



**Date:** December 1, 2023  
**To:** City of Houston HPW-HPC  
**Attention:** CCM  
**From:** Jensen Hughes  
**Subject:** IFC Distilled Spirits Requirements

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This technical memo is provided to describe the significant changes to the Houston Construction Codes with regards to the requirements for facilities that manufacture and store Distilled Spirits.

The manufacturing of distilled spirits occurs frequently as accessory to a restaurant or club, creating an increased hazard in these facilities. This set of changes addresses distilleries and the storage of distilled spirits and wine. The restaurant will have an occupancy classification of Group A-2 if the occupant load is 50 or more. When attached to a Group A-2 occupancy, the distillery portion must receive a separate occupancy classification based on the use and operation in that portion of the building.

**Section 903.2.4.2** requires that the fire area containing a distillery operation must be equipped with an automatic sprinkler system. This requirement is regardless of size of the fire area. Note that typical Group F-1 sprinkler requirements stipulate that the building is sprinklered (**Section 903.2.4**). However, this requirement for distilleries only requires the fire area to be protected with fire sprinklers. When the distillery is attached to a restaurant or bar with an occupant load of 100 or more, the requirements for fire sprinklers in the Group A-2 occupancy require that the entire floor is sprinklered and all floors to and including the level of exit discharge.

**Section 903.2.9.3** is also added which requires fire areas classified as Group S-1 occupancies and used for bulk storage of distilled spirits or wine to be equipped with an automatic sprinkler system. Storage of wine with alcohol content 16 percent or less would be classified as a Group S-2 occupancy (**Chapter 40 in IFC**).

Neither of these new code sections include a threshold that must be exceeded. Therefore, any stored quantity of bulk distilled spirits or wines, and any fire area classified as Group F-1 where distilled spirits and wine are manufactured requires an automatic sprinkler system.

A Fire Area is the aggregate floor area that is enclosed and bounded by firewalls, fire barriers, exterior walls or horizontal assemblies of a building.

Due to changes over several code change cycles, there is an inconsistency between the IBC and the IFC regarding occupancy classification and safety requirements when dealing with distilled spirits and wines. This code change is designed to coordinate the codes when addressing this operation. The IBC classifies the manufacturing of beverages with over 16 percent alcohol as Group F-1 and the manufacturing of beverages with 16 percent alcohol or less as Group F-2. New changes have occurred to classify the storage of beverages with more than 16 percent alcohol as Group S-1 and the storage of beverages with not more than 16 percent alcohol as Group S-2 (**Chapter 40 in IFC**).

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The IFC and IBC made changes regarding the storage of distilled spirits. In the IFC, it exempts the storage of distilled spirits and wine from regulation under the hazardous material and flammable/combustible provisions in Chapter 50 and 57. In the IBC, the requirement in storage of wooden barrels is removed, allowing for any material to be used. The Distilled Spirits Council of the United States (DISCUS) has developed the “Recommended Fire Protection Practices for Distilled Spirits Beverage Facilities” containing requirements for sprinkler protection, ventilation and secondary containment. While not referenced in the IFC, those guidelines were consulted in developing the new **Chapter 40**.

In the new Exception 18 to IBC Section 307.1.1 it states that distilleries are not classified as Group H when they comply with the flammable and combustible liquid requirements and other hazard requirements in the IFC. No new requirements were added to the code to specifically address the distillation process other than **Section 903.2.4.2** requiring a fire sprinkler system in the fire area where distillation occurs. New storage requirements are found in **Chapter 40**.

Note that **Chapter 40** addresses the storage of distilled spirits and wines when stored in barrels and casks. This new chapter does not deal with the distillation process. The requirements applicable to storage include:

- Ventilation – continuous mechanical ventilation providing an exhaust rate of 1 cubic foot per minute per square foot of solid floor area; or ventilation controlled by monitoring the lower flammable limit (LFL) and maintaining the LFL at or below 25 percent.
- Smoking is not allowed.
- Open flame devices and high-temperature devices may only be used if listed.
- Powered industrial trucks must be listed when used in a hazardous (classified) location.
- Storage facilities with barrel storage need to comply with NFPA 780 for lightning protection.
- Empty barrels and casks are treated no differently from full containers.
- Distilled spirits classified as Class I liquids (flash point below 100°F) are limited when stored in basements. The aggregate quantity cannot exceed the maximum allowable quantity per control area for use-open systems. For Class I liquids, this would limit the quantity to 30 gallons, or 60 gallons if sprinklered.
- Other combustible materials not related to the beverage storage shall not be located in the same storage area as the distilled spirits and wines.
- An automatic sprinkler system is required for storage of distilled spirits and wines. See Commentary for **Section 903.2.4.2** “Distilled Spirits” for additional information and requirements.



**2021 Fire Code Changes –**

**903.2.4.2 Group F-1 Distilled Spirits.** An automatic sprinkler system shall be provided throughout a Group F-1 fire area used for the manufacture of distilled spirits.

**903.2.9.3 Group F-1 Distilled Spirits.** An automatic sprinkler system shall be provided throughout a Group S-1 fire area used for the bulk storage of distilled spirits or wine.

