



Second Revision No. 39-NFPA 409-2025 [Global Comment]

Throughout NFPA 409, wherever the terms “aqueous film-forming foam”, or the acronyms “AFFF” are found, change to “aqueous film-forming foam (AFFF)”.

Throughout NFPA 409, wherever the terms “synthetic fluorine free foam” or “SFFF” are found, change to “synthetic fluorine free foam (SFFF)”

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:00:55 EDT 2025

Committee Statement

Committee Statement: Currently, NFPA 409 uses these terms in various forms within the document. This global will standardize the use of these terms and acronyms throughout the standard.

Response Message: SR-39-NFPA 409-2025

[Public Comment No. 10-NFPA 409-2024 \[Section No. 7.4.2.4\]](#)

[Public Comment No. 22-NFPA 409-2024 \[Section No. 7.5.2.1\]](#)

[Public Comment No. 26-NFPA 409-2024 \[Section No. 7.5.4.12\]](#)

[Public Comment No. 27-NFPA 409-2024 \[Section No. 7.5.4.14\]](#)



Second Revision No. 74-NFPA 409-2025 [Global Comment]

(See attached for rewrite of Chapter 8)

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_409_SR-74.docx		
TG_6_Chapter_8_Final.docx		
409_Chapter_8_Global_SR-74-rewrite.docx	For editorial use only	
409_Global_SR-74_Chapter_8_for_ballot.pdf	For ballot	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Fri May 09 13:18:05 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the task group that provided this report. Previous editions of NFPA 409 provided reference to specific technical requirements within Chapter 13 that also were supplemented by applicable and cited NFPA standards. This change refers to existing NFPA standards and modifies those requirements for the specific functions and hazards of aircraft hangars, as opposed to the previous edition, which directly dictated ITM requirements in a table. The technical changes made via PC-83 were presented by a diverse task group of technical committee members, who researched applicable NFPA documents, and built on First Draft inputs, feedback and First Revisions on this topic. This revised language, located within the new Chapter 8, provides a refined and wholistic overview of ITM requirements and considerations for aircraft hangars. New annex material has been added to provide both users and enforcers of NFPA 409 with information, guidance and practical considerations that pertain to the specific ITM activities cited.

Response Message: SR-74-NFPA 409-2025

Public Comment No. 83-NFPA 409-2025 [Section No. 8.1]

Chapter 8 Inspection, Testing, and Maintenance

8.1 Fire-Protection Systems ~~General.~~

~~8.1.1~~

~~Inspection, testing, and maintenance of fire protection systems in aircraft hangars shall be performed in accordance with NFPA 4, NFPA 11, NFPA 25, NFPA 70, NFPA 72, or NFPA 80 as applicable.~~

~~8.1.1.1~~

~~The 5-year discharge test for piping required in Table 13.1.1 shall not be required if an internal inspection in accordance with NFPA 25 indicates that the pipe is in good condition and free of obstructions, mechanical damage, leakage, and corrosion.~~

8.1.1

The requirements of ~~Chapter 8~~ this chapter shall be retroactive and apply to new and existing systems as well as new systems.

8.1.2*

The ~~most current~~ editions of the applicable referenced codes, per Chapter 2, shall be and standards used for inspection, testing, and maintenance shall be those listed in accordance with Chapter 2 or the edition permitted by the AHJ.

A.8.1.2

Inspection, testing, and maintenance requirements contained within this standard are based on the editions of the applicable referenced documents listed in Chapter 2. It is common practice for vendors, local jurisdictions, and local AHJs to use the most current (or second-most current) edition of these operational-type standards (e.g., NFPA 4, NFPA 25, NFPA 72, NFPA 80). Current editions have retroactivity statements and have the latest methods and technologies integrated, and their use should be considered acceptable with the agreement of the AHJ.

~~8.1.3~~

~~The testing performed shall be compared to the original performance specifications of the system to validate compliance and verify that the tested components function as originally designed.~~

8.1.3*

~~All the necessary precautions~~ Precautions shall be put in place prior to system inspection, testing, and maintenance activities to prevent injury to personnel or damage to the facility during the testing and its contents.

A.8.1.3

~~The property owner or designated representative should take precautions to~~ should provide adequate notification of the testing to building occupants. They should also take precautions to prevent damage to equipment or the structure during ~~the~~ testing. Damage to ~~the~~ aircraft, equipment, components, or electrical equipment could be caused by system discharge or runoff from the test site. It should also be verified that there is adequate and unobstructed drainage available. Equipment should be removed or covered as necessary to prevent damage. Means such as curbing or sandbagging should be used to prevent the entry of water into ~~the system~~ unintended areas or equipment.

~~8.1.4~~

~~Records of inspections, testing, and test results shall be maintained by the hangar owner or operator, as well as the contractor conducting the testing.~~

8.1.5 Initial System Testing.

~~8.1.5.1~~

~~Initial open-head (deluge) system testing shall be conducted by discharging water into the hangar area to verify that all the system components function as originally designed, followed by discharging the foam-water solution, unless the AHJ only permits the use of water.~~

8.1.6 Annual System Testing.

~~8.1.6.1~~

Important Notice: This document is the copyright property of the National Fire Protection Association (NFPA), Copyright © 2025 NFPA, and may not be used for any other purpose or distributed to any other persons or parties.

~~Annual system testing shall be conducted by qualified personnel as approved by the AHJ.~~

~~8.1.6.2~~

~~Fire pump testing shall be performed in accordance with NFPA 25.~~

~~8.1.6.3~~

~~Corrective actions shall be taken if required.~~

~~8.1.7 5-Year System Testing.~~

~~8.1.7.1~~

~~Five-year discharge system testing shall be performed by trained and qualified personnel.~~

~~8.1.7.2~~

~~Five-year fire protection testing shall be performed as required by NFPA 4 to confirm all the integrated fire protection systems operate as required.~~

~~8.1.7.3~~

~~The foam system shall be tested with the test connection using a foam solution to verify the actual foam concentrate proportioning rate required for the system demand or as recommended by the manufacturer of the proportioning equipment.~~

~~8.1.7.4~~

~~Open-head deluge system testing shall be conducted by discharging water through the test connection, if available, or into the hangar area to verify that all the system components function as originally designed.~~

~~8.1.7.5~~

~~Piping, deluge valve, hose station, monitor nozzle, and foam generator testing shall be permitted to be conducted by discharging water into the hangar area through all the discharge devices and by verifying the proper coverage of the protected space.~~

~~8.1.7.6~~

~~The foam concentrate pumps, concentrate control valve, proportioning device, and other system components shall be permitted to be tested with a test connection using a foam-water solution at the designed discharge rates to verify the actual foam concentrate proportioning rate.~~

~~8.1.7.7~~

~~5-year foam system testing shall include verification of the actual foam concentrate proportioning rate.~~

~~8.1.7.8~~

~~Closed-head foam-water sprinkler system testing shall be conducted with water only through the test connection to verify the adequacy of the water supply at the required system demand.~~

~~8.1.7.9~~

~~The foam concentrate utilized shall be replenished.~~

~~8.1.7.10~~

~~Corrective action shall be taken where required.~~

8.1.4*

Use of alternate, equivalent, risk-based, or performance-based methods for the inspection, testing, and maintenance of hangar fire protection systems shall be permitted with approval of the AHJ.

A.8.1.4

Alternate, equivalent, risk-based, or performance-based plans and methods for the inspection, testing, and maintenance of fire protection systems should be coordinated with all interested parties (e.g., AHJ, insurance provider, aircraft owners). See Sections 1.5 and 1.6 for alternate or equivalent methods. See the applicable sections of this and referenced standards (e.g., NFPA 25, NFPA 72) for risk- or performance-based guidance.

It is possible that operations in a hangar could cause necessary delays in the performance of certain inspection, testing, or maintenance activities. Where inspection, testing, or maintenance activities cannot be completed within the required frequency window [as defined by the applicable standard (e.g., NFPA 25, NFPA 72)], the owner should develop a plan for timely completion of the required inspection, testing,

Important Notice: This document is the copyright property of the National Fire Protection Association (NFPA), Copyright © 2025 NFPA, and may not be used for any other purpose or distributed to any other persons or parties.

or maintenance of the system, including risk mitigation actions when necessary. The owner should coordinate with the AHJ for short-term delays (i.e., up to 90 days). If delays will be long-term (i.e., over 90 days), the responsible party should coordinate with all interested parties (e.g., AHJ, insurance provider, aircraft owners). Interested parties such as the insurance provider and aircraft owners should concur on long-term delay plans and the AHJ should approve the plans.

8.1.5

Inspection, testing, and maintenance of fire protection features, components, or systems not addressed in the referenced standards or for which there are no applicable standards shall be performed in accordance with manufacturer's written guidance.

8.1.6 Records.

8.1.6.1*

Records of inspection, testing, and maintenance shall be maintained by the owner.

A.8.1.6.1

It is highly recommended that the contractor conducting the inspection, testing, or maintenance activities also maintains records. An owner's maintenance of records does not relieve the contractor performing the work from complying with other codes or standards requiring them to maintain records, as well.

8.1.6.2

Where inspection, testing, and maintenance are performed in accordance with a referenced standard, records shall be kept as required by that standard.

8.1.6.3

Records shall be retained for a minimum of 1 year after the next inspection, test, or maintenance activity of that type.

8.1.6.4

Records shall document compliance with requirements.

8.2 Periodic Inspection, Testing, and Maintenance.

8.2.1

Aircraft hangar fire protection systems shall be inspected, tested, and maintained by the owner in accordance with NFPA 4, NFPA 25, NFPA 72, and NFPA 80, as applicable.

8.2.2 Integrated Systems Testing.

8.2.2.1*

Integrated system testing in accordance with NFPA 4 shall be performed every 5 years.

A.8.2.2.1

The 5-year interval aligns with most major testing intervals in NFPA 25. Other intervals could be appropriate based on circumstances, risk, or performance data. (See 8.1.4.)

The purpose of performing integrated systems testing and full system activations is to compare the results to the original system's performance specifications, validate compliance, and verify that the tested components and systems function as originally designed. While some circumstances such as open discharge device systems could pose difficulties in performing actual discharge, it is imperative that systems be fully tested either by approved alternate methods or with actual discharge of at least water (where appropriate and approved by the AHJ).

8.2.3 Systems with Open Discharge Devices.

8.2.3.1*

Flow through open discharge devices during testing shall comply with NFPA 25 as modified by 8.2.3.1.1 through 8.2.3.1.4.

A.8.2.3.1

Open discharge devices include, but are not limited to, open-head sprinklers, foam generators, and monitor nozzles. The unique system configurations and operations within aircraft hangars should be considered. NFPA 25 refers to protected properties where water "cannot" be discharged for test purposes. Due to the fixed utility infrastructure designed for indoor use within an aircraft hangar, it is appropriate to

Important Notice: This document is the copyright property of the National Fire Protection Association (NFPA), Copyright © 2025 NFPA, and may not be used for any other purpose or distributed to any other persons or parties.

consider that water or foam cannot be discharged for test purposes on a frequent basis in some overhead deluge systems. This is particularly true where the discharge devices are located above lighting and other permanently installed utilities within an aircraft hangar. For many low-level deluge systems (e.g., monitor or great nozzle systems) or high-expansion foam generators, it is possible to flow into the protected space with limited impact and it could be appropriate for deluge valves on those systems to be tested accordingly. Discharge through test headers is always appropriate to validate valve operation. For discharge devices with small orifices or devices that use strainers (e.g., trench nozzles, foam generators), small amounts of rust or scale could obstruct systems. Such an amount of rust or scale might not be detectable using obstruction investigations without flow. In those instances, it is appropriate to consider full-flow discharge testing through piping to determine system integrity.

