

**CITY OF HOUSTON**  
**Fire Marshal, Houston Fire Department**  
**Special Hazards Inspection Team**



**Generic H-Occupancy Plan Review**

**UPDATED 01/01/2024**

**2021 IFC w/COH Amendments**

- Owner's Statement of Intended Use attached to front of plans.  
<https://www.houstonpermittingcenter.org/media/1826/download>
- **Hazardous Enterprises Permit (HEO)** attached to front of plans. To acquire permit applicant should contact the COH Planning and Development Department at [pd.hazardousenterprises@houstontx.gov](mailto:pd.hazardousenterprises@houstontx.gov) or at (832-393-6600).
- HEO point of contact: [Hector.Rodriguez@houstontx.gov](mailto:Hector.Rodriguez@houstontx.gov) (832-393-6575)  
[Tammi.Williamson@houstontx.gov](mailto:Tammi.Williamson@houstontx.gov) (832-393-6623)
- The link for the Hazardous Enterprise application form is on P&D's form page:  
<http://www.houstontx.gov/planning/Forms/>
  - Permit required for: Group H-1, 2, 3 Occupancy (or H-4 with any highly toxics) or outdoor storage exceeding the maximum allowable quantity as per Section 307 of the COH 2021 Building Code.
  - Excluded from permit requirement:
    - (1) Public water or wastewater treatment facility.
    - (2) Hospital/university research labs up to 500 sq. ft. classified as H-2, 3 or 4 with aggregate maximum area of 10% on each floor.
    - (3) Fuel storage for generators, fire pumps, above/underground fuel storage associated with vehicle motor fuel-dispensing facilities.
- Provide a signed and completed **HMIS**.
  - A separate HMIS must be provided for each location (inside/outside), situation (use-open, use-closed, storage) or area change.
  - Area designation on each HMIS must match-up to an identically designated area on a site plan within the plan set.
  - HMIS must show hazmat above MAQ. We cannot approve an H-Occupancy without knowing which chemical(s) will be above MAQ. "Unknown future use" or similar requests will not be approved.
  - All chemicals must be correctly classified per Appendix E of the 2021 Houston Fire Code.
  - Don't forget about issues that may affect the application of MAQ, such as mercantile occupancy, control rooms, sprinklers, storage cabinets, and exceptions to 5001.1.
  - MAQs may be affected in control areas when applying Section 5003.8.3.2, Table 5003.8.3.2 of the 2021 Houston Fire Code.
- Access roadways, hydrants, and fire flow must be in plans as detailed in the high-piled storage plan review checklist (minus any high-piled specific access road requirements found only in Chapter 32).
- Key box shall be located at the main Fire Department access entrance to the facility, closest to the main office or guard house. Where no guard station is provided, install a 911 key box large enough to contain all required Hazardous

Materials Inventory Sheets, floor plans and access keys. This shall be provided at a readily identifiable location.

