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2018 International Building Code Requirements for Aircraft Hangars

The base provisions for the construction of aircraft hangars are specified in Section 412 of the 2018 International Building Code (IBC) & NFPA 409 are as follows:

Hangar types:

Group I Aircraft Hangar. Group I aircraft hangars shall have at least **one** of the following features and operating conditions:

1. An aircraft access door height over 28 ft.
2. A single fire area in excess of 40,000 ft.
3. Provision for housing an aircraft with a tail height over 28 ft.
4. All Group I Hangars are to be sprinkled throughout – Per NFPA 409, Chapter 6.

Group II Aircraft Hangar. Group II aircraft hangars shall have **all** the following features:

1. An aircraft access door height of 28 ft. or less
2. A single fire area for specific types of construction in accordance with Table 4.1.2 of NFPA 40
3. All Group II Hangars are to be sprinkled throughout – Per NFPA 409, Chapter 7.

Group III Aircraft Hangar. Group III aircraft hangars shall have **both** of the following features:

1. An aircraft access door height of 28 ft. or less
2. A single fire area that measures up to the maximum square footage permitted for specific types of construction in accordance with Table 4.1.3 of NFPA 409.

Separation Distance:

1. Exterior walls of hangars located less than 30 feet from lot/lease lines or a public way shall have a fire-resistance rating of not less than 2 hours (Sec. 412.3.1 2018 IBC). *See IBC table 706.4 for type of construction requirements.*
2. Hangars can be clustered together if the **total** aggregate fire area meets the requirements of IBC Table 412.3.6 (see below).

Fire Suppression:

1. Aircraft hangars shall be provided with a fire suppression system designed in accordance with NFPA 409, based upon the classification for the hangar given in Table 412.4.6 (IBC)
2. Group I and II aircraft hangars require a fire suppression system in accordance with Sections 6.1.3 and 7.1.2 of NFPA 409.
3. Group III hangars require fire protection where required by locally adopted codes and where any hazardous operations, including fuel transfer, welding, torch cutting, torch soldering, doping, fuel over 7500 gallons, and spray painting are performed (Section 8.9.1 NFPA 409).

*****See NFPA 409 for additional requirements*****

Exception: Where a fixed base operator has separate repair facilities on site, Group II hangars operated by a fixed base operator used for storage of transient aircraft only shall have a fire suppression system, but the system is exempt from foam requirements.

Table 412.3.6 Hangar Fire Suppression Requirements

MAXIMUM SINGLE FIRE AREA, SQ. FT.	TYPE OF CONSTRUCTION								
	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
≥ 40,001	Group I	Group I	Group I	Group I	Group I	Group I	Group I	Group I	Group I
40,000	Group II	Group II	Group II	Group II	Group II	Group II	Group II	Group II	Group II
30,000	Group III	Group II							
20,000	Group III	Group III	Group II						
15,000	Group III	Group III	Group III	Group II	Group III	Group II	Group III	Group II	Group II
12,000	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group II	Group II
8,000	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group II
5,000	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group III

Chapter 6 Protection of Group I Aircraft Hangars

6.1 General.

6.1.1 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 6.2.2. In addition, supplementary protection systems as specified in 6.2.3 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 6.2.4 and an automatic low-level low-expansion foam system in accordance with 6.2.5.
- (3) A combination of automatic sprinkler protection in accordance with 6.2.4 and an automatic low-level high-expansion foam system in accordance with 6.2.5.

7.1 General.

7.1.1 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 6, 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 6.2.2.12 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 7.2 and an automatic, low-level, low-expansion foam system in accordance with Sections 7.3 and 7.4
- (3) A combination of automatic sprinkler protection in accordance with Section 7.2 and an automatic, high-expansion foam system in accordance with Sections 7.3 and 7.5
- (4) A closed-head foam-water sprinkler system in accordance with Section 7.6

Chapter 8 Group III Aircraft Hangars

8.1 Construction.

8.1.1* **Group III hangars** shall be constructed of any of the types of construction specified in NFPA 220.

8.1.2 Group III aircraft storage and servicing areas shall be limited to one story.

8.1.2.1 Where a Group III aircraft storage and servicing area exceeds one story, the hangar shall be designated as a Group II hangar.

8.1.3 The surface of the grade floor of aircraft storage and servicing areas, regardless of type of hangar construction, shall be noncombustible and above the grade of the approach or apron at the entrance to the hangar.

8.1.4 Hangar aprons shall slope away from the level of the hangar floors to prevent liquid on the apron surfaces from flowing into the hangars.

8.1.5 A minimum of 15 cm (6 in.) high curbing shall be provided between each aircraft storage and servicing area to prevent the flow of liquid from one space to adjacent spaces.

8.1.6 Group III hangars protected with the fire protection specified in Chapter 7 shall be provided with floor drainage in accordance with Section 5.11.