8.2.3.1.1

Use of test connections for full-flow discharge testing shall be permitted in lieu of discharge into the protected space under the following conditions:

- (1) System operation and integration of all components upstream of the test connection, including foam proportioning, where applicable, can be validated via flow through the test connections.
- (2) Inspection and validation of condition of components and devices, including internal piping conditions, downstream of the test connection is completed.
- (3) System does not use water-powered discharge devices.

8.2.3.1.2

Foam systems shall be permitted to discharge water only into the protected space to verify operation, patterns, or coverage when foam proportioning can be tested via test connections or other alternate methods.

8.2.3.1.3

The annual trip test of deluge valves shall be permitted to be conducted in a manner that does not necessitate discharge in the protected area.

8.2.3.1.4*

Foam proportioner concentration testing and full-flow discharge testing shall only be required during the 5-year integrated testing required by 8.2.2 unless otherwise required by the AHJ or a related inspection or test finding.

A.8.2.3.1.4

The intent is to only require the discharge of a significant quantity of water or foam-water solution at 5-year intervals except where there is a finding during an inspection or test that would call into question the integrity of the foam-water distribution. The AHJ could require more frequent testing based on system conditions such as exposure to the elements or fire code violations or findings in the space.

8.2.4* Hangar Floor Drainage Systems.

A.8.2.4

Hangar floor drainage system inspection, testing, and maintenance is performed to ensure adequate performance of drainage to support the fire protection systems. It does not replace or relieve other requirements such as those from the EPA or local codes that are outside the scope of this standard.

8.2.4.1

Hangar floor drainage systems shall be visually inspected monthly for damage or debris.

8.2.4.1.1

The monthly inspection shall be permitted to be conducted without the removal of grating or drainage coverings or without the use of electronic aids.

8.2.4.2*

Oil-water separators, containment tanks, and containment ponds shall be visually inspected monthly to verify general condition and remaining capacity capable of holding a system release.

A.8.2.4.2

Important Notice: This document is the copyright property of the National Fire Protection Association (NFPA), Copyright © 2025 NFPA, and may not be used for any other purpose or distributed to any other persons or parties.

Tanks or ponds should have an available capacity to hold an expected release as designed. Generally, tanks or ponds that are greater than 10 percent filled should have their contents removed and disposed in accordance with appropriate regulatory guidance.

8.2.4.3 Diverter Valves.

8.2.4.3.1

Diverter valves shall be visually inspected monthly to verify they are in the correct position.

8.2.4.3.2

Monthly visual inspection of diverter valves shall not be required where automatic supervision of valve position is provided.

8.2.4.3.3

Diverter valves shall be operated through their full range for not less than 5 cycles at least annually.

8.2.4.3.4

Diverter valve automatic controls shall be functionally tested annually.

8.2.4.4

Hangar floor drainage systems shall be functionally tested every 5 years.

8.2.4.4.1

The 5-year functional testing interval shall be part of the integrated tests required in 8.2.2, where applicable.

8.2.4.4.2

The requirements in 8.2.4.1 through 8.2.4.3.4 shall be completed prior to performing the functional test.

8.2.4.4.3

Oil-water separators shall be opened and inspected for damage or impairments.

8.2.4.4.4

Hangar floor drains shall be flushed with a volume of water sufficient to demonstrate unimpeded flow or to be fully inspected by camera.

8.2.4.4.4.1

Where flushing is used, flow into the oil-water separator(s) or other outfall(s) shall be visually verified.

8.2.4.5

The presence of debris or damage that could impede system operation or restrict outflow shall be corrected.

8.2.5 Ignitable Liquid Drainage Floor Assemblies.

8.2.5.1

Ignitable liquid drainage floor assemblies shall be inspected, tested, and maintained in accordance with all of the following:

- (1) Manufacturer's written requirements
- (2) Applicable sections of NFPA 25 and NFPA 72
- (3) Paragraphs 8.2.5.2 through 8.2.5.6.1

8.2.5.2*

Discharge pumps shall be operated weekly with no-flow for a minimum of 30 seconds to ensure proper operation.

A.8.2.5.2

Where used, discharge (sump) pumps are a critical feature to the performance of the ILDFA system when the floor slope and drainage design would allow effluent to back up into the hangar in the event of discharge pump failure. If sump overflow will gravity drain to the exterior to remove effluent from the

Important Notice: This document is the copyright property of the National Fire Protection Association (NFPA), Copyright © 2025 NFPA, and may not be used for any other purpose or distributed to any other persons or parties.

hangar, the function of the pump would be less critical, and it would be reasonable to consider extending the weekly pump test frequency permitted by 8.1.4.

8.2.5.3

The flooring assembly surface and drainage openings shall be visually inspected monthly for damage or debris.

8.2.5.4*

The system shall be functionally tested semiannually.

A.8.2.5.4

A semi-annual functional test includes verification of the proper operation of the entire system (e.g., operation of liquid sensors, flushing control valves and pumps, tank-level monitoring, discharge pump, control panel, transmission of alarm signals). A semiannual functional test is not required to include any flow typically attributed to fire suppression systems or fuel spills. See 8.2.5.6 for full-design flow testing.

8.2.5.5

Oil-water separators, containment tanks, containment ponds, and diverter valves shall be inspected, tested, and maintained in accordance with 8.2.4.2, 8.2.4.3, 8.2.4.4.3, and 8.2.4.5.

8.2.5.6*

Ignitable liquid drainage floor assemblies shall have a full-design flow test every 5 years.

A.8.2.5.6

The purpose of the full-design flow test is to ensure the drainage capacity is sufficient to meet the required drainage rate defined by 7.5.14.4 and 7.5.14.5.

8.2.5.6.1

The 5-year testing interval shall be part of the integrated tests required in 8.2.2, where applicable.

8.2.6

Gas detectors and systems shall be inspected, tested, and maintained in accordance with system design requirements, manufacturer's requirements, and NFPA 715 as applicable.

8.2.7*

Ventilation systems used to pressurize or exhaust pits, tunnels, and ducts shall be energized annually for not less than 60 seconds to verify their operation as designed.

A.8.2.7

Where used, ventilation systems used to pressurize or exhaust pits, tunnels, and ducts should be inspected, tested, and maintained in accordance with system design requirements and the manufacturer's requirements. See NFPA 91 for guidance.

8.2.8*

Aircraft and mobile equipment static grounding facilities shall be inspected, tested, and maintained in accordance with system design requirements, manufacturer's requirements, and NFPA 70B as applicable.

A.8.2.8

Consult aircraft and mobile equipment technical data for the maximum resistance to ground allowed for given maintenance activities. Maximum resistance permitted in various aviation guidance varies between 10 ohms to 10,000 ohms (or greater), thus it is critical to identify the specific requirements by aircraft type and maintenance activity. In the absence of technical data guidance, 25 ohms could be used as the maximum resistance to ground in accordance with 250.52(A)(2) of NFPA 70.

8.2.9

Fire doors shall be inspected, tested, and maintained in accordance with NFPA 80.



Second Revision No. 88-NFPA 409-2025 [Global Comment]

(See attached for new Annex D Protection Alternatives)

Supplemental Information

<u>File Name</u>	<u>Description</u> <u>Approved</u>
25_Apr_25_DRAFT_NFPA_409_Annex_Final_2nd_draft_meeting_comments_.docx	
TG_3_New_Annex_Final.docx	
409_Global_SR-88_Annex_D-new.docx	For editorial use only
409_Global_SR-88_Annex_D-new_for_ballot.pdf	For ballot

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Fri May 09 16:54:04 EDT 2025

Committee Statement

Committee Statement: The committee reviewed the proposed material that is a product of Task Group #3 and recognized that alternative methods may be applied in risk and performance-based designs. The current edition of NFPA 409 provides an opportunity for alternative protection systems, but did not provide a roadmap for the selection and approval of those systems. This annex provides the necessary roadmap and guidance as a foundation for applicable stakeholders. The reference documentation is the latest current research and applicable standards for specified systems. Given this, the committee determined that this guidance was appropriate for inclusion within the annex of NFPA 409.

Response Message: SR-88-NFPA 409-2025

Important Notice: This document is the copyright property of the National Fire Protection Association (NFPA), Copyright © 2025 NFPA, and may not be used for any other purpose or distributed to any other persons or parties.

Annex D Protection Alternatives

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

D.1 Alternative Hangar Fire Protection Systems.

D.1.1 Application.

This annex is intended to provide guidance and rationale to users proposing alternative fire protection systems in a risk-based or performance-based design approach for aircraft hangars. This information is meant to help in evaluating the application of alternative fire suppression systems and provide guidance for a fire risk assessment or performance-based design. Examples of alternative systems could include, but are not limited to, water mist, clean agent, and water additive. The goal of this information is to not lower the level of protection as intended in this standard.

D.1.2 Criteria.

When using an alternative fire protection system described in this annex, the following items should be considered at a minimum:

- (1) Total protected area
- (2) Hangar bay ceiling height
- (3) Hangar construction type
- (4) Position of hangar bay doors and other access doors
- (5) Hangar bay floor construction and drainage
- (6) Type and location of aircraft fuel and propulsion
- (7) Hazard protection approach (i.e., total flood, local application, or combination thereof)
- (8) Fire department response time
- (9) Fire suppression discharge time
- (10) Primary and secondary fire suppression systems
- (11) Detection methods
- (12) Obstructions (e.g., wings, fuselage)
- (13) Fire scenario, release scenario, and quantity of fuel
- (14) Other fire suppression or detection systems
- (15) Other hazards in the hangar fire area

Alternative fire protection systems considered in this annex should be proven effective with protection of a fuel fire as the worst-case hazard. Proper testing of alternative systems should follow similar guidance as that presented in UL 162, *Foam Equipment and Liquid Concentrates*, and FM 5130, *Examination Standard for Foam Extinguishing Systems*, both of which require a 4.64 m² (50 ft²) heptane fire with a pre-burn of 60 seconds to be extinguished at the appropriate application rate. Similar or better performance should be a minimum requirement for vetting the performance of alternative fire protection systems. Additional fire tests will need to be developed and conducted as appropriate to assess the performance effectiveness for the application. A system compliance test is needed to buttress hangar fire protection system design and should be agreed upon within the risk assessment. The alternative system should be proven to effectively protect against the anticipated hazard.

In addition, examples of water mist or clean agent systems protecting aircraft hangars can be designed as follows:

- (1) Total flooding within defined height and volume limits
- (2) Local flooding for a total area irrespective of hangar height and volume
- (3) Locally applied in a specific limited protected space or object

Important Notice: This document is the copyright property of the National Fire Protection Association (NFPA), Copyright © 2025 NFPA, and may not be used for any other purpose or distributed to any other persons or parties.

D.1.3 Detection and Controls Considerations.

There are several different types of detection that could be appropriate depending on the proper operation of the alternative system. Early warning and notification is important for both the system operation and proper public safety. The detection and notification devices are listed and compatible with the fire alarm release control panel. Resources such as FM DS 5-48, "Automatic Fire Detection," and FM DS 7-93, "Aircraft Hangars, Aircraft Manufacturing and Assembly Facilities, and Protection of Aircraft Interiors During Assembly," provide guidance on detection options. Proper acceptance testing of the detection and controls should follow the appropriate NFPA standards.

