure with VOC material must be an electrical spark proof room.
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## D. Oregon Energy Efficiency Specialty Code

### Chapter 503 OEESC

The connected power associated with task lighting for plant growth or maintenance is not included in calculating total connected lighting power per 505.5.1, OEESC

1. Method 1: Provide 100% economizer and relief; or
2. Method 2: 20% higher efficiency or higher than code minimum.
3. Method 3: Energy modeling showing system is better than code minimum.

## IV. Cannabis Processing Using LPG or CO2 Extraction

Applications must meet all use and occupancy requirements for either an F-1 or H occupancy. The amount of hazardous materials stored on the site will determine the occupancy classification of the proposed use. Facilities exceeding the Maximum Allowable Quantities (MAQ) found in the OSSC are considered an H occupancy.

### OSSC Chapter 4; OFC Chapters 50 and 53

A. **Hazardous Materials and Extraction Equipment Requirements.** Hazardous materials, in any quantity, must conform to the requirements of the Building Code and Fire Code. The Oregon Fire Code classifies CO2 too be an asphyxiate.

#### 1. Reporting

- a. Hazardous Materials. Life Safety reviewers will request a Hazardous Materials Report for all hazardous materials for cannabis processing and production facilities. This report is to identify the actual quantities of hazardous materials as they relate to the maximum allowable quantities (MAQ's) in the tenant space/building to include any chemical classification listed in OSSC Table 307.1(1). The design professional who prepares the plans may submit this report if it complies with OSSC Section 414.1.3. An inventory statement must be included in the report per OFC Appendix H102 for all chemicals used in the process. If no hazardous materials are to be stored in the building specifically state as such on the plans.
- b. Extraction Equipment. All extraction equipment and associated devices including machinery, gas detection and alarm systems must be listed or a technical opinion report prepared by a registered Oregon mechanical engineer must be provided (OFC 5003.2.3).

The technical opinion report will determine the acceptability of technologies, processes, and overall equipment safety. The firm or person(s) preparing the report must have the technical ability to evaluate the design of the equipment and the operational process in question. The report must provide an analysis

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of the Life Safety and Fire Safety properties of the extraction procedures, equipment and facility as follows:

- i. Report Narrative: Include a table of contents, report scope, code analysis, exceptions and recommendations, and conclusions.
  - ii. Engineer Peer Review verification
  - iii. Indicate any separate permits that will be obtained in connection with the extraction process (e.g. tank permits from the Fire Marshal's Office and/or a separate mechanical permit for the extraction equipment).
  - iv. Include the manufacturer and model number of extraction equipment.
  - v. Identify the quantity, use open or use closed based on Tables 307.1(1) and 307.1(2) of the 2014 OSSC.
  - vi. Show and explain design requirements including pressure, leak tight, and hazard analysis.
  - vii. Include a component analysis with material type, construction, structural, thermal and hazard analysis.
  - viii. Provide a system description including system function and analysis as well as a structural and hazard analysis.
  - ix. Show emergency shut off valves
  - x. Show pressure relief valves
  - xi. Obtain a pressure vessel permit for hydrocarbon or VOC based extraction machines.
  - xii. Clearly identify the following on the plans:
    - Extraction room
    - Ventilation
    - Electrical system
    - LPG source
    - Gas detection systems
    - Evacuation and abatement systems provided for the extraction machine.
    - Vapor levels must be monitored in the extraction room. Monitors must be shown on plans.
- c. System Verification. Once the extraction equipment is installed it must be inspected by a third party mechanical engineer. An independent commissioning report signed and sealed by the mechanical engineer who performed the inspection must be submitted prior to final inspection. The letter must confirm that the equipment onsite meets the approved equipment specifications submitted with the technical opinion report. All equipment must operate in strict accordance with the manufacturer's instructions. Any modification of equipment from the approved engineering report voids the approval of the extraction equipment.
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## **V. Production and Processing - Building Plan, General Construction and Maintenance Requirements**

1. Indoor equipment where flammable vapor/air mixtures could exist under normal operations must be Class I Division I (OFC Table 5703.1.1). The location adjacent to the Class 1 Division 1 location must be classified by the design engineer
2. All walls must be sealed air tight to prevent smell leaks to the adjacent spaces.
3. When two or more exits are required exit signage and emergency egress lighting must be included as part of the egress plan.
4. Doors must have self-closures.
5. Doors must be weather stripped.
6. Minimum head height is 7 feet 3 inches below equipment located over passageways.
7. All control, detection and alarm systems must be maintained in operable condition. Each device and system must be tested not less than once each year, and in accordance with the manufacturer's requirements. Written records of such tests must be maintained on the premises of a minimum of three years and be available to the fire department upon request.

