

Fire protection systems are not mandated in all new aircraft hangars in Wisconsin - NFPA 409 within the Wisconsin Commercial Building Code

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Under the Wisconsin Commercial Building Code (WCBC) the majority of the small hangars that are constructed in the state are not required to have a fire suppression system. Some people have suggested that IBC section 412.2.6 referencing NFPA standard 409 mandates protection of aircraft hangars by some type of fire suppression system. That is not true.

This article discusses the reference to NFPA 409 in the WCBC, which establishes hangar fire protection requirements. The 2006 edition of the International Building Code (IBC) adopted in Wisconsin references the 2001 edition of the NFPA 409 standard.

Under NFPA 409, hangars classified as either Group I or II require some type of automatic fire suppression system. The suppression options for these types of hangars are addressed under chapters 6 and 7 of the NFPA standard.

A hangar classified as a Group III does not require an automatic suppression protection unless some type of hazardous operation is occurring in the hangar. Hazardous operations include fuel transfer, welding, torch cutting, torch soldering, doping and spray painting.



Whether automatic suppression protection is required for a membrane-covered rigid-steel frame hangar classified as a Group IV is dependent upon several factors under section 9.14 of NFPA 409. Group IV hangars are not common in Wisconsin.

The classification of a hangar as a Group I, II or III under the NFPA standard is dependent on four factors: the height of the aircraft access door, aircraft tail height, story height, and the size of fire area in relation to the hangar's type of construction.

A hangar that has an aircraft access door opening that is 28 feet or less in height, does not exceed one-story in height, and does not exceed the given fire area limitations is classified as a Group III hangar. Hangars that do not fall within these specifications are considered Group I or II hangars.

NOTE: It is very important to remember that although the classes of construction referenced from within NFPA 409 [refer to Tables 4.1.2, 4.1.3, and 8.3.1] are not an exact match to the IBC, they do not have to be.

This table compares the fire area tables in NFPA 409 to the IBC construction classifications.

IBC Class of Construction	Equivalent NFPA Type of Construction
I-A	I (443) & I (332)
I-B	II (222)
II-A	II (111)
II-B	II (000)
III-A	III (211)
III-B	III (200)
IV	IV (2HH)
V-A	V (111)
V-B	V (000)

Individual fire areas are to be determined and created using the provisions of the WCBC and IBC. A single-story hangar building storing multiple aircraft may be subdivided into separate fire areas to create multiple Group III hangars, provided each subdivided space conforms to the Group III criteria. The subdivision to create individual fire areas follows WCBC and IBC provisions. Under the 2006 IBC, a Group III storage hangar is classified as an S-2 occupancy and the minimum fire-resistant rating for the barrier to create separate fire areas is 2-hour.

For a site where more than one individual hangar building is located, the existence of hangar building clusters under NFPA 409 is not a factor in determining whether Group III hangars will be reclassified to Group II (therefore needing automatic fire protection.) Under NFPA 409, a hangar building cluster exists when the clear space separation between buildings is less than the minimum based upon the type of building construction. Hangar building clusters are an issue of building separation, which is addressed by several IBC provisions, including IBC 503 and 602.

Remember that subject matters found in NFPA 409 dealing with topics other than sprinklers, such as construction, setbacks, curbs or roof coverings, are not referenced by the IBC and therefore do not apply in Wisconsin.