D.1.4 Sequence of Operation.

The sequence of operation is important to the proper performance of any fire protection system. The design needs to include the function of the detection, notification, and fire protection system equipment. The following should be considered regarding the proper operations of the alternative system:

- (1) Detection (e.g., type, cross zoning, obstructions in hangar bay)
- (2) Notification appliances
- (3) Initiating devices (e.g., pull stations, release stations, abort stations)
- (4) Door closures
- (5) HVAC or fan shutdowns
- (6) Time delays

Manufactures guidelines for proper performance should always be followed.



Second Revision No. 107-NFPA 409-2025 [Detail]

[Detail SR-107](#)

1.3.3.3*

Fuel that is not onboard or attached to the aircraft within the hangar bay shall be protected in accordance with the appropriate NFPA standards governing those fuels except as modified by 1.3.3.2.

A.1.3.3.3 [🔗](#)

Fuels that could be in the hangar bay and not onboard or attached to the aircraft can include batteries, compressed gas storage cylinders, compressed or liquid gas storage vessels, and liquid fuels.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 16 09:47:15 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. This change clarifies that fuel that is not onboard or attached to the aircraft must use the appropriate NFPA standards for protection of the hangar. Changes to current aircraft may provide attached fuels that are considered part of the aircraft. The annex material provides examples for types of fuels that could be present in the hangar and require protection.

Response Message: SR-107-NFPA 409-2025

[Public Comment No. 97-NFPA 409-2025 \[New Section after 1.3.1\]](#)



Second Revision No. 108-NFPA 409-2025 [Detail]

[A.6.7.1.4](#)

[Draft curtains should extend down from the roof or ceiling of aircraft storage and servicing areas not less than one-eighth of the height from the floor to the roof or ceiling. Under curved or sloping roofs extending to grade level or close to grade level, draft curtains need not be continued below 4.8 m \(16 ft\) from the floor.](#)

[Detail SR-108](#)

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 16 10:41:29 EDT 2025

Committee Statement

Committee Statement: See SR-28. This annex has been relocated from A.6.7.

Response Message: SR-108-NFPA 409-2025



Second Revision No. 89-NFPA 409-2025 [Detail]

Change "Defueled Aircraft" to "Defueled Aircraft Hangars" in titles in Chapter 6

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_409_SR-89.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Fri May 09 17:43:46 EDT 2025

Committee Statement

Committee Statement: The committee created this change to the subsections of Chapter 6 to provide consistency with how the term “hangars” is used in titles through NFPA 409. This change applies to Chapter 6 only per the specified sections listed in the SR.

Response Message: SR-89-NFPA 409-2025



Second Revision No. 90-NFPA 409-2025 [Detail]

Remove the word "Trench"

6.8.2.1 Hangar Floor ~~Trench~~ Drainage.

6.8.2.1.10

Oil separators shall be provided for the ~~trench~~ drainage systems serving all aircraft storage and servicing areas. These separators shall be permitted to serve each hangar ~~trench~~ drainage system or a group of hangar ~~trench~~ drainage systems or be installed as part of a general airport ~~trench~~ drainage system.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
6.8_Trench_Drainage_For_Ballotable_Detail.docx		
6.8_Trench_Drainage_Detail_SR-90.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Fri May 09 17:52:20 EDT 2025

Committee Statement

Committee Statement: During the review of Public Comments for NFPA 409, the committee determined that removing the word "trench" from specified areas of 6.8 was warranted. This term added confusion to the types of drainage piping. The removal of this term clarifies this as it pertains to other types of drainage specified within the standard.

Response Message: SR-90-NFPA 409-2025



Second Revision No. 92-NFPA 409-2025 [Detail]

(Rename title of 6.4)

6.4 Types of Construction.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 18:04:38 EDT 2025

Committee Statement

Committee Statement: The committee has made this change to clarify that the title of 6.4 needs to relate to the types of construction for aircraft hangars.

Response Message: SR-92-NFPA 409-2025



Second Revision No. 93-NFPA 409-2025 [Detail]

Change "Hangar" to "Hangars" in titles in Chapter 6

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_409_SR-93.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Fri May 09 18:09:28 EDT 2025

Committee Statement

Committee Statement: The committee created this change to the subsections of Chapter 6 to provide consistency with how the term “paint hangars” are used in titles through NFPA 409. This change applies to Chapter 6 only per the specified sections listed in the SR.

Response Message: SR-93-NFPA 409-2025



Second Revision No. 1-NFPA 409-2025 [New Section after 1.1.4]

1.1.5

This standard shall not apply to hypergolic and solid rocket fuels (i.e., propellants).

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 12:36:51 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the TG. This text clarifies that hypergolic and solid rocket fuels or propellants are not covered under NFPA 409, but are addressed by other codes, including, but not limited to, NFPA 461. This inclusion clarifies this concept with NFPA 409.

Response Message: SR-1-NFPA 409-2025

Public Comment No. 93-NFPA 409-2025 [New Section after 1.1.4]



Second Revision No. 2-NFPA 409-2025 [New Section after 1.3.1]

1.3.2*

Aircraft hangars containing aircraft propelled using liquid hydrocarbon fuels shall comply with Chapters 4 through 8, as applicable.

A.1.3.2

The liquid hydrocarbon fuels that are addressed by the prescriptive requirements of NFPA 409 include jet fuel A, aviation gasoline, and similar military fuels such as JP-8, JP-4, and JP-5. Historical foam suppression agents were considered similarly effective on these products. While the protection concepts within NFPA 409 might apply to synthetic fuels that meet the same specifications as the fuels mentioned above, it is critical to confirm the compatibility of foam fire suppression agents with these new fuels. This is an element of the listings for current foam fire suppression agents. The manufacturer of the foam concentrate proposed for use should be consulted for compatibility with the intended fuel.

It might be appropriate to use NFPA 306 for in-tank operations relating to liquid hydrocarbon propelled aircraft.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 12:53:46 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. The inclusion of this language and annex material provides further clarity to the type of hangars and aircraft that are to be considered under the application of NFPA 409. As technology continues to evolve, this change specifies the application of Chapters 4 through 8 to liquid hydrocarbon fueled aircraft. The annex material provides context for these changes and provides intent for the reader to consider applicable reference standards where appropriate.

Response Message: SR-2-NFPA 409-2025

Public Comment No. 94-NFPA 409-2025 [New Section after 1.3.1]



Second Revision No. 6-NFPA 409-2025 [New Section after 1.3.1]

1.3.3

Aircraft hangars containing aircraft propelled using fuel sources other than liquid hydrocarbon fuels shall comply with 1.3.3.1 through 1.3.3.3 .

1.3.3.1*

Hangars shall protect defueled aircraft in accordance with Chapters 4 through 8 except as modified by 1.3.3.2 .

A.1.3.3.1

Fuels other than traditional liquid hydrocarbon fuels can present vastly different challenges, therefore fire protection considerations might shift from a liquid pool fire scenario to other fire scenarios. The hazards associated with defueled aircraft are present regardless of an aircraft's fuel type or status and should be considered for fuels that are not traditional liquid hydrocarbons.

1.3.3.2*

Hangars shall use either a fire-risk-based approach or a performance-based design approach in accordance with Chapter 5 .

A.1.3.3.2

There are numerous combinations of future fuels and fire mitigation measures, which requires the situation-specific approaches available in Chapter 5 . Engineers using Chapter 5 should ensure mitigation measures are suitable for the specific fuel hazard in the specific hangar space with the given operations. Attention should be given to the tests and test parameters (e.g., ceiling height, open area) for proposed suppression agents.

1.3.3.2.1*

Hangars complying with 1.3.3.2 shall use relevant requirements of the appropriate standards for the fuel that will be located within the hangar.

A.1.3.3.2.1

The intent of this section is to use the concepts and rationale behind existing prescriptive requirements in combination with the unique spaces and uses of an aircraft hangar to derive appropriate requirements using a risk- or performance-based approach. It is not the intent of this section to apply the requirements of these standards as written for other occupancies. Table A.1.3.3.2.1 should be considered for each associate fuel.

Table A.1.3.3.2.1 Fuels and Applicable Fire Protection Standards

<u>Fuel</u>	<u>Fire Protection Standard(s)</u>
<u>Hydrogen</u>	<u>NFPA 2 and FM DS 7-91</u>
<u>Compressed natural gas</u>	<u>NFPA 52 and NFPA 55</u>
<u>Liquified natural gas</u>	<u>NFPA 52 and NFPA 55</u>
<u>Liquified propane gas</u>	<u>NFPA 58</u>
<u>Compressed propane gas</u>	<u>NFPA 55</u>
<u>Alcohols</u>	<u>NFPA 11 and NFPA 30</u>
<u>Battery and electrical energy storage</u>	<u>NFPA 70 and NFPA 855</u>

Detail SR-107

1.3.3.3*

Fuel that is not onboard or attached to the aircraft within the hangar bay shall be protected in accordance with the appropriate NFPA standards governing those fuels except as modified by 1.3.3.2.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-6_1.3.3-new.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Tue May 06 14:01:14 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. The addition of these sections provide pointers to both existing prescriptive and risk-based requirements within NFPA 409 for alternative fuels. As alternative fuel powered aircraft are entering the market, this framework provides users baseline requirements to construct aircraft hangars for alternative fuels while allowing flexibility.

Response Message: SR-6-NFPA 409-2025

Public Comment No. 96-NFPA 409-2025 [New Section after 1.3.1]



Second Revision No. 106-NFPA 409-2025 [Chapter 2]

Chapter 2 Referenced Publications

2.1 General.

The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications.

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 4, *Standard for Integrated Fire Protection and Life Safety System Testing*, 2024 edition.

NFPA 10, *Standard for Portable Fire Extinguishers*, ~~2022~~ 2026 edition.

NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*, 2024 edition.

NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2025 edition.

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2024 edition.

NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*, 2025 edition.

NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*, 2025 edition.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, ~~2023~~ 2026 edition.

NFPA 30, *Flammable and Combustible Liquids Code*, 2024 edition.

NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 2024 edition.

NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, 2024 edition.

NFPA 54, *National Fuel Gas Code*, 2024 edition.

NFPA 58, *Liquefied Petroleum Gas Code*, 2024 edition.

NFPA 69, *Standard on Explosion Prevention Systems*, 2024 edition.

NFPA 70[®], *National Electrical Code*[®], ~~2023~~ 2026 edition.

NFPA 70B, *Standard for Electrical Equipment Maintenance*, 2026 edition.

NFPA 72[®], *National Fire Alarm and Signaling Code*[®], 2025 edition.

NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, 2025 edition.

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2024 edition.

NFPA 90B, *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems*, 2024 edition.

NFPA 91, *Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids*, ~~2020~~ 2026 edition.

NFPA 101[®], *Life Safety Code*[®], 2024 edition.

NFPA 220, *Standard on Types of Building Construction*, 2024 edition.

NFPA 410, *Standard on Aircraft Maintenance*, 2025 edition.

NFPA 415, *Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways*, 2026 edition.

NFPA 418, *Standard for Heliports and Vertiports*, 2024 edition.

NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*, 2023 edition.

NFPA 715, *Standard for the Installation of Fuel Gases Detection and Warning Equipment*, 2023 edition.

NFPA 780, *Standard for the Installation of Lightning Protection Systems*, ~~2023~~ 2026 edition.

2.3 Other Publications.

2.3.1 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, ~~2023~~ 2024 .

ASTM G155, *Standard Practice for Operating Xenon Arc Lamp Apparatus for Exposure of Materials*, 2021.

