Flammable Material Storage (FMS)
Design Review Checklist

- OSHA 29 CFR 1910.106, Flammable and Combustible Liquids
- NFPA 30, Flammable and Combustible Liquids Code (2015)
- UFC 3-600-01, Fire Protection for Facilities (09-26-2006)
- NFPA 70, National Electrical Code (2014)
- DG 415, National Guard Design Guide (National Guard Only)

Occupancy Classification and Means of Egress

Detached unprotected buildings

1. Means of egress shall not exceed 75 ft?

Construction

Tanks

1. Is the distance between any two aboveground tanks greater than 3 ft? (29 CFR 1910.106)

2. Is the distance between the aboveground tanks and the property line meet the minimum distance? (NFPA 30)

3. Is a drainage system used for the aboveground tanks? Does it terminate in vacant land or an impound basin? (29 CFR 1910.106, NFPA 30)

4. Are dikes used to surround aboveground tanks? (29 CFR 1910.106, NFPA 30)
If so is it:

   a. Sized to contain the amount on liquid released from the largest tank?

   b. Walls constructed of earth, steel, concrete or masonry?

   c. Liquid tight?

   d. Wall height not greater than 6 ft above interior grade?

5. Are underground tanks in use? (29 CFR 1910.106, NFPA 30)
If so are they:

   a. Surrounded with 6 inches of noncorrosive materials?

   b. Covered with a minimum of 2 ft of earth? Or

   c. Covered with 1 ft of earth and 4 inches of reinforced concrete?

6. Are underground tanks exposed to vehicular traffic? (29 CFR 1910.106, NFPA 30)
If so are they:

a. Covered with a minimum of 3 ft of earth? or

b. Covered with18 inches of earth and 6 inches of reinforced concrete or 8 inches of asphaltic concrete?

c. If concrete is used it must extend at least 1 ft horizontally beyond the outline of the tanks in all directions?

7. Does the bedding extend 12 in. in all directions beyond the perimeter of the tank? (NFPA 30)

Outside storage

1. Do all container/portable tank locations meet the minimum distance requirements between:
(29 CFR 1910.106, NFPA 30)

a. Other tanks and containers?

b. Property lines?

c. Streets, alleys and pubic ways?

2. Is storage area graded to divert spills away from buildings?
(29 CFR 1910.106, NFPA 30)

3. Is the storage area surrounded by a curb at least 6 in. high?
(29 CFR 1910.106, NFPA 30)

4. Is there storage of liquid adjacent to exterior wall of a building? (NFPA 30)
If so:

a. Does the exterior wall have a 2-hour fire resistance?

b. Is there openings at or above grade within 10 ft horizontally of the storage?

c. Is there openings directly above the storage?

d. Is there openings below grade within 50 ft horizontally of the storage?

Inside storage room

1. Is the storage area an inside area? (29 CFR 1910.106) If so, does it have:

a. An automatic sprinkler system?

b. A 4 in. sill/ramp or a sunken floor 4 in. lower than the surrounding area?

c. A self-closing fire door in all opening?

d. Liquid tight wall joints?

e. Fire resistant construction of 2 hours for an area with a maximum floor area of 500 ft^2?

f. Fire resistant construction of 1 hour for an area with a maximum floor area of 150 ft^2.

2. Are there storage cabinets in the flammable materials storage room?

a. If so, does the total volume of flammable liquids exceed the allowable maximum for the control area based on the occupancy? (NFPA 30)

b. Are the cabinets vented? If so, are they vented directly outside? (NFPA 30)

3. Are the number of control areas correct for the floor level they are located? (NFPA 30)

4. Is the storage area an inside area? (NFPA 30)
If so, is it:

a. Have 1 hour construction for interior walls, ceilings, and intermediate floors for rooms with floor areas less than 150 ft^2?

b. Have 2 hour construction for interior walls, ceilings, and intermediate floors for rooms with floor areas greater than 150 ft^2 less than 500 ft^2?

c. Have the correct fire rated door based on the fire resistance rating of the wall?

5. Is the storage area an attached building or cutoff room? (NFPA 30)
If so, is it:

a. Constructed in accordance with paragraph 4.4.2?

b. Have 1 hour construction for interior walls, ceilings, roof, and intermediate floors for rooms with floor areas less than 300 ft^2?

c. Have 2 hour construction for interior walls, ceilings, roof, exterior walls, and intermediate floors for rooms with floor areas greater than 300 ft^2 less than 500 ft^2?

6. Is there a portable fire extinguisher outside of and within 10 ft from the room's door? (NFPA 30)

7. Are there individual containers that exceed 10 gal?
If so provide curbs, scuppers or drains for containment. (NFPA 30)

Detached unprotected buildings

1. Building shall have a horizontal separation of at least 200 ft from exposed business, industrial, mercantile and storage occupancy and at least 1000 ft of horizontal separation for all other occupancies (NFPA 30)?

2. Building shall not exceed one story in height (NFPA 30).

3. Building shall not have accessible underfloor areas (NFPA 30).

HVAC

1. Is the ventilation system gravity or continuous mechanical exhaust (NFPA 30)?
    a. If Class I liquids are dispensed in the room, is mechanical ventilation being used (NFPA 30)?

2. Does the exhaust system provide 6 air changes per hour (29 CFR 1910.106)?

    a. Mechanical ventilation of 1 cfm/ft^2 of floor area (no less than 150 cfm or any room (NFPA 30)?

3. Is the exhaust vented outside (NFPA 30)?

4. If gravity ventilation is used, is the fresh air intake and exhaust outlet on the exterior of the building (29 CFR 1910.106)?

5. Are exhaust and make-up air inlets on opposite walls? Are the inlets within 12 in. of the floor (NFPA 30)?

ELECTRICAL

1. If Class I liquids are present, do the electrical systems comply with Division 2 Hazardous location requirements (NFPA 30, NFPA 70, 29 CFR 1910.106)?

2. If Class II or III liquids are present, electrical systems comply with general use requirements (NFPA 30, NFPA 70, 29 CFR 1910.106)?

3. If the flammable material storage area is used for dispensing, will the mechanical ventilation airflow switch be interlocked with an audible alarm (NFPA 30), i.e., does the alarm sound with the ventilation system fails?

4. Is the mechanical ventilation system controlled by a switch located outside the door that is interconnected with the lights (29 CFR 1910.106)?