

*Flammable liquid storage is a high-hazard occupancy which requires appropriate fire protection and storage configurations. Flammable liquid storage rooms should be provided for quantities that cannot be stored in approved flammable liquid storage cabinets. Below you will find guidelines for flammable liquid storage rooms with an area of 500 square feet or less in industrial occupancies; and storage of flammable liquid drums and containers up to 119 gallons, portable tanks up to 660 gallons and intermediate bulk containers up to 793 gallons.*



## Room Construction

A flammable liquid storage room should be constructed of fire-resistive materials, as this will provide fire separation between the flammable liquid and the adjacent occupancy for a specific length of time.

A minimum 2-hour fire-resistance rating should be provided for the storage room. The minimum rating may be reduced to 1 hour provided:

- the room has a floor area of 150 square feet or less
- only metal containers of 60 gallons or less are being stored within the room

Automatically closing or normally closed fire doors with a fire rating of ¾ hour should be provided in rooms with 1-hour fire resistance, and 1½-hour fire doors should be provided for liquid storage rooms with 2-hour fire resistance.

If Class IA liquids (flash point <73°F, boiling point <100°F) are dispensed or stored in containers larger than one gallon, use construction designed by a licensed engineer that limits explosion damage and is acceptable to the authority having jurisdiction.

## Storage Quantity Guidelines

The quantity of flammable liquids that should be stored in flammable liquid storage rooms varies with the size of the room and the fire protection provided, as shown in the table below. (Please note that Class I liquids may specify lower limits of allowed quantities.)

Room Size (ft <sup>2</sup> )	Max Quantity (gallons/ft <sup>2</sup> ) with Automatic Fire Protection	Max Quantity (gallons/ft <sup>2</sup> ) without Automatic Fire Protection
<150	5	2
>150 and <500	10	4

## Electrical Classification

If containers are sealed and never opened within the room, special electrical classification is not required; the exceptions are liquids stored and/or dispensed at temperatures above their flash points. All room electrical installations should be in compliance with the National Electric Code®.

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### Spill Containment

In order to keep flammable liquid spills and leaks contained in the storage room, provisions should be made to prevent the flow of liquids into adjacent areas. This may be accomplished by liquid tight-raised sills, sloped floors, ramps to door openings, curbs, a floor drain system or open-grate trenches. These systems should be of noncombustible construction.

### Room Operations and Ventilation

If dispensing of liquids above their flash point is conducted in the storage room, mechanical ventilation should be provided. The ventilation should be designed to prevent accumulation of flammable vapors in any portion of the room. Exhaust air intakes should be located within 12 inches of floor level and exhausted directly to the building exterior. The ventilation system should be capable of at least 1 cubic foot per minute for each square foot of floor area.

Bonding and grounding safety practices should be followed when dispensing flammable or combustible liquid between containers; see tech sheet below for more information.

### For Additional Information

#### National Fire Protection Association:

[www.nfpa.org](http://www.nfpa.org)

- NFPA 30® Flammable and Combustible Liquids Code
- NFPA 70® National Electric Code

#### EMC Tech Shets:

[www.emcins.com](http://www.emcins.com)

- Bonding and Grounding Flammable Liquid Transfer
- Flammable Liquid Storage Cabinets