2.3.2 UL Publications.

Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 723, *Test for Surface Burning Characteristics of Building Materials*, 2018, revised 2023.

2.3.3 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2020.

2.4 References for Extracts in Mandatory Sections.

NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*, 2024 edition.

NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2025 edition.

NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection*, 2022 edition.

NFPA 70[®], *National Electrical Code*[®], ~~2023~~ 2026 edition.

NFPA 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, 2024 edition.

NFPA 101[®], *Life Safety Code*[®], 2024 edition.

NFPA 221, *Standard for High Challenge Fire Walls, Fire Walls, and Fire Barrier Walls*, 2024 edition.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409-2022_Chapter_2.docx		
409-2022_Chapter_2_SR-106.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Wed May 14 10:57:21 EDT 2025

Committee Statement

Committee Statement: Reference publication updates.
Response Message: SR-106-NFPA 409-2025



Second Revision No. 50-NFPA 409-2025 [New Section after 3.3]

3.3.11* Hazardous Operations.

Operations that, when performed, lead to an increased likelihood of causing a fuel spill fire.

A.3.3.11 Hazardous Operations.

Typical hazardous operations include, but are not limited to, fuel transfer, welding, torch cutting, torch soldering, hot work, spray painting within the scope of NFPA 33, and interior fuel tank maintenance when fuel is present in the tank. These operations are commonly considered aircraft maintenance operations.

Aircraft maintenance operations are significantly different than maintenance or repair operations for other fueled vehicles such as automobiles or ships. Aircraft maintenance procedures are developed by the aircraft manufacturer and require compliance. Maintenance personnel are either certified to work on the specific aircraft or overseen by someone certified to work on the specific aircraft. When maintenance is complete, an inspection is performed to ensure the manufacturer's procedures were followed and all work is complete.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 18:33:52 EDT 2025

Committee Statement

Committee Statement: The committee agreed in part with the submitter. The inclusion of the definition for hazardous operations provides clarity for how this term should be utilized and considered within NFPA 409. The annex material has been condensed to provide examples and an explanation of aircraft maintenance operations. These examples have been referenced in previous editions of NFPA 409. The definition clarifies the committees intent regarding a fuel spill fire.

Response Message: SR-50-NFPA 409-2025

Public Comment No. 108-NFPA 409-2025 [New Section after 3.3]



Second Revision No. 82-NFPA 409-2025 [Section No. 3.3.8]

3.3.8 Foam-Water Deluge System.

A foam-water sprinkler system or foam-water spray system that employs open discharge devices, ~~which that~~ are attached to a piping system connected to a water supply through a valve that is opened by the operation of a detection system; installed in the same areas as the discharge devices. [11, 2024]

Submitter Information Verification

Committee: AIS-AAA

Submission Date: Fri May 09 13:54:20 EDT 2025

Committee Statement

Committee Statement: Extract definition updates.

Response Message: SR-82-NFPA 409-2025



Second Revision No. 85-NFPA 409-2025 [Section No. 3.3.19]

3.3.20 Weathered-Membrane Material.

Membrane material that has been subjected to a minimum of 3000 hours in a ~~weatherometer~~ an accelerated weather test or xenon arc weathering test in accordance with ASTM G155, *Standard Practice for Operating Xenon Arc Lamp Apparatus for Exposure of Materials*, or approved equivalent.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 13:55:29 EDT 2025

Committee Statement

Committee Statement: Removed the term “weatherometer” as variations of this term have copyright, and the term is specific to a manufacturer. Replacement terms provided are commonly-associated terms that describe this test.

Response Message: SR-85-NFPA 409-2025

**Second Revision No. 7-NFPA 409-2025 [Section No. 4.1.1]****4.1.1* Alternative Hangar Group:**

An alternative hangar group shall be permitted to be selected where a risk assessment, as outlined in Chapter 5, identifies that an alternative hangar group is acceptable.

A.4.1.1

An aircraft hangar with certain door height and area properties might more appropriately be protected as an aircraft hangar with other door height and area properties depending on the operations and aircraft to be stored in the hangar. This could apply in situations where the height of the hangar door and floor area doesn't reflect the hazard of the aircraft or operations that will be located in the hangar.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 14:36:48 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter to remove the alternative hangar classification from NFPA 409, as the code already provides provisions, such as Chapter 5, to modify the protection requirements for a hangar group. Further, door height requirements were modified for Group I and Group II hangars during the First Draft meeting via associated First Revisions, which provide additional flexibility and remove the need for the annex material as guidance.

Response Message: SR-7-NFPA 409-2025

[Public Comment No. 42-NFPA 409-2024 \[Section No. 4.1.1\]](#)



Second Revision No. 8-NFPA 409-2025 [Section No. 5.4.7.4.4]

5.4.7.4.4

The ~~applicable items of Chapter 11 of this standard shall apply and include inspections, testing, and maintenance items and frequencies~~ applicable inspection, testing, and maintenance requirements of this standard shall apply unless otherwise specified ~~otherwise~~ in the performance-based design report.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 16:15:25 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. The proposed revision removes the specific location of ITM requirements in Chapter 11 and provides a more general statement which is consistent with other language in the standard.

Response Message: SR-8-NFPA 409-2025

[Public Comment No. 118-NFPA 409-2025 \[Section No. 5.4.7.4.4\]](#)



Second Revision No. 91-NFPA 409-2025 [Chapter 6 [Title Only]]

Construction Features of Aircraft Hangars

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 18:02:39 EDT 2025

Committee Statement

Committee Statement: The committee has made this change to clarify that the components of Chapter 6 relate to the different construction features for aircraft hangars.

Response Message: SR-91-NFPA 409-2025



Second Revision No. 9-NFPA 409-2025 [Section No. 6.1.1]

[See SR-20](#)

6.1.1 ~~Defueled Aircraft Hangars~~ General .

6.1.1.1 ~~General:~~

Aircraft hangar construction shall comply with the general and specific requirements associated with their hangar group and as modified by the requirements for paint hangars or defueled aircraft hangars, as applicable. ~~Those hangars housing aircraft that have never been fueled or have had the fuel removed shall comply with the definition for defueled aircraft in Chapter 3 :~~

6.1.1.2

The construction requirements in Chapter 6 shall be permitted to be modified where a risk assessment, as outlined in Chapter 5 , identifies that an alternative means of construction is acceptable. ~~Defueled aircraft hangars shall comply with Chapter 4 criterion for Group I and Group II aircraft hangars, except as modified in this chapter.~~

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
SR-9_Clean.docx		
409_SR-9_6.1.1.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Tue May 06 17:09:06 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change removes duplicate defueled aircraft hangar criteria and provides an explanation for document instruction and use. An update from Chapter 4 to Chapter 5 was made. Renumbering of 6.1.1.1 was made.
Response Message: SR-9-NFPA 409-2025

Public Comment No. 47-NFPA 409-2024 [Section No. 6.1.1]



Second Revision No. 11-NFPA 409-2025 [Section No. 6.3.1.1.1]

6.3.1.1.1

Storage or parking of aircraft or concentrations of combustible materials shall not be located within the clear spaces specified in Table 6.3.1.1 where access is required within the clear space by the AHJ.

6.3.1.1.2

Precautions shall be taken to ensure ready access to hangars from all sides. Separation shall be provided to reduce fire exposure between buildings. The clear spaces specified in Table 6.3.1.1 shall not be used to erect buildings of any type therein.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 17:26:53 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change restores language which was inadvertently removed during the First Draft meeting.

Response Message: SR-11-NFPA 409-2025

Public Comment No. 48-NFPA 409-2024 [Section No. 6.3.1.1.1]



Second Revision No. 22-NFPA 409-2025 [Section No. 6.3.3.1 [Excluding any Sub-Sections]]

For single hangar buildings, the clear space distances specified in Table 6.3.3.1 shall be maintained on all sides of the single hangar. Where mixed types of construction are involved, the least fire-resistant type of construction shall be used to determine the clear space required. Where the minimum clear spaces between Group III hangars as specified in Table 6.3.3.1 Table 6.3.1.1 are is not met, the hangar buildings shall be classified as a hangar building cluster.

Table 6.3.3.1 Clear-Space Distances for Single Hangar Buildings

<u>Type of Construction</u>	<u>Minimum Separation Required</u>	
	<u>m</u>	<u>ft</u>
Type I (443) and (332)	15	50
Type II (222)	15	50
Type II (111), Type III (211), and Type IV (2HH)	15	50
Type II (000)	15	50
Type III (200)	15	50
Type V (111) and (000)	23	75

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-22_6.3.3.1.docx		

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 19:05:50 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change removes the duplicative reference to Table 6.3.3.1 and simplifies the prescriptive requirement from the existing language. The existing language is already found within other sections of Chapter 6 and is therefore unnecessary.

Response Message: SR-22-NFPA 409-2025

Public Comment No. 109-NFPA 409-2025 [Section No. 6.3.3.1 [Excluding any Sub-Sections]]



Second Revision No. 12-NFPA 409-2025 [Section No. 6.3.6]

[Detail SR-89](#)

6.3.6 Defueled Aircraft Hangars — Specific Requirements. (~~Reserved~~)

The requirements of 6.3.2 shall not apply to aircraft hangars storing or servicing defueled aircraft.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 17:30:05 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change restores language which was inadvertently removed during the First Draft meeting.

Response Message: SR-12-NFPA 409-2025

[Public Comment No. 50-NFPA 409-2024 \[Section No. 6.3.6\]](#)



Second Revision No. 10-NFPA 409-2025 [Section No. 6.4.1]

6.4.1 General Requirements for All Hangars. (Reserved)

~~The construction requirements in Chapter 4 shall be permitted to be modified where a risk assessment, as outlined in Chapter 5, identifies that an alternative means of construction is acceptable.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 17:23:29 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change removes duplicative language which is found elsewhere in appropriate sections of Chapter 6.

Response Message: SR-10-NFPA 409-2025

[Public Comment No. 51-NFPA 409-2024 \[Section No. 6.4.1\]](#)



Second Revision No. 13-NFPA 409-2025 [Section No. 6.4.2]

6.4.2 Group I and Group II — Specific Requirements.

6.4.2.1*

Group I hangars shall be either Type I or Type II construction in accordance with NFPA 220. ~~Group II hangars shall be constructed of any of the types of construction specified in NFPA 220 or any combination thereof.~~

6.4.2.2

Group II hangars shall be constructed of any of the types of construction specified in NFPA 220 or any combination thereof.

6.4.2.3*

Mezzanines, tool rooms, and other enclosures within aircraft storage and servicing areas shall be constructed of noncombustible material or limited-combustible material as defined in NFPA 220 in all hangars except those of Type V (111) and (000) construction.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-13_6.4.2.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Tue May 06 17:32:28 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter to separate 6.4.2.1 to comply with the NFPA MOS.
Response Message: SR-13-NFPA 409-2025
Public Comment No. 52-NFPA 409-2024 [Section No. 6.4.2]



Second Revision No. 24-NFPA 409-2025 [Sections 6.4.5, 6.4.6]

[Detail SR-93](#)

6.4.5 Paint Hangars — Specific Requirements.

~~Paint Group I, Group II, and Group III paint hangars housing fueled aircraft shall be constructed in accordance with 6.4.5 6.4.2 of this standard .~~

6.4.5.1

~~Paint hangars housing defueled aircraft shall be constructed in accordance with Chapter 7 of this standard.~~

[Detail SR-89](#)

6.4.6 Defueled Aircraft Hangars — Specific Requirements. (Reserved)

~~Defueled aircraft hangars shall be constructed in accordance with Chapter 6 of this standard, and as modified herein.~~

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-24_6.4.5.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Tue May 06 19:35:06 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. This change simplifies the construction requirements for paint hangars while specifically referencing Group I, II and III. Further, the requirements for defueled aircraft in 6.4.6 have been deleted as the reference to Chapter 6 was circular and provided no specific requirements.