## **CHAPTER 40 STORAGE OF DISTILLED SPIRITS AND WINES**

### **SECTION 4001 GENERAL**

**4001.1 General.** The storage of distilled spirits and wines and barrels and casks shall comply with this chapter in addition to other applicable requirements of this code.

**4001.1.1 Non-Applicability.** Chapter 50 and chapter 57 are not applicable to the storage of distilled spirits and wines and barrels and casks as identified in Section 5001.1, Exception 10, and section 5701.2, item 10.

### **SECTION 4002 DEFINITIONS**

**4002.1 Terms Defined in Chapter 2.** Words and terms used in this chapter and defined in chapter 2 shall have the meanings ascribed to them as defined therein.

### **SECTION 4003 PRECAUTIONS AGAINST FIRE**

**4003.1 Spill Control.** Drainage or containment system shall be provided by means of curbs, scuppers, special drains or other suitable means to prevent the flow of spills throughout the building.

**4003.2 Ventilation.** For rooms and spaces where distilled spirits and wines and barrels and casks are stored, ventilation shall be provided in accordance with the international mechanical code and one of the following:

1. The rooms and spaces shall be ventilated at a rate sufficient to maintain the concentration of vapors within the area at or below 25% of the lower flammable limit (LFL). This shall be confirmed by sampling the actual vapor concentration under normal operating conditions. The sampling shall be conducted throughout the enclosed storage area, extending to or toward the bottom and the top of the enclosed storage area. The vapor concentration used to determine the required ventilation rate shall be the highest measured concentration during the sampling procedure. The sampling shall be conducted manually or by installation of a continuously monitoring flammable vapor detection system.
2. The rooms and spaces shall be provided exhaust ventilation at a rate of not less than one cfm per square foot [0.00508 m<sup>3</sup>/(s x m<sup>2</sup>)] of solid floor area. The exhaust ventilation shall be accomplished by natural or mechanical means, with discharge of the exhaust to a safe location outside the building.



**4003.3 Sources of ignition.** Sources of ignition shall be controlled in accordance with sections 4003.3.1 through 4003.4.

**4003.3.1 Smoking.** Smoking shall be prohibited, and “No Smoking” signs provided as follows:

1. In rooms or areas where hazardous materials are stored or dispensed or used in open systems in amounts requiring a permit in accordance with sections 105.5 and 105.6.
2. Within 25 feet (7620 mm) of outdoor storage, dispensing or open-use areas.
3. Facilities or areas within facilities that have been designated as totally “No Smoking” signs placed at all entrances to the facility or area. Designated areas within such facilities where smoking is permitted either permanently or temporarily shall be identified with signs designating that smoking is permitted in these areas only.
4. In rooms or areas where flammable or combustible hazardous materials are stored, dispensed, or used.

Signs required by this section shall be in English as a primary language or in symbols allowed by this code and shall comply with section 310.

**4003.3.2 Open Flame.** Open flames and high-temperature devices shall not be used in a manner that creates a hazardous condition and shall be listed for the use with the hazardous materials stored or used.

**4003.3.3 Industrial Trucks.** Powered industrial trucks used in areas designated as hazardous (classified) locations in accordance with NFPA 70 shall be listed and labeled for use in the environment intended in accordance with NFPA 505.

**4003.3.4 Electrical.** Electrical wiring and equipment shall be installed and maintained in accordance with section 608 and NFPA 70.

**4003.4 Lightning.** Structures containing barrel stores should be protected from lightning. The lightning protection equipment shall be installed in accordance with NFPA 70 and NFPA 780.

## **SECTION 4004 STORAGE**

**4004.1 Storage.** Storage shall be in accordance with this section and section 315.

**4004.2 Empty Containers.** The storage of empty containers previously used for the storage of flammable or combustible liquids, unless free from explosive vapors, shall be stored as required for filled containers.

**4004.3 Basement Storage.** Class I liquids shall be allowed to be stored in basements and amounts not exceeding the maximum allowable quantity per control area for use-open systems in table 5003.1.1(1), provided that automatic suppression and other Fire Protection are used in accordance with Chapter 9. Class II and IIA liquids shall also be allowed to be stored in basements, provided that automatic suppression and other Fire Protection are provided in accordance with Chapter 9.

**4004.4 Bulk Beverage Storage Areas.** There shall be no storage of combustible materials in the bulk beverage storage areas not related to the beverage storage activities.



**SECTION 4005  
FIRE PROTECTION**

**4005.1 Automatic sprinkler system.** The storage of distilled spirits and wines shall be protected by an improved automatic sprinkler system as required by Chapter 9.

**4005.2 Portable Fire Extinguishers.** Approved portable fire extinguishers shall be provided in accordance with Section 906.

**SECTION 4006  
SIGNAGE**

**4006.1 Hazard Identification Signs.** Unless otherwise exempted by the fire code official, visible hazard identification signs, as specified in NFPA 704 for the specified material contain, shall be placed on stationary containers and above ground tanks; at entrances to locations where hazardous materials are stored, dispensed, used or handled in quantities requiring a permit; and add specific entrances and locations designated by the fire code officials.

**4006.1.1 Maintenance and Style.** Signs and markings required by section 4006.1 shall not be obscured or removed; Shall it be in English as a primary language or in symbols allowed by this code; Shall be durable; And the size, color and lettering shall be approved.

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