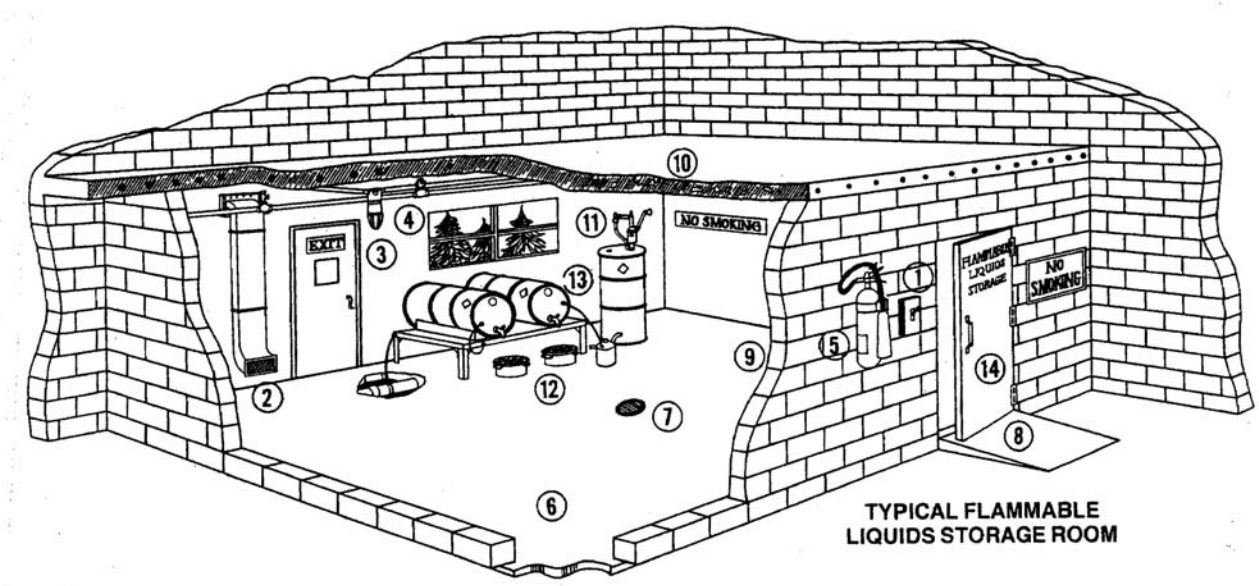
Flammable Liquids Storage Room Requirements

1. Electrical switches outside of room
2. Mechanical exhaust within 12 inches of the floor with electrical motor Underwriters Laboratories (UL) Listed for Class I, Division 1 location
3. Lighting UL Listed for Class I, Division 2 location
4. Automatic sprinklers
5. Fire extinguisher with 20-B rating outside room near entrance
6. Liquid tight floor pitched to drain
7. Floor drain to safe outside location
8. 4 inches raised sill, ramp or grate covered trench across door
9. Refer to Specific Construction Requirements of this appendix
10. Refer to Specific Construction Requirements of this appendix
11. Drum pumps or self-closing faucets
12. UL Listed drip pan
13. Dispensing drum bonded with container being filled; drum rack grounded to water pipe - Refer to Bonding and Grounding of Flammable Liquid Containers (Appendix E3)
14. UL Listed, self -closing 1 1/2 hour rated Class B fire door



Refer to NFPA 30 Flammable and Combustible Liquids code for details.

Specific Construction Requirements

In addition to meeting the requirements shown above and below, the construction of the storage room should be in accordance with NFPA 30 Flammable and Combustible Liquids Code.

Fire Resistive Rating and Storage Capacity

The construction, storage capacity and fire rating of the walls, ceilings and floors will depend upon the size of the storage room and whether the room is an considered an “inside storage room,” a “cutoff room, “ an “attached building,” or a “liquid warehouse.” An inside storage room has no exterior walls, while a cutoff room has at least one exterior wall. An attached building is a building which has only one common wall with another building which has other types of occupancies. A liquid warehouse is a separate detached building or attached building used for warehousing operations for liquids. Refer to Table I for specific storage capacity requirements for inside storage rooms. Refer to NFPA 30 for storage capacity requirements for other types of flammable liquids storage rooms.

Table I

Floor Area (sq ft)	**Automatic Sprinklers** (yes/no)	**Maximum Quantity** (gal/sq ft)
< 150	no	2
< 150	yes	5
150 - 500	no	4*
150 - 500	yes	10

* limits on the amount of Class IA and IB liquids that may be stored, refer to NFPA 30.

Walls

Examples of walls with a fire rating of 1 hour are:

- Gypsum wallboard, 3/8" thick, in two layers on each side of 2" x4" wood studs spaced 16" on centers, fire stopped.
- Gypsum wallboard, 1/2" Type X and 1/16" 1:2 gypsum-sand plaster on each face of 2 1/2" metal studs 24" on centers.

A 2 hour rated fire wall has 8" concrete blocks or brick.

Doors should be self closing and listed by Underwriters Laboratories (UL) as a 1 1/2 hour Class B fire door. When the room is used to store liquids with a flash point below 73° F, the exterior walls should be designed with explosion venting. This can be accomplished by using light-weight metal panels with special fasteners which will release when subjected to an explosive force.

Ceilings

With most combustible construction, an acceptable ceiling would be 5/8" Type X gypsum wallboard secured to each joist with 6d cement coated nails spaced 6" on centers with joints properly taped and nailheads covered with compound.

When there is noncombustible construction above the room and it does not have at least a 1 hour fire resistance rating, a 1" metal lath and plaster ceiling, or its equivalent, is acceptable.

Floors

If possible, the floor should be concrete. When it is necessary to locate the room on an existing wood floor it will not be possible to provide the specified fire resistance and other authorities having jurisdiction should be consulted as to their requirements. As a minimum the floor should be coated with a material which is liquid tight and provides a limited amount of protection in the event of a fire in the room. If an epoxy is used, be aware that this may involve the use of a resin with a flash point as low as 70° F and proper precautions should be observed during the application, including good ventilation and exclusion of all ignition sources.

In addition to the floor being liquid tight, the lower 4" of the wall and the junction between the floor and wall should also be liquid tight. Any door opening in an interior wall should be protected with a raised sill or ramp at least 4" high or an open grated trench should be provided across the doorway with a drain to a safe location.

Adequately trapped drains should be provided to accommodate the maximum sprinkler discharge. The floor should be pitched toward the drains with a minimum slope of 1" in 10' and the drains should be piped to a safe location. In urban areas the only safe location may be a buried tank. Because the potential sprinkler discharge under adverse fire conditions might exceed what would be practical to provide in tank capacity, it may be sufficient to design the tank simply to receive accidental spills, with sills or ramps at all interior openings and scuppers discharging to the outdoors to carry off excess sprinkler discharge before it reached a level where it would overflow the sills or ramps.

This document is advisory only and does not attempt to list all potential hazards or identify all possible remedial actions. You are responsible for the safety of your premises, operations and products. FCCI Insurance Group and its affiliates and subsidiaries shall not be liable for any loss, injury, death, damage or expense out of the use of this bulletin.