Response Message: SR-24-NFPA 409-2025

[Public Comment No. 53-NFPA 409-2024 \[Sections 6.4.5, 6.4.6\]](#)



Second Revision No. 25-NFPA 409-2025 [Section No. 6.5.6]

[Detail SR-89](#)

6.5.6 Defueled Aircraft Hangars — Specific Requirements. (Reserved)

~~Section 6.5 shall not apply to hangars housing defueled aircraft unless the hangar construction type is Type I or Type II or the hangar is a paint hangar.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 20:05:36 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter to delete this section, as the existing requirement of 6.5.1 was deemed sufficient to address requirements for curtains for all hangar types. The committee determined that the fuel status, construction type, and paint spraying operations should have no bearing on curtain flammability requirements.

Response Message: SR-25-NFPA 409-2025

[Public Comment No. 119-NFPA 409-2025 \[Section No. 6.5.6\]](#)



Second Revision No. 26-NFPA 409-2025 [Section No. 6.6.1.3]

6.6.1.3*

~~In areas where freezing temperatures occur~~ Where ice formation has the potential to prevent or delay operation , door tracks or the bottom edges of doors shall be protected by heating coils or equivalent means ~~to prevent ice formation that has the potential to prevent or delay operation~~ .

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 21:23:50 EDT 2025

Committee Statement

Committee Statement: The committee reviewed CI-81 and created a Second Revision to clarify the existing requirement. This change removes vagueness and unenforceable language from the proposed CI and clarifies the protection requirements necessary for doors in climates where ice formation is possible.

Response Message: SR-26-NFPA 409-2025



Second Revision No. 14-NFPA 409-2025 [Section No. 6.6.6]

[Detail SR-89](#)

6.6.6 Defueled Aircraft Hangars — Specific Requirements. ~~(Reserved)~~

Hangar door tracks shall not be required to be protected to prevent ice formation.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 17:40:12 EDT 2025

Committee Statement

Committee Statement: The committee agreed to add this language which is currently found within 6.7.7 of NFPA 409.

Response Message: SR-14-NFPA 409-2025

[Public Comment No. 54-NFPA 409-2024 \[Section No. 6.6.6\]](#)



Second Revision No. 27-NFPA 409-2025 [Section No. 6.7]

6.7* Draft Curtains.

6.7.1 General Requirements for All Hangars.

6.7.1.1

Draft curtains shall be required in all hangars with a ceiling height of 8.5 m (28 ft) or greater and where fire detection or fire suppression system activation is dependent upon heat levels at the ceiling.

6.7.1.2*

~~Draft~~ Where provided, draft curtain areas shall be around each roof/ceiling fire suppression system and subdivided such that a single draft curtain area ~~shall~~ does not exceed 697 m² (7500 ft²). The maximum projected floor area under an individual sprinkler system shall ~~be in accordance~~ comply with Chapter 7.

6.7.1.3

Where provided, draft curtains shall be constructed of noncombustible materials not subject to disintegration or fusion during the early stages of a fire and ~~shall~~ be tightly fitted to the underside of the roof or ceiling. Any opening in draft curtains shall be provided with self-closing doors constructed of materials equivalent in fire resistance to the draft curtain itself.

[Detail SR-108](#)

6.7.1.4*

Where provided, draft curtains shall extend down from the roof or ceiling of aircraft storage and servicing areas not less than one-eighth of the height from the floor to the roof or ceiling. ~~Under curved or sloping roofs extending to grade level or close to grade level, draft curtains need not be continued below 4.8 m (16 ft) from the floor.~~

6.7.1.5

Draft curtains shall not be required to continue below 4.8 m (16 ft) from the floor where they are located under curved or sloping roofs, extending to grade level, or close to grade level.

6.7.1.6

Where provided, structural features of a building that serve the purpose of draft curtains shall be permitted in lieu of specially constructed draft curtains ~~provided if~~ they meet the dimensional requirements of 6.7.1.4.

6.7.1.7

The draft curtain requirements in ~~6.7.2.1~~ 6.7.1.1 through ~~6.7.2.2~~ 6.7.1.6 shall be permitted to be modified where a risk assessment, as outlined in Chapter 5, identifies that an alternative means of draft curtains is acceptable.

6.7.2 Group I and Group II — Specific Requirements. (Reserved)

6.7.3 Group III — Specific Requirements. (Reserved)

6.7.4 Group IV — Specific Requirements. (Reserved)

[Detail SR-93](#)

6.7.5 Paint Hangars — Specific Requirements. (Reserved)

[Detail SR-89](#)

6.7.6 Defueled Aircraft Hangars — Specific Requirements. (Reserved)

~~The requirements of Section 6.7 shall not apply to aircraft hangars storing or servicing defueled aircraft.~~

6.7.7 Ice Protection Requirements:

~~Hangar door tracks shall not be required to be protected to prevent ice formation.~~

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-27_6.7.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Wed May 07 11:39:41 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter that ceiling height and system activation/detection at the ceiling level is the technical driving factor for use of draft curtains to promote quicker and more accurate activation of fire protection systems. The committee reconsidered the technical data provided in the First Draft Public Inputs which indicated the benefit for draft curtains for fueled aircraft hangar fires. The committee also considered the benefit of draft curtains for emergency response regardless of fuel status, which would also apply to defueled aircraft hangars. Aircraft in defueled aircraft hangars may also contain residual fuel and other materials where draft curtains would provide a benefit.

Response Message: SR-27-NFPA 409-2025

Public Comment No. 98-NFPA 409-2025 [Section No. 6.7]



Second Revision No. 99-NFPA 409-2025 [Section No. 6.8.2.1.3]

6.8.2.1.3

Trench drainage systems and liquid drainage floor assemblies shall be designed to reduce fire and explosion hazards within the systems to the maximum extent by the use of noncombustible underground piping and by routing ~~trench~~ drainage as directly as possible to a safe outside location. Such systems shall be designed with traps or be provided with ventilation to prevent vapor mixtures from forming within the underground ~~trench~~ drainage system.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 14 08:35:25 EDT 2025

Committee Statement

Committee Statement: During the review of Public Comments for NFPA 409, the committee determined that removing the word "trench" from specified areas of 6.8 was warranted. This term added confusion to the types of drainage piping. The removal of this term clarifies this as it pertains to other types of drainage specified within the standard.

Response Message: SR-99-NFPA 409-2025



Second Revision No. 100-NFPA 409-2025 [Section No. 6.8.2.1.7]

6.8.2.1.7

The size of ~~trench~~- drainage piping shall be determined by the hydraulic demands placed on the system throughout its length.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 14 08:36:07 EDT 2025

Committee Statement

Committee Statement: During the review of Public Comments for NFPA 409, the committee determined that removing the word “trench” from specified areas of 6.8 was warranted. This term added confusion to the types of drainage piping. The removal of this term clarifies this as it pertains to other types of drainage specified within the standard.

Response Message: SR-100-NFPA 409-2025



Second Revision No. 101-NFPA 409-2025 [Section No. 6.8.2.1.9]

6.8.2.1.9

Pits for service facilities, such as for compressed air, electrical outlets, and so forth, shall drain into the floor ~~trench~~ drainage system.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 14 08:36:37 EDT 2025

Committee Statement

Committee Statement: During the review of Public Comments for NFPA 409, the committee determined that removing the word “trench” from specified areas of 6.8 was warranted. This term added confusion to the types of drainage piping. The removal of this term clarifies this as it pertains to other types of drainage specified within the standard.

Response Message: SR-101-NFPA 409-2025



Second Revision No. 96-NFPA 409-2025 [Sections 6.8.2.1.10, 6.8.2.1.11]

6.8.2.1.10

~~Oil-water~~ separators shall be provided for the ~~trench~~ drainage systems serving all aircraft storage and servicing areas. ~~These oil-water separators shall be permitted to serve each hangar trench drainage system or a group of hangar trench drainage systems or be installed as part of a general airport trench drainage system.~~

6.8.2.1.10.1

~~These oil~~ Oil -water separators shall be permitted to serve each hangar ~~trench~~ drainage system or a group of hangar ~~trench~~ drainage systems or be installed as part of a general airport ~~trench~~ drainage system.

6.8.2.1.11

In aircraft storage and servicing areas protected by water sprinkler systems or foam-water systems, a bypass shall be provided around the oil-water separator to allow for emergency direct disposal of water and flammable liquids. ~~Separator systems shall discharge flammable liquid products to a tank, cistern, or sump located away from any exposures.~~

6.8.2.1.11.1

~~Separator~~ Oil-water separator systems shall discharge flammable liquid products to a tank, cistern, or sump located away from any exposures.

6.8.2.1.11.2

Retention locations for fire protection water and ~~ignitable~~ ignitable liquids shall have 110 percent capacity of the required fire protection system discharge and the estimated spill volume.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 19:33:23 EDT 2025

Committee Statement

Committee Statement: The committee has made this second revision to correct the term to "oil-water separator" for consistency with Chapter 8.

Response Message: SR-96-NFPA 409-2025



Second Revision No. 29-NFPA 409-2025 [Sections 6.8.3, 6.8.4]

6.8.3* Group III — Specific Requirements.

Group III hangars protected with ~~the fire protection specified in Chapter 7 shall be provided with low-level foam fire suppression systems or closed-head foam-water sprinkler systems~~ shall be provided with floor drainage in accordance with ~~Section 6.8 6.8.2~~.

A.6.8.3

Floor drainage is not required unless the hangar is protected with a foam fire suppression system, although utility drains are useful.

6.8.4 Group IV — Specific Requirements.

The drainage of aprons and hangar floors of hangars with a hangar fire area greater than 1115 m² (12,000 ft²) shall be as specified in ~~Section 6.8 6.8.2~~.

Supplemental Information

File Name	Description	Approved
409_SR-29_6.8.3.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Wed May 07 13:26:18 EDT 2025

Committee Statement

Committee Statement: The committee agreed to incorporate the changes proposed in PC-113 and PC-59, with modification. The change to 6.8.3/A.6.8.3 provides clarity for drainage for Group III hangars with fueled aircraft. The removal of the proposed ILDFA requirement was due to this being addressed already in 6.8.2. The section reference updates proposed in PC-59 were addressed in 6.8.4.

Response Message: SR-29-NFPA 409-2025

- Public Comment No. 59-NFPA 409-2024 [Sections 6.8.3, 6.8.4]
- Public Comment No. 113-NFPA 409-2025 [Section No. 6.8.3]



Second Revision No. 15-NFPA 409-2025 [Section No. 6.8.6]

[Detail SR-89](#)

6.8.6 Defueled Aircraft Hangars — Specific Requirements.

Hangar floors in aircraft storage and servicing areas without ~~trench~~-drainage systems shall be permitted.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 17:44:25 EDT 2025

Committee Statement

Committee Statement: The committee agreed to this change. The removal of the word “trench” clarifies that drainage systems are not required for defueled aircraft hangars.

