

No. 15-02
Craft Distillery Occupancy Classification

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Code / section: 2019 Oregon Structural Specialty Code—Sections 306-307, 311, 414-415 and 444
2019 Oregon Mechanical Specialty Code—Sections 502.9.5 and 511

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Last updated—Oct. 1, 2019
Rescinded—Oct. 1, 2022

Subject: Occupancy classification for various uses within craft or micro distilleries.

Question:

1. Is the barrel storage room for a craft distillery required to be classified and constructed as an H-3 occupancy if the amount of distilled spirits stored in wooden barrels exceeds the Maximum Allowable Quantity (MAQ) for a Class 1B or 1C liquid, in accordance with OSSC Table 307.1(1)?
2. Is the barrel storage room required to have hazardous exhaust?
3. Does the barrel storage room require hazardous classification for electrical wiring?
4. Does grain handling trigger an H-2 occupancy for areas where:
 - a. Pre-bagged grain is handled or stored?
 - b. Milling of grain occurs?

Answer:

1. No, not when the storage is in a separate control area constructed in accordance with OSSC Sections 414.2.1 and 414.2.4.
2. No.
3. No.
4. a. No.
b. Varies depending on analysis in accordance with the OSSC Section 414.1.3 and 426.

Analysis:

Occupancy Classification

A distillery is typically classified as an F-1 occupancy, see OSSC Section 306. This designation applies to craft distilleries where the quantities of flammable liquids in the remainder of the facility are within those allowed for the F-1 classification, without separation.

More specific construction requirements for the storage of distilled spirits in wooden barrels and casks are found in OSSC Sections 414 (Hazardous Materials – General Provisions) and 444 (Flammable and Combustible Liquids – General). The **storage** of distilled spirits and wines in wooden barrels and casks is specifically excluded from consideration both as a hazardous material and under the scoping language for flammable liquids, OSSC Section 414.1.8 , Exception 8 and Section 444.1.1 , Exception 10.

When quantities of a 1B or 1C liquid over 240 gallons, stored in barrels, (in a sprinklered space) exceed the MAQ, OSSC Table 307.1(1), the classification of the barrel storage room would be an H-3 occupancy. However, the more specific construction requirements found in the OSSC Appendix N, exempt storage of distilled spirits in barrels and casks from MAQ limits.

Barrel Storage. In order to meet the exceptions under the OSSC, Barrel storage must be in a separate control area requiring a 1-hour fire barrier between the storage area and the remainder of the facility.

Barrel storage located in a storage control area is considered separated, has no MAQ, and thus would not be included in the total MAQ quantities in processing areas. During the distillation process and filling of the barrel, processing areas where a standard wooden barrel (53 gallons) is filled can expose more than 30 gallons of 1B or 1C liquids to an “open system.” To remain under the MAQ limits for an open system, the building must be sprinklered throughout to maintain a 60 gallon open system maximum per OSSC Table 307.1(1). Some distilleries use barrels under 30 gallons or have specialized collection and transfer methods that can maintain the process within a “closed system” that allows a higher MAQ of 120 gallons without sprinklers. The required hazardous materials report must include this information.

The H-3 flammable liquid storage requirements in OSSC Sections 414 and 444 do not apply to barrel storage. When there are sprinklers and 1-hour separation, there are no significant differences for the required safeguards between S-1 storage in an F-1 occupancy and the requirements for H-3 storage in wooden barrels.ⁱ

Barrel Processing. Barrels in processing areas are not considered “**in storage**” and would count toward the MAQ in the processing area. The MAQ for any sprinklered control area is 60 gallons for an open system and 240 gallons for a closed system/storage (which includes any open system quantities). Any barrels in the process area are considered in-use (not stored), if not in a separate storage area. Barrels filled or used for mixing, bottling, etc. are not distinguished from barrels “stored.” Thus, the barrel quantities are counted toward the space MAQ. In addition, any quantities of distilled spirits contained within the distillation equipment located in the processing area also count toward the space MAQ. The potential classification of the process area would be an H-3 Occupancy if a closed system is used or an H-2 Occupancy if an open system is used.

Hazard Material Ventilation. Mechanical hazardous material ventilation is addressed in the OMSC. OMSC Section 502.9.5 shows the more specific requirements for flammable and combustible liquids and exempts hazardous ventilation requirements where exempted from the OSSC.

Electrical Classification. Special electrical classification requirements are listed in OSSC Section 444.2. However, this section does not apply because OSSC Section 444.1.1 exempts the storage of distilled spirits and wines in wooden barrels and casks. Because a special

classification is not assigned for this space, no special electrical requirements are required under the *Oregon Electrical Specialty Code (OESC)*.

Hazardous Materials Report. In areas where Class 1B or 1C liquids or combustible dusts are processed or handled, special measures or hazard classification may apply based on OSSC Section 414.1.3. This code section requires a hazardous material report identifying the maximum expected quantities of hazardous materials stored, used in a closed system, and used in an open system. This report determines whether or not the processing areas exceed MAQs and require “H” occupancy classification. When the distillation and bottling processes are not performed simultaneously, many smaller operations can remain below the MAQs for an H-3 or H-2 classification. The hazardous material report must also identify how the process will or will not exceed the MAQs and how ventilation systems will maintain flammable vapor levels below 25% of the lower flammable limit (LFL) levels or whether hazardous material exhaust is required.

Combustible Dust. Grains in a craft distillery are crushed or rough milled, rather than processed into fine flour and do not produce combustible dust, as defined by OSSC Chapter 2. A hazard report is not necessary for the use of bagged and palletized pre-milled grain.

Milling grain on-site, bulk storage of milled or un-processed grain in silos, and use of grain conveyor systems requires identification of the process in the hazardous materials report. A qualified person shall identify grain handling processes and whether the processes require a dust control system (OMSC Section 511). A dust hazard analysis, in accordance with NFAP 652, must identify whether the process produces dust in quantities that present an explosion hazard and H-2 occupancy classification.

¹ *Analysis of differences between F-1/S-1 storage and H-3:*

Under an H-3 occupancy, the following special construction requirements would apply in addition to other F-1/S-1 provisions:

1. *25% of the storage room on an exterior wall (OSSC 415.6)*
2. *An approved manual emergency alarm system to notify on-duty occupants of a spill in the storage room; the alarm is monitored at a continuously supervised location (OSSC Sections 415.5 and 415.5.3)*
3. *The manual emergency alarm system requires stand-by power (OSSC Section 415.5.4)*
4. *Upgraded egress requirements under OSSC Chapter 10 for an H-3 occupancy:*
 - a. *Limits on egress thru intervening spaces (OSSC Section 1016.2)*
 - b. *Common path limit of 25-ft (OSSC Section 1006.2.1)*
 - c. *Larger spaces require two doors (OSSC Section 1006.2.1: max occupant load of 3 for H-3 to have one exit)*
 - d. *Reduced travel distance allowed for H-3 vs. F-1 (OSSC Section 1017)*
 - e. *Panic hardware (fire door rated) on the exit door(s) from the H-3 storage room (OSSC Section 1010.1.10)*

Elimination of these additional construction requirements does not lessen the relative safety of the building. Unlike the accidental release of some hazardous materials, a spill in a barrel storage room would not create an immediate toxic or explosive atmosphere. Speedy, unimpeded egress is not crucial (no toxic cloud). Given limited space and number of occupants, warning others to not re-enter the space is not essential.

Contact: Visit the division website to [contact a building code specialist](#).