## **VI. Establishing a Code-Compliant Facility**

### **1. Licensure**

The Bureau of Development Services (BDS) and the Office of Neighborhood Involvement (ONI) both have regulatory oversight for marijuana businesses in the City of Portland. However, the two bureaus act independently and are responsible for implementing two different sets of requirements. BDS reviews building permit applications for compliance with the local zoning code and the State Building Codes in the City of Portland and in some County Pocket areas. ONI is responsible for ensuring compliance with City Code Chapter 14B.130, Licensing Requirements for Marijuana Businesses. BDS is not responsible for processing, reviewing or administering any marijuana business licensing requests. BDS involvement in licensing is limited to providing applicants information on existing permits for a given property and information on development permit requirements. Building permits are required for ONI licensure. The following list includes documents that BDS can provide in the Development Services Center (DSC) located at 1900 SW 4<sup>th</sup> Avenue, Portland Oregon 97201. Applicants may need to visit the DSC several times to obtain all of the necessary documentation.

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Customers seeking a Marijuana Business License can obtain the following written documentation for their cannabis business license by visiting the DSC.

- a. **Zoning Verification.** This information will verify the zoning designation of the property and whether the use is allowed in the zone. This information should be provided to ONI who will evaluate if a property is meeting distance requirements.
- b. **Proof of “final” building permit.** BDS will print documentation if there is a “final” building permit to allow a cannabis business at a location.
- c. **Proof of Low Voltage Electric Permit.** BDS will can provide documents showing that an application has been applied for or issued.
- d. **Change of Occupancy or “Change of Use” Permits.** BDS will identify the last permitted occupancy for a building to establish the last permitted use. If proof of a permitted cannabis facility is not available or where any alteration is proposed that does not qualify as work exempt from permit OSSC Section 105.2, customers will need to apply for a building permit.
- e. **Permit Evidence.** Provide evidence of cannabis building permits.

\*Please note that BDS does not accept or complete the OLCC or OHA LUCS forms for marijuana businesses. The LUCS’ are processed by ONI, and are necessary as part of their application submittal requirements. Additionally, the 1,000-foot buffer requirement is measured and confirmed by ONI.

## 2. **Building Permits**

BDS reviews building plans and proposed uses of cannabis facilities for compliance with the local zoning code and State Building Codes. There are no unique requirements or exceptions in the zoning or Building Codes for cannabis business. The following list includes permits that are typically required for cannabis production and processing. Not all permits are necessary for every facility and other permits, not listed below, may be required.



**Building Permit Applicability \***

	Production	Processing	Applicable Code	Link to Resource
<b>Permit Type</b>				
Change of Use or Occupancy	[1]	[1]	City Zoning Code State Structural Code	<a href="https://www.portlandoregon.gov/bds/article/125287">https://www.portlandoregon.gov/bds/article/125287</a>
Conditional Use Review	[2]	[2]	City Zoning Code	<a href="https://www.portlandoregon.gov/bds/article/72427">https://www.portlandoregon.gov/bds/article/72427</a>
Boiler or Pressure Vessel	x	x	State Mechanical Code	<a href="http://www.oregon.gov/bcd/FormsLibrary/2502a.pdf">http://www.oregon.gov/bcd/FormsLibrary/2502a.pdf</a>
Mechanical (ventilation, equipment)	x	x	State Mechanical Code	<a href="https://www.portlandoregon.gov/shared/cfm/image.cfm?id=71708">https://www.portlandoregon.gov/shared/cfm/image.cfm?id=71708</a>
Tenant Improvement	x	x	Structural Code	<a href="https://www.portlandoregon.gov/bds/38578">https://www.portlandoregon.gov/bds/38578</a>
Low Voltage Electrical	x		State Electrical Code	<a href="https://www.portlandoregon.gov/bds/36681">https://www.portlandoregon.gov/bds/36681</a>
Plumbing	x		State Plumbing Code	<a href="https://www.portlandoregon.gov/bds/36680">https://www.portlandoregon.gov/bds/36680</a>
<b>Handouts</b>				
	<b>Description</b>	<b>Applicability</b>	<b>Link to resource</b>	
	What plans do I need for a building permit		<a href="https://www.portlandoregon.gov/bds/article/93021">https://www.portlandoregon.gov/bds/article/93021</a>	
	Building permit application		<a href="https://www.portlandoregon.gov/shared/cfm/image.cfm?id=71706">https://www.portlandoregon.gov/shared/cfm/image.cfm?id=71706</a>	
	System development charges		<a href="https://www.portlandoregon.gov/bds/article/166412">https://www.portlandoregon.gov/bds/article/166412</a>	
	Plumbing, Mechanical, Electrical		<a href="https://www.portlandoregon.gov/bds/36664#cid_187312">https://www.portlandoregon.gov/bds/36664#cid_187312</a>	
	Building code summary worksheet		<a href="https://www.portlandoregon.gov/bds/34532">https://www.portlandoregon.gov/bds/34532</a>	

\* This list describe typical permits needed for specific to portions of buildings that are used for marijuana production and processing. Other permits maybe necessary based on the scope of each project.

[1] A change of use or occupancy may be required for some projects and can increase permit requirements and review times. Applicants are encouraged to visit the Development Services Center to research the existing and previous use of a building to determine if a change of use or occupancy is necessary.

[2] A Conditional Use Review is a type of land use review that is necessary to allow some uses that are not allowed outright in a particular zone. Check with the Bureau of Development Services to determine if a land use review is required.