Response Message: SR-15-NFPA 409-2025

[Public Comment No. 60-NFPA 409-2024 \[Section No. 6.8.6\]](#)



Second Revision No. 30-NFPA 409-2025 [Section No. 6.9.2]

6.9.2 Group I and Group II — Specific Requirements. (Reserved).

~~Means of egress from the aircraft hangar shall comply with NFPA 101.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 13:49:28 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change removes duplicative material found in the general section requirement.

Response Message: SR-30-NFPA 409-2025

[Public Comment No. 62-NFPA 409-2024 \[Section No. 6.9.2\]](#)



Second Revision No. 16-NFPA 409-2025 [Section No. 6.11.6]

[Detail SR-89](#)

6.11.6 Defueled Aircraft Hangars — Specific Requirements. (Reserved)

~~Aircraft storage and servicing areas shall be provided with grounding facilities in accordance with this standard.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 17:49:22 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change removes duplicative language which is found elsewhere in appropriate sections of Chapter 6, and marks this section as “Reserved” for future use.

Response Message: SR-16-NFPA 409-2025

[Public Comment No. 63-NFPA 409-2024 \[Section No. 6.11.6\]](#)



Second Revision No. 17-NFPA 409-2025 [Section No. 6.12.3]

6.12.3 Group III — Specific Requirements.

~~No heating~~ Heating , ventilation ventilating , and air-conditioning equipment ~~of Group III hangars employing an open flame or glowing element shall be installed, as applicable, in accordance with 6.12.2 aircraft storage and servicing areas or sections communicating therewith, except as provided for in 6.12.3.4 .~~

6.12.3.1

~~Heating, ventilating, and air-conditioning equipment of Group III hangars shall be installed, as applicable, in accordance with 6.12.2 :~~

6.12.3.2

~~Hangar heating plants that are fired with gas, liquid, or solid fuels not covered under 6.12.3.4 , and that are not located in a detached building shall be located in a room separated from other parts of the hangar by construction having at least a 1-hour fire resistance rating:~~

6.12.3.2.1

~~This separated room shall not be used for any other hazardous purpose or combustible storage and shall have no direct access from the aircraft storage or servicing area:~~

6.12.3.2.2

~~Openings in the walls of such rooms communicating with other portions of the hangar shall be restricted to those necessary for ducts or pipes:~~

6.12.3.2.3

~~Penetrations of the 1-hour fire resistance-rated enclosure shall be firestopped with an approved material installed and capable of maintaining the required fire resistance rating for the enclosure:~~

6.12.3.2.4

~~Each such duct shall be protected with a listed automatic fire damper or door:~~

6.12.3.2.5

~~All air for combustion purposes entering such separated rooms shall be drawn from outside the building:~~

6.12.3.2*

~~Heating, ventilating, and air-conditioning plants employing recirculation of air within aircraft storage and servicing areas shall have return air openings not less than 3 m (10 ft) above the floor. Supply air openings shall not be installed in the floor and shall be at least 152 mm (6 in.) from the floor measured to the bottom of the opening:~~

A.6.12.3.2

Personnel should be fully instructed that in the event of a serious gasoline or similar flammable liquid spill on the hangar floor, the fans should be shut off.

6.12.3.2.1

~~Where automatic fire protection systems are installed in aircraft storage and servicing areas, fans for furnace heating systems shall be arranged to shut down automatically by operation of the interior automatic fire protection system. One or more manual fan shutoff switches shall be provided. Shutoff switches shall be accessible and clearly placarded.~~

6.12.3.3 ~~Suspended or Elevated Heaters:~~

6.12.3.3.1

~~Listed electric, gas, or oil heaters shall be permitted to be used if installed as specified in 6.12.3.3.2 through 6.12.3.3.4 :~~

6.12.3.3.2

~~In aircraft storage and servicing areas, heaters shall be installed at least 3 m (10 ft) above the upper surface of wings or the upper surface of the engine enclosures of the highest aircraft that can be housed in the hangar. The measurement shall be made from the wing or engine enclosure, whichever is higher from the floor, to the bottom of the heater.~~

6.12.3.3.3

~~In shops, offices, and other sections of aircraft hangars communicating with aircraft storage or servicing areas, the bottom of the heaters shall be installed not less than 2.4 m (8 ft) above the floor.~~

6.12.3.3.4

~~Suspended or elevated heaters shall be located in all spaces of aircraft hangars so that they shall not be subject to injury by aircraft, cranes, movable scaffolding, or other objects. Provision shall be made to ensure accessibility to suspended heaters for recurrent maintenance purposes.~~

6.12.3.4

~~Where a mechanical ventilating system is employed in hangars or shops, the ventilating system shall be installed in accordance with NFPA 90A and in accordance with 6.12.3 :~~

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
SR-17_Clean.docx		
409_SR-17_6.12.3.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Tue May 06 17:54:19 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change removes this series of requirements and points to an existing section, to eliminate duplicative text.
Response Message: SR-17-NFPA 409-2025

[Public Comment No. 64-NFPA 409-2024 \[Section No. 6.12.3\]](#)



Second Revision No. 18-NFPA 409-2025 [Section No. 6.12.4]

6.12.4 Group IV — Specific Requirements.

Heating, ventilating, and air-conditioning equipment of membrane-covered rigid-steel-frame-structure hangars shall be installed, as applicable, in accordance with ~~Section 6.12.2~~ 6.12.4.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 17:55:47 EDT 2025

Committee Statement

Committee Statement: The committee agreed to this change which provides an updated pointer for more specific criteria to be utilized.

Response Message: SR-18-NFPA 409-2025

[Public Comment No. 65-NFPA 409-2024 \[Section No. 6.12.4\]](#)



Second Revision No. 31-NFPA 409-2025 [Section No. 6.13.2.3]

6.13.2.3*

Partitions and ceilings separating ~~aircraft storage and servicing hangar fire~~ areas from all other areas, shops, offices, and parts storage areas shall have ~~at least~~ a minimum 1-hour fire resistance rating with ~~openings protected by listed fire doors or shutters opening protectives~~ having a minimum fire resistance rating of 45 minutes.

A.6.13.2.3

Large-scale shops, offices, and storage areas should either be in separate, detached buildings or be separated from the hangar fire area by a fire barrier to protect aircraft from a fire starting elsewhere in the building and to protect large areas from a fire starting in the hangar bay.

Shops, offices , and storage areas can be located within the hangar fire area without separation by a fire barrier when their use is ancillary to the hangar operations. An example would be a maintenance office where the personnel need to be able to see into the hangar. Any area that is located within the hangar fire area (i.e., not separated by a 1-hour fire barrier) is complying with the same electrical and ignition source requirements as other operations in the hangar fire area. Where these spaces are provided with a ceiling, separate from the hangar fire area ceiling, the ceiling should be watertight. should be in separate, detached buildings. Workshops, offices, and storage areas having their own roof coverings and built within aircraft storage or servicing areas should have watertight roof deck coverings.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
SR-31_Word_Document.docx		
409_SR-31_6.13.2.3.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Wed May 07 14:15:52 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. For 6.13.2.3, all openings and partitions need to have the associated fire rating. The annex material clarifies that a fire rated partition is not required, but provides guidance when a partition might be implemented. Further, the annex material clarifies that ceilings need to be watertight, as opposed to a roof. The references to other sections provide the user with links to relevant content.

Response Message: SR-31-NFPA 409-2025

[Public Comment No. 87-NFPA 409-2025 \[Section No. 6.13.2.3\]](#)

[Public Comment No. 91-NFPA 409-2025 \[Section No. A.6.13.2.3\]](#)



Second Revision No. 32-NFPA 409-2025 [Section No. 6.13.2.4]

6.13.2.4*

Where a ~~storage and servicing hangar fire~~ area has an attached, adjoining, or contiguous structure, ~~such as a lean-to, shop, office, or parts storage area,~~ the wall common to both areas shall have ~~at least~~ a minimum 1-hour fire resistance rating, with ~~openings protected by listed fire doors~~ opening protectives having a minimum fire resistance rating of 45 minutes and ~~actuated~~ actuating from both sides of the wall.

A.6.13.2.4

Examples of attached, adjoining, or contiguous structures include, but are not limited to, lean-tos, shops, offices, or parts storage areas.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-32_6.13.2.4.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Wed May 07 14:20:24 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change from TG#5 provides clarity on connected walls/opening protective requirements for specified areas with the hangar fire area. This change works in tandem with actions taken via PC-87/PC-91 to provide comprehensive requirements within 6.13.

Response Message: SR-32-NFPA 409-2025

[Public Comment No. 88-NFPA 409-2025 \[Section No. 6.13.2.4\]](#)



Second Revision No. 33-NFPA 409-2025 [Section No. 6.13.3.2]

6.13.3.2

Partitions and ceilings separating ~~aircraft storage and servicing hangar fire~~ areas from all other areas, ~~such as~~ shops, offices, and parts storage areas, shall have ~~at least~~ a minimum 1-hour fire resistance rating, with ~~openings protected by listed fire doors~~ opening protectives having a minimum fire resistance rating of ~~at least~~ 45 minutes.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
SR-33_Clean_with_SR-31_Annex.docx		
409_SR-33_6.13.3.2.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Wed May 07 14:30:13 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification to remove the annex material. This change is consistent with actions taken on other PC's for 6.13 to provide consistency pertaining to partitions/ceiling separations in hangar fire areas.

Response Message: SR-33-NFPA 409-2025

Public Comment No. 89-NFPA 409-2025 [Section No. 6.13.3.2]



Second Revision No. 34-NFPA 409-2025 [Sections 6.13.4.2, 6.13.4.3]

6.13.4.2

Partitions and ceilings separating ~~aircraft storage and servicing hangar fire~~ areas from all other areas, shops, offices, and parts storage areas shall have ~~at least a~~ minimum 1-hour fire resistance rating, with ~~openings protected by listed fire doors or shutters~~ opening protectives having a minimum fire resistance rating of 45 minutes.

6.13.4.3*

Where a ~~storage and servicing hangar fire~~ area has an attached, adjoining, or contiguous structure, ~~such as a lean-to, shop, office, or parts storage area,~~ the wall common to both areas shall have ~~at least a~~ minimum 1-hour fire resistance rating, with ~~openings protected by listed fire doors~~ opening protectives having a minimum fire resistance rating of 45 minutes and ~~actuated~~ actuating from both sides of the wall.

A.6.13.4.3

Examples of attached, adjoining, or contiguous structures include, but are not limited to, lean-tos, shops, offices, or parts storage areas.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
SR-34_Clean_with_SR-31_Annex.docx		
409_SR-34_6.13.4.2.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 14:32:51 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification to remove the annex material. This change is consistent with actions taken on other PC's for 6.13 to provide consistency pertaining to partitions/ceiling separations, as well as connected walls/opening protectives, in hangar fire areas.

Response Message: SR-34-NFPA 409-2025

Public Comment No. 90-NFPA 409-2025 [Sections 6.13.4.2, 6.13.4.3]



Second Revision No. 19-NFPA 409-2025 [Section No. 6.14.1.8]

6.14.1.8*

An approved fire protection system shall be installed to protect each pit unless the hangar fire protection required by ~~either~~ Chapter 7 is designed to protect each pit.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 18:04:45 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. The only change has been to remove the word "either" for clarification.

Response Message: SR-19-NFPA 409-2025

[Public Comment No. 67-NFPA 409-2024 \[Section No. 6.14.1.8\]](#)



Second Revision No. 102-NFPA 409-2025 [Sections 6.15.1, 6.15.2, 6.15.3, 6.15.4]

6.15.1* General Requirements for All Hangars.