- All equipment used for storage, dispensing, use or handling of hazardous materials must meet with the requirements of Section 5003.2.
- Hazard Identification signs shall be placed in designated areas in accordance with Section 5003.5 Hazard Identification Signs.
- Show that H-room ventilation meets requirements for 5004.3, including all (7) 5004.3.1 System requirements:
  1. Installation shall be in accordance with the International Mechanical Code.
  2. Mechanical ventilation shall be at a rate of not less than 1 cubic foot per minute per square foot [ $0.00508 \text{ m}^3/(\text{s} \cdot \text{m}^2)$ ] of floor area over the storage area.
  3. Systems shall operate continuously unless alternative designs are approved.
  4. A manual shutoff control shall be provided outside of the room in a position adjacent to the access door to the room or in an approved location. The switch shall be a break-glass or other approved type and shall be labeled: **“VENTILATION SYSTEM EMERGENCY SHUTOFF”**.
  5. **Exhaust ventilation shall be designed to consider the density of the potential fumes or vapors released.** For fumes or vapors that are heavier than air, exhaust shall be taken from a point within 12 inches (305 mm) of the floor. For fumes or vapors that are lighter than air, exhaust shall be taken from a point within 12 inches (305 mm) of the highest point of the room.
  6. The location of both the exhaust and inlet air openings shall be designed to provide air movement across all portions of the floor or room to prevent the accumulation of vapors.
  7. Exhaust air shall not be recirculated to occupied areas if the materials stored are capable of emitting hazardous vapors and contaminants have not been removed. Air-contaminated with explosive or flammable vapors, fumes, or dusts; flammable, highly toxic or toxic gases; or radioactive materials shall not be recirculated.
- Show that H-room emergency alarm meets the requirements in Section 5004.9. Emergency alarm-initiating devices shall be installed **“outside”** of each interior exit or exit access door for storage buildings, rooms, or areas. (Note: Alarm initiating devices allowed on inside of doors only under special circumstances.)
- Statement must appear on plans that emergency alarm is supervised per section 5004.10. Alarm monitoring must be from a UL-listed central station; monitoring only by a constantly attended on-site location is not allowed and shall have a distinctively different sound than building fire alarm [“Distinctive Signals” from NFPA-72 (2019) Section 10.10].
- Plans must show spill control/secondary containment, if applicable, per 5004.2.2.3 **Indoor design** and 5004.2.2.4 **Outdoor design**. Show all calculations to include 20 min. of sprinkler flow (indoors). Include the volume of a 24-hour rainfall as determined by a 25-year storm (outdoors).
- Show on plans smoke/heat vents per 910.2.2, if required. The information needed on plans for these vents will be the same as detailed in the high-piled storage checklist.
- Standby or emergency power per Section 5004.7 **Standby or emergency power**.
- Electrical equipment shall meet with the requirements of **NFPA-70 (2020), Chapter 5 Special Occupancies and NFPA-30 (2021) Table 7.3.3 Electrical**

**Area Classification.** Section 500.5 Classification of Locations will dictate which Class and Division will be used (i.e.: Class I Division I or Class I Division II type electrical components).

- Show location of FDC. Must be on street-facing side of building. Perimeter fencing for facilities close to street may require FDC to be located outside of fencing rather than on building.
- Print sprinkler design on plans, including actual density and design area. For density/area curves see Figure 19.3.3.1.1 of NFPA-13 (2019). Design area reduction allowed for high-temp sprinklers per Section 19.3.3.2.6. of NFPA-13 (2019), see Figure 19.3.3.1.1 below.
- The minimum acceptable design criteria are:
  - Flammable/Combustible liquids in open use = **Extra Hazard Group 2**
  - Flammable/Combustible liquids in storage = **Extra Hazard Group 1**
  - All others = **Ordinary Hazard Group 2, with a minimum design area of 3,000 square feet (Section 5004.5 Automatic sprinkler design).**
- Panic hardware on doors for H-1, H-2, and H-3 per **Section 1010.2.9 Door Operations.**
- Check basic means of egress per Section 1017 and exit access travel distance per Table 1017.2. (Keep in mind that even with a sprinkler system all H-occupancy corridors are required to be 1-hr. rated, see Table 1020.2).
- Check hourly rating of H-occupancy walls (see Table 508.4 of the *Houston Amendments* to the 2021 IBC)
- Recognize instances of obvious and gross noncompliance with H-occupancy Building Code requirements such as:
  - IBC 415.6 Location on property, minimum fire separation distances, detached building requirements
  - IBC Table 504.3 Allowable height and building areas (Note: H-1, H-2 and H-3 are not allowed height and area increases due to sprinkler system, see 506.2.2.1; keep in mind H-occupancy use in unlimited area buildings per 507.8).
  - IBC 507.8.2 Located on building perimeter. In Group H-2 and H-3 occupancies, not less than 25% of the perimeter of such occupancies shall be an “exterior wall”.
  - IFC 1016.2 Egress through intervening spaces. Egress through intervening spaces shall comply with this section. #2 Means of egress prohibited from an area of lower concentration to an area of higher concentration (i.e., B-Occupancy exiting through an H-Occupancy space)
- Check plans for compliance with specific requirements throughout the **individual fire code chapters that pertain to that particular chemical stored indoors/outdoors**. For example, plans must show an automatic smoke/fire/gas detection system for highly toxic gases (Chapter 60), organic peroxides (Chapter 62), and oxidizers (Chapter 63). If you do not check the individual code chapters pertaining to the types of chemicals being stored, you will miss many issues.

