

NFPA 409 2022 Edition

Ignitable Liquid Drainage Floor Assembly (ILDFA)

Chapter 6 Aircraft Hangar Groups

6.1 Aircraft Hangar Classification. For the purposes of this standard, aircraft hangars shall be classified as specified in 6.1.1 through 6.1.4.

6.1.1 Group I Aircraft Hangar. A Group I aircraft hangar shall have at least one of the following features and operating conditions:

- (1) An aircraft access door height over 8.5 m (28 ft)
- (2) A single fire area in excess of 3716 m² (40,000 ft²)
- (3) Provision for housing an aircraft with a tail height over 8.5 m (28 ft)

6.1.2 Group II Aircraft Hangar. A Group II aircraft hangar shall have both of the following features:

- (1) An aircraft access door height of 8.5 m (28 ft) or less
- (2) A single fire area for specific types of construction in accordance with Table 6.1.2

Chapter 8 Protection of Group I Aircraft Hangars

8.1 General.

8.1.1 The protection of aircraft storage and servicing areas for Group I aircraft hangars shall be in accordance with any one of the following:

- (1) A foam-water deluge system, as specified in 8.2.2. In addition, supplementary protection systems as specified in 8.2.3 shall be provided in hangars housing single aircraft having wing areas greater than 279 m² (3000 ft²).
- (2) A combination of automatic sprinkler protection in accordance with 8.2.4 and an automatic low-level low-expansion foam system in accordance with 8.2.5.
- (3) A combination of automatic sprinkler protection in accordance with 8.2.4 and an automatic low-level high-expansion foam system in accordance with 8.2.5.
- (4) A combination of automatic sprinkler protection in accordance with 8.2.4 and an ignitable liquid drainage floor assembly in accordance with 8.2.13.

Chapter 9 Protection of Group II Aircraft Hangars

9.1 General.

9.1.1* The protection of aircraft storage and servicing areas of Group II aircraft hangars shall be in accordance with any one of the following:

- (1) The provisions of Chapter 8, unless foam-water deluge systems utilizing air-aspirating discharge devices are installed for the protection of Group II aircraft hangars, in which case the discharge rate specified in 8.2.2.12 of this standard is permitted to be reduced to a minimum of 6.5 L/min/m² (0.16 gpm/ft²) of floor area
- (2) A combination of automatic sprinkler protection in accordance with Section 9.2 and an automatic, low-level, low-expansion foam system in accordance with Sections 9.3 and 9.4
- (3) A combination of automatic sprinkler protection in accordance with Section 9.2 and an automatic, high-expansion foam system in accordance with Sections 9.3 and 9.5
- (4) A closed-head foam-water sprinkler system in accordance with Section 9.6
- (5) A combination of automatic sprinkler protection in accordance with Section 9.2 and an ignitable liquid drainage floor assembly in accordance with 8.2.13

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- **8.2.13 Ignitable Liquid Drainage Floor Assemblies.**
- 8.2.13.1 Ignitable liquid drainage floor assemblies shall be listed and installed in accordance with the manufacturer's instructions. (FM Approved Standard 6090)
- 8.2.13.2 Design of the drainage system shall remove fuel through the drainage system from the aircraft storage and service area.
- 8.2.13.3 The floor dimensions shall be large enough to cover all the fuel-containing parts of the aircraft where a fuel spill could occur and address lateral discharge potential per the manufacturer's written instructions.
- 8.2.13.4 The floor assembly shall have a drainage rate that is greater than 110 percent of the total anticipated fuel discharge rate, plus an allowance for the required sprinkler flow.
- 8.2.13.4.1 A minimum fuel flow rate of 757 L/min (200 gpm) shall be used for the floor design calculations for an aircraft up to 24 m (78 ft) in length with a fuselage width of 4 m (13 ft) or less. For larger aircraft, the minimum fuel flow rate used for floor design calculations shall be 1514 L/min (400 gpm).
- 8.2.13.5 Discharge piping must be of sufficient size to allow for an unrestricted flow to a point of containment or disposal outside of the hangar structure, as approved.