~~Lighting and electrical systems shall comply with the provisions of NFPA 70 :~~

~~Electrical services shall be installed in compliance with the provisions for aircraft hangars contained in Article 513 of NFPA 70 for aircraft hangars .~~

6.15.2 Group I and II — Specific Requirements.

~~6.15.2.1~~

~~Artificial lighting shall be restricted to electric lighting.~~

6.15.2.1

In aircraft storage and servicing areas, main distribution panels, metering equipment, and other electrical equipment shall be located in a room separated from the aircraft storage and servicing areas by a partition having at least a 1-hour minimum fire resistance rating. ~~The partition shall not be penetrated except by electrical raceways, which shall be protected by approved sealing methods maintaining the same fire resistance rating as the partition.~~

6.15.2.2

The partition required by 6.15.2.1 shall not be penetrated except by electrical raceways; ~~which shall be~~ protected by approved sealing methods maintaining that maintain the same fire resistance rating as the partition.

6.15.3 Group III — Specific Requirements. (Reserved)

~~6.15.3.1~~

~~Artificial lighting shall be restricted to electric lighting.~~

~~6.15.3.2*~~

~~Electrical services shall be installed in compliance with the provisions for aircraft hangars contained in Article 513 of NFPA 70 :~~

A.6.15.3.2

See also 6.6.1.1 for power supply to doors accommodating aircraft.

6.15.4 Group IV — Specific Requirements.

6.15.4.1

~~Artificial lighting shall be restricted to electric lighting.~~

6.15.4.2

~~Electrical services shall be installed in compliance with the provisions for aircraft hangars contained in Article 513 of NFPA 70 :~~

6.15.4.1

In hangars with aircraft storage and servicing areas greater than 1115 m² (12,000 ft²); that are housing other than defueled aircraft, main distribution panels, metering equipment, and other electrical equipment shall be located in a room separated from the aircraft storage and servicing area by a partition having ~~at least~~ a 1-hour minimum fire resistance rating. ~~The partition shall not be penetrated except by electrical raceways, which shall be protected by approved sealing methods maintaining the same fire resistance rating as the partition.~~

6.15.4.2

The partition shall not be penetrated except by electrical raceways, ~~which shall be~~ protected by approved sealing methods ~~maintaining that maintain~~ the same fire resistance rating as the partition.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-102_6.15.1.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Wed May 14 10:01:20 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. These changes provides updates via the reorganization and elimination of duplicative material that was not addressed via First Draft changes. This does not provide a change of technical requirements.

Response Message: SR-102-NFPA 409-2025

Public Comment No. 68-NFPA 409-2024 [Section No. 6.15]



Second Revision No. 104-NFPA 409-2025 [New Section after 6.15.5.2]

6.15.5.4*

Luminaires that are an integral part of the interior wall or ceiling of a paint hanger and are located within a classified area shall comply with NFPA 33 .

A.6.15.5.4

NFPA 33 provides guidance on the types of luminaires that can be used within and adjacent to spray areas. In conjunction with 6.15.5.2 , the appropriate type of luminaire can be selected.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 14 10:11:51 EDT 2025

Committee Statement

Committee Statement: The committee agrees with using the term luminaires to be consistent with NFPA 70. The committee also agrees with the submitter that these types of luminaires, when they are within classified areas, shall meet the requirements of NFPA 33.

Response Message: SR-104-NFPA 409-2025

Public Comment No. 46-NFPA 409-2024 [New Section after 6.15.5.2]



Second Revision No. 103-NFPA 409-2025 [Section No. 6.15.5.3]

6.15.5.3

~~All lighting fixtures~~ Luminaires within a paint hangar shall be totally enclosed or constructed so as to prevent the escape of sparks or hot particles.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 14 10:09:08 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. The change from “lighting fixtures” to “luminaires” more closely matches the language found within NFPA 70. The committee did not agree with restricting the hazard above Division 2 or Zone 2 areas.

Response Message: SR-103-NFPA 409-2025

[Public Comment No. 45-NFPA 409-2024 \[Section No. 6.15.5.3\]](#)



Second Revision No. 38-NFPA 409-2025 [Section No. 6.18.2.1.2]

6.18.2.1.2*

Unprotected columns in aircraft storage and servicing areas shall be permitted where a foam fire suppression system is not otherwise required ~~per Chapters 4, 5, 8, or 9~~ by this standard .

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 16:38:05 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter, as this change removes old chapter references and points to applicable provisions of NFPA 409.

Response Message: SR-38-NFPA 409-2025

[Public Comment No. 115-NFPA 409-2025 \[Section No. 6.18.2.1.2\]](#)



Second Revision No. 94-NFPA 409-2025 [Section No. 6.18.2.3]

6.18.2.3

Fixed water or foam-water systems or additional discharge devices as an extension of the overhead system shall be permitted to be used in lieu of a 2-hour fire resistance rating, if such systems are designed specifically to protect the columns in accordance with 7.1.5 . Overspray from overhead sprinklers to protect columns shall not be permitted.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 18:11:24 EDT 2025

Committee Statement

Committee Statement: The committee has created this SR as a result of discussions on PC-7. This change provides a pointer from Chapter 6 to the applicable section of Chapter 7 for the protection of columns.

Response Message: SR-94-NFPA 409-2025



Second Revision No. 97-NFPA 409-2025 [New Section after 7.1.4]

7.1.5 Column Protection.

7.1.5.1

Water-based column protection provided in accordance with 6.18.2.3 shall comply with this section.

7.1.5.2*

Fixed water or foam-water systems or additional discharge devices as an extension of the overhead system shall be permitted to be used in lieu of a 2-hour fire resistance rating if such systems are designed specifically to protect the columns.

A.7.1.5.2

Additional guidance pertaining to fixed water spray systems can be found in NFPA 15. This information can also be used in the design of foam-water systems and for when extension of discharge devices from the overhead sprinkler system is used. The design of such protection should consider factors such as the shape of the column, wetting of lower sprinklers, obstructions, and type of discharge device.

7.1.5.2.1

Overspray from overhead sprinklers to protect columns shall not be permitted.

7.1.5.3

Vertical distances between discharge devices shall not exceed 3 m (10 ft).

7.1.5.4

The use of nozzles or open-head sprinklers with any nominal K-factor for column protection shall be permitted.

7.1.5.5

A listed strainer shall be provided on the supply side of sprinklers with nominal K-factors of less than K-2.8 (40). [13: 9.4.4.2(3)]

7.1.5.6*

Vertical structural steel members shall be protected by nozzles and piping of such size and arrangement as to discharge a net rate of not less than 10.2 (L/min)/m^2 (0.25 gpm/ft^2) over the wetted area. [15: 7.4.3.4]

A.7.1.5.6

The locations of discharge devices should preferably be on alternate sides of the columns. The wetted surface of a structural member is defined as one side of the web and the inside surface of one side of the flanges.

7.1.5.7

Discharge devices for the protection of columns within the remote area of the overhead sprinkler systems shall be included in the calculations for the overhead system.

7.1.5.8

All fire-resistant materials used to protect structural steel columns shall be of a type that resists damage from discharge of the fixed fire protection system.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
PC-7_for_SR.docx		
409_SR-97_7.1.5-new.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Tue May 13 13:50:23 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. The move of this material to 7.1.5 uncovered a gap in the pointer of unprotected column in 6.18. The change to 7.1.5.1 has been provided to address this gap.

Response Message: SR-97-NFPA 409-2025

Public Comment No. 7-NFPA 409-2024 [Sections 7.4.1.4, 7.4.1.5]



Second Revision No. 40-NFPA 409-2025 [Section No. 7.4.1.1]

7.4.1.1

Group I aircraft hangar storage and service areas housing defueled aircraft shall be provided with protection in accordance with 7.4.1.2 or with automatic sprinkler protection as specified in ~~7.5.5~~ 7.4.6 .

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:15:08 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-40-NFPA 409-2025

[Public Comment No. 107-NFPA 409-2025 \[Section No. 7.4.1.1\]](#)



Second Revision No. 98-NFPA 409-2025 [Sections 7.4.1.4, 7.4.1.5]

7.4.1.4*

Fixed water or foam-water systems or additional discharge devices as an extension of the overhead system shall be permitted to be used in lieu of a 2-hour fire resistance rating, if such systems are designed specifically to protect the columns. Overspray from overhead sprinklers to protect columns shall not be permitted.

A.7.4.1.4

Additional guidance pertaining to fixed water spray systems can be found in NFPA 15. This information can also be used in the design of foam-water systems and when extension of discharge devices from the overhead sprinkler system is used. The design of such protection should take into account factors such as the shape of the column, wetting of lower sprinklers, obstructions, and type of discharge device.

7.4.1.4.1

Distances between discharge devices vertically shall not exceed 3 m (10 ft).

7.4.1.4.2

The use of nozzles or open-head sprinklers with any nominal K-factor for column protection shall be permitted.

7.4.1.4.3

A listed strainer shall be provided on the supply side of sprinklers with nominal K-factors of less than K-2.8 (40). [13: 9.4.4.2(3)]

7.4.1.4.4*

Vertical structural steel members shall be protected by nozzles and piping of such size and arrangement as to discharge a net rate of not less than 10.2 (L/min)/m^2 (0.25 gpm/ft^2) over the wetted area. [15: 7.4.3.4]

A.7.4.1.4.4

The locations of discharge devices should preferably be on alternate sides of the columns. The wetted surface of a structural member is defined as one side of the web and the inside surface of one side of the flanges.

7.4.1.4.5

Discharge devices for the protection of columns within the remote area of the overhead sprinkler systems shall be included in the calculations for the overhead system.

7.4.1.5

All fire-resistant materials used to protect structural steel columns shall be of a type that resists damage from discharge of the fixed fire protection system.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 13 13:57:40 EDT 2025

Committee Statement

Committee Statement: See SR-97/PC-7.

Response Message: SR-98-NFPA 409-2025



Second Revision No. 41-NFPA 409-2025 [Section No. 7.4.1.7]

7.4.1.5 Deluge Foam-Water Sprinkler Systems.

The water supply shall be capable of maintaining water discharge at the design rate and pressure for a minimum of 60 minutes, covering the entire area protected by systems expected to operate simultaneously, unless protection is provided as specified in ~~7.4.1.6~~ 7.5.9.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:15:45 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-41-NFPA 409-2025

Public Comment No. 102-NFPA 409-2025 [Section No. 7.4.1.7]



Second Revision No. 53-NFPA 409-2025 [Section No. 7.4.2.1]

7.4.2.1*

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

- (1) ~~The provisions of Subsection Chapter 7 7.4.1~~ , unless foam-water deluge systems ~~utilizing~~ using air-aspirating discharge devices are installed for the protection of Group II aircraft hangars, in which case the discharge rate specified in 7.5.4.12 ~~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 ~~7.5.5~~ 7.5.13 and an automatic, low-level, low-expansion foam system in accordance with 7.6.3 and 7.5.2
- (3) A combination of automatic sprinkler protection in accordance with 7.5.13 and an automatic, high-expansion foam system in accordance with 7.6.3 and 7.5.3
- (4) A closed-head foam-water sprinkler system in accordance with 7.5.12
- (5) A combination of automatic sprinkler protection in accordance with 7.5.13 and an ignitable liquid drainage floor assembly in accordance with 7.5.14

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 14:10:28 EDT 2025

Committee Statement

Committee Statement: The committee agreed with both submitters to correct pointer references for two sections. The word "Chapter" was removed as 7.4.1 is a section.