## CONTROL AREA REQUIREMENTS:

- Owner's Statement of Intended Use attached to front of plans.
- Control Room: Plans will not have to meet with the full requirements for an H-Occupancy as per checklist. An HMIS statement will need to be provided per control area.
- Plans must meet with Section 5003.8.3 Control Areas and subsection 5003.8.3.1 Construction Requirements. *Control areas* shall be separated from each other by fire *barriers* constructed in accordance with Section 707 of the *International Building Code*.
  - a. 5003.8.3.2 Percentage of maximum allowable quantities.
  - b. 5003.8.3.3 Number. Maximum number of *control areas* per floor within a building shall be in accordance with Table 5003.8.3.2.
  - c. 5003.8.3.4 Fire-resistance-rating requirements.

TABLE 508.4 REQUIRED SEPARATION OF OCCUPANCIES (HOURS)<sup>f</sup>

OCCUPANCY	A, E		I-1 <sup>a</sup> , I-3, I-4		I-2		R <sup>a</sup>		F-2, S-2 <sup>b</sup> , U		B <sup>a</sup> , F-1, M, S-1		H-1		H-2		H-3, H-4		H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A, E	N	N	1	2	2	NP	1	2	N	1	1	2	NP	NP	3	4	2	3	2	NP
I-1 <sup>a</sup> , I-3, I-4	1	2	N	N	2	NP	1	NP	1	2	1	2	NP	NP	3	NP	2	NP	2	NP
I-2	2	NP	2	NP	N	N	2	NP	2	NP	2	NP	NP	NP	3	NP	2	NP	2	NP
R <sup>a</sup>	1	2	1	NP	2	NP	N	N	1 <sup>c</sup>	2 <sup>c</sup>	1	2	NP	NP	3	NP	2	NP	2	NP
F-2, S-2 <sup>b</sup> , U	N	1	1	2	2	NP	1 <sup>c</sup>	2 <sup>c</sup>	N	N	1	2	NP	NP	3	4	2	3	2	NP
B <sup>a</sup> , F-1, M, S-1	1	2	1	2	2	NP	1	2	1	2	N	N	NP	NP	2	3	1	2	1	NP
H-1	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	N	NP	NP	NP	NP	NP	NP	NP
H-2	3	4	3	NP	3	NP	3	NP	3	4	2	3	NP	NP	N	NP	1	NP	1	NP
H-3, H-4	2	3	2	NP	2	NP	2	NP	2	3	1	2	NP	NP	1	NP	1 <sup>d</sup>	NP	1	NP
H-5	2	NP	2	NP	2	NP	2	NP	2	NP	1	NP	NP	NP	1	NP	1	NP	N	NP

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

N = No separation requirement.

NP = Not Permitted.

a. See Section 420.

b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but not to less than 1 hour.

c. See Sections 406.3.2 and 406.6.4.

d. Separation is not required between occupancies of the same classification.

e. See Section 422.2 for *ambulatory care facilities*.

f. Occupancy separations that serve to define fire area limits established in Chapter 9 for requiring fire protection systems shall also comply with Section 707.3.10 and Table 707.3.10 in accordance with Section 901.7.

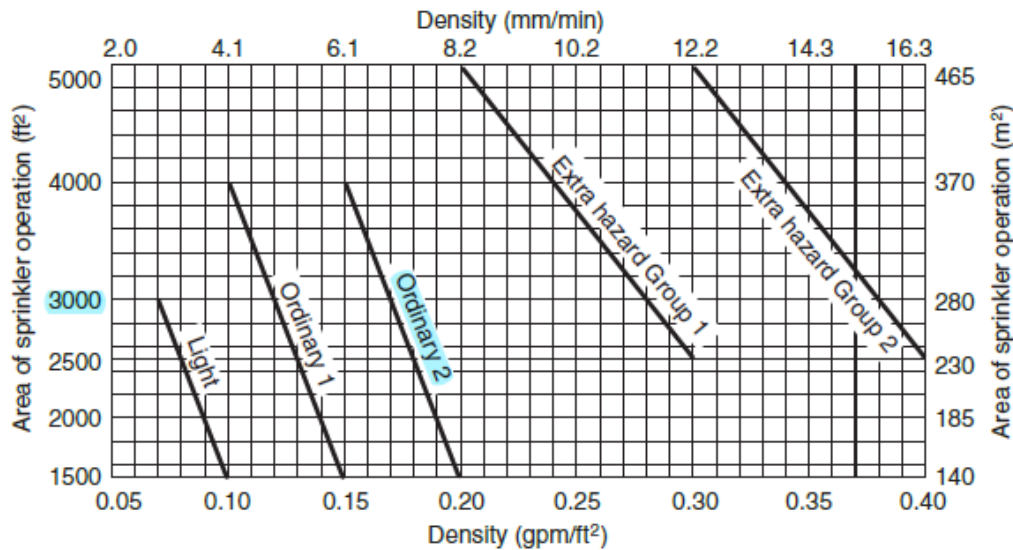


FIGURE 19.3.3.1.1 Density/Area Curves.

**TABLE 5003.8.3.2  
DESIGN AND NUMBER OF CONTROL AREAS**

FLOOR LEVEL		PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA <sup>a</sup>	NUMBER OF CONTROL AREAS PER FLOOR	FIRE-RESISTANCE RATING FOR FIRE BARRIERS IN HOURS <sup>b</sup>
Above grade plane	Higher than 9	5	1	2
	7-9	5	2	2
	6	12.5	2	2
	5	12.5	2	2
	4	12.5	2	2
	3	50	2	1
	2	75	3	1
	1	100	4	1
Below grade plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentages shall be of the maximum allowable quantity per control area shown in Tables 5003.1.1(1) and 5003.1.1(2), with all increases allowed in the footnotes to those tables.

b. Separation shall include fire barriers and horizontal assemblies as necessary to provide separation from other portions of the building.

### **Generator Fuel Storage MAQ requirements:**

**605.4.2 Fuel oil storage inside buildings.** Fuel oil storage inside buildings shall comply with Sections 605.4.2.2 through 605.4.2.8 or Chapter 57.

**605.4.2.1 Approval.** Indoor fuel oil storage tanks shall be in accordance with UL 80, UL 142 or UL 2085.

**605.4.2.2 Quantity limits.** One or more fuel oil storage tanks containing Class II or III combustible liquid shall be permitted in a building. The aggregate capacity of all tanks shall not exceed the following:

1. 660 gallons (2498 L) in unsprinklered buildings, where stored in a tank complying with UL 80, UL 142 or UL 2085.
2. 1,320 gallons (4996 L) in buildings equipped with an automatic sprinkler system in accordance with Section 903.3.1.1, where stored in a tank complying with UL 142. The tank shall be listed as a secondary containment tank, and the secondary containment shall be monitored visually or automatically.
3. 3,000 gallons (11 356 L) in buildings equipped with an automatic sprinkler system in accordance with Section 903.3.1.1, where stored in protected above-ground tanks complying with UL 2085 and Section 5704.2.9.7. The tank shall be listed as a secondary containment tank, as required by UL 2085, and the secondary containment shall be monitored visually or automatically.