Response Message: SR-53-NFPA 409-2025

[Public Comment No. 9-NFPA 409-2024 \[Section No. 7.4.2.1\]](#)

[Public Comment No. 103-NFPA 409-2025 \[Section No. 7.4.2.1\]](#)



Second Revision No. 51-NFPA 409-2025 [Section No. 7.4.2.5]

7.4.2.5*

For the protection of aircraft storage and servicing areas of Group II aircraft hangars where hazardous operations, including but not limited to fuel transfer, welding, torch cutting, torch soldering, doping, hot work (e.g., welding, cutting, brazing, grinding), spray painting, oxygen service, composite repairs, fuel system or fuel tank maintenance, aircraft cabling, wiring changes, or initial electrical system testing; Where hazardous operations are not performed in a hangar fire area, a closed-head automatic sprinkler system in accordance complying with 7.5.13 7.4.2.1 shall be permitted provided.

A.7.4.2.5

This design approach recognizes the limited risk of a fuel spill fire associated with Group II hangars when hazardous operations are not being performed. Paragraph 7.4.2.1 requires protection to be provided by a foam-water deluge system or a combination of an automatic sprinkler system and either a foam system or an ILDFA. Where hazardous operations are not performed, a foam system or ILDFA is not required. Protection is still required to be provided by an automatic sprinkler system in accordance with 7.4.2.1.

The primary purpose of a foam fire suppression system and an ILDFA is to protect against a fuel spill fire. Where the likelihood of a fuel spill fire does not exist or is sufficiently mitigated, protection for a fuel spill fire might not be necessary. The likelihood of a fuel spill fire is increased when hazardous aircraft maintenance operations are performed, though these can be difficult to quantify. It might be acceptable for the AHJ to permit the owner/operator of the hanger to assess which operations are hazardous operations based on the specific aircraft that are being housed in an aircraft hangar.

The 2022 edition of this standard provided a list of operations that might be considered hazardous, but the list did not allow for the variability of the operations being performed. Fuel transfer within the hangar is prohibited by other NFPA standards. Spray painting that is not within the scope of NFPA 33, such as a small paint can or spraying operation, typically does not constitute a significant ignition source. Oxygen service would not normally be considered an ignition source when the manufacturers' maintenance instructions are followed; however, some passenger oxygen systems consist of oxygen generating canisters which, when activated, can cause an exothermic reaction. Fuel tank maintenance can be considered a nonhazardous or hazardous operation, depending on the scope of operations performed. Replacing a fuel sensor above the level of fuel is usually considered nonhazardous, but repairing a leak without draining fuel can be hazardous; if the fuel tank is drained, the work might not be considered hazardous even if other tanks still have fuel. Aircraft cabling, wiring changes, or initial electrical system testing would not result in a fuel spill from the aircraft.

Note that the prohibition on hazardous operations extends to the entire hangar fire area. If hazardous operations are being performed in support areas, workshops, or similar spaces that are not separated from the hangar fire area, this section is not applicable.

7.4.2.5.1

Where 7.4.2.5 is used, a foam system, foam-water system, or ILDFA shall not be required.

7.4.2.5.2

Documentation of aircraft maintenance operations that will be performed within the hangar fire area shall be provided by the owner and approved by the AHJ.

7.4.2.5.3

The documentation required by 7.4.2.5.2 shall remain onsite and available for review by the AHJ.

7.4.2.5.4

The owner shall provide updated documentation when the aircraft maintenance operations approved in accordance with 7.4.2.5.2 are changed.

7.4.2.5.5*

Where aircraft maintenance operations change to include hazardous operations, protection shall be provided in accordance with 7.4.2.1 .

A.7.4.2.5.5

It is the owner's responsibility to ensure that no hazardous operations are being performed in the hangar fire area. It is understood that operations within a hangar fire area can change over time for a variety of reasons, including new tenants, aircraft, or operations.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_409_SR-51.docx		
409_SR-51_7.4.2.5.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Thu May 08 12:44:34 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. The language of 7.4.2 has been clarified to align with new definition of hazardous operations found within Chapter 3. This change provided clarification that closed-head water-based sprinklers are required in hangars where hazardous operations are not performed. Additional enforcement considerations were added to document the aircraft maintenance operations that are performed within the hangar. Annex material has been added to provide guidance and examples of hazardous operations.

Response Message: SR-51-NFPA 409-2025

Public Comment No. 104-NFPA 409-2025 [Section No. 7.4.2.5]



Second Revision No. 42-NFPA 409-2025 [Section No. 7.4.2.6]

7.4.2.6

Group II aircraft hangar storage and service areas housing defueled aircraft shall be provided with automatic sprinkler protection as specified in ~~7.5.5~~ 7.4.6 .

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:16:13 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-42-NFPA 409-2025

[Public Comment No. 105-NFPA 409-2025 \[Section No. 7.4.2.6\]](#)



Second Revision No. 43-NFPA 409-2025 [Section No. 7.4.2.7]

7.4.2.7

Where the provisions of ~~Chapter 14~~ for defueled aircraft hangars are used, ~~no provisions of protection of Chapter 9 Group II hangars~~ shall not be required.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-43_7.4.2.7.docx		

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Wed May 07 17:17:31 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-43-NFPA 409-2025

Public Comment No. 11-NFPA 409-2024 [Section No. 7.4.2.7]



Second Revision No. 54-NFPA 409-2025 [Section No. 7.4.2.8]

7.4.2.8

~~In addition to the provision for sprinkler and foam extinguishing systems as required by this chapter, protection as required by Sections 7.9 and 7.4 also shall be provided.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 14:20:37 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter as this content is addressed via other sections of Chapter 7 in 7.4 and 7.9.

Response Message: SR-54-NFPA 409-2025

[Public Comment No. 12-NFPA 409-2024 \[Section No. 7.4.2.8\]](#)



Second Revision No. 44-NFPA 409-2025 [Section No. 7.4.2.9.1]

7.4.2.8.1

The total water supply shall be calculated to satisfy the combination of systems as described in 7.4.2.1(2) and ~~7.4.2.1(3)~~ 7.4.2.1(5), and for durations as specified in 7.4.2.8.2 through 7.4.2.8.5. (See also, A.7.1.1.)

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:17:52 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-44-NFPA 409-2025

[Public Comment No. 110-NFPA 409-2025 \[Section No. 7.4.2.9.1\]](#)



Second Revision No. 45-NFPA 409-2025 [Section No. 7.4.4.1]

7.4.4.1

The protection of aircraft storage and servicing areas for membrane-covered, rigid-steel-frame-structure hangars having a hangar fire area greater than 1115 m² (12,000 ft²) and housing fueled aircraft shall ~~be in accordance~~ comply with any of the following:

- (1) A ~~low~~ high -expansion foam system as specified in ~~7.5.8~~ 7.5.7
- (2) A ~~high~~ low -expansion foam system as specified in ~~7.5.7~~ 7.5.8
- (3) An ignitable liquid drainage floor assembly in accordance with 7.5.14

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:18:11 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-45-NFPA 409-2025

[Public Comment No. 13-NFPA 409-2024 \[Section No. 7.4.4.1\]](#)



Second Revision No. 55-NFPA 409-2025 [Section No. 7.4.4.3]

~~7.4.4.3 Low-Level Foam Protection Systems:~~

~~7.4.4.3.1~~

~~Hangars protected in accordance with 7.4.1.2(2) or 7.4.1.2(3) shall be protected with a listed low-level foam protection system.~~

~~7.4.4.3.2~~

~~The low-level foam system shall be designed to achieve distribution of foam over the entire hangar fire area. The performance objective shall be to achieve coverage of the entire hangar fire area within 3 minutes of system actuation.~~

~~7.4.4.3.2.1~~

~~Low-level foam systems shall be permitted to be divided into zones that are associated with sprinkler system or fire detection zones.~~

~~7.4.4.3.2.2~~

~~Low-level, low-expansion foam systems shall be designed for simultaneous operation of all systems within a 30 m (100 ft) radius horizontally from any point where a fire could start.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 14:22:11 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change removes duplicative material already found within 7.5.6.

Response Message: SR-55-NFPA 409-2025

[Public Comment No. 14-NFPA 409-2024 \[Section No. 7.4.4.3\]](#)



Second Revision No. 56-NFPA 409-2025 [Section No. 7.4.4.4]

7.4.4.3 Low-Level High-Expansion Foam Systems:

~~The discharge rate of the system shall be based on the application rate multiplied by the entire aircraft storage and servicing floor area.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 14:48:21 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This is repetitive to the referenced 7.5.7.3.

Response Message: SR-56-NFPA 409-2025

[Public Comment No. 15-NFPA 409-2024 \[Section No. 7.4.4.4\]](#)



Second Revision No. 57-NFPA 409-2025 [Section No. 7.4.4.5]

7.4.4.4

~~Water hand hose systems shall not be required in aircraft storage and servicing areas, shops, offices or non-aircraft storage areas, except where required by other NFPA standards.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 15:02:46 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. The submitter's substantiation section references were incorrect. The removal of this text is consistent with the committees intent to remove requirements pertaining to handheld hose streams through NFPA 409.

Response Message: SR-57-NFPA 409-2025

[Public Comment No. 16-NFPA 409-2024 \[Section No. 7.4.4.5\]](#)



Second Revision No. 58-NFPA 409-2025 [Section No. 7.4.4.6]

7.4.4.5

~~The water supply for hand hose systems shall be capable of satisfying the requirements of 7.4.4.7. The demand shall be calculated at the point where supply piping for the hand hose systems connects to the system piping or fire protection underground.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 15:04:58 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. The submitter's substantiation section references were incorrect. The removal of this text is consistent with the committees intent to remove requirements pertaining to handheld hose streams through NFPA 409.

Response Message: SR-58-NFPA 409-2025

[Public Comment No. 17-NFPA 409-2024 \[Section No. 7.4.4.6\]](#)



Second Revision No. 59-NFPA 409-2025 [Section No. 7.4.5.1]

7.1.6

The design area of the closed-head water sprinkler system shall not be required to be increased for ceiling slope.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 16:09:36 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter to relocated this section to General under 7.1.

Response Message: SR-59-NFPA 409-2025

[Public Comment No. 5-NFPA 409-2024 \[Section No. 7.4.5.1\]](#)



Second Revision No. 60-NFPA 409-2025 [Section No. 7.4.5.2]

7.1.7

The design area of the closed-head water sprinkler system shall not be required to be increased for preaction systems.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 16:11:03 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter to relocated this section to General under 7.1.

Response Message: SR-60-NFPA 409-2025

[Public Comment No. 6-NFPA 409-2024 \[Section No. 7.4.5.2\]](#)



Second Revision No. 61-NFPA 409-2025 [Section No. 7.4.6.6.2]

7.4.6.6.2

~~The design area of the closed-head water sprinkler system shall not be required to be increased for ceiling slope.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 16:12:53 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. The deletion of these items corresponds to moves made by PC-5 and PC-6 for these items to be relocated into the General section of 7.1.

Response Message: SR-61-NFPA 409-2025

[Public Comment No. 18-NFPA 409-2024 \[Section No. 7.4.6.6.2\]](#)



Second Revision No. 62-NFPA 409-2025 [Section No. 7.4.6.6.3]

7.4.6.6.3

~~The design area of the closed-head water sprinkler system shall not be required to be increased for preaction systems.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 16:13:47 EDT 2025

Committee Statement

Committee Statement: The committee agreed to this change which provides an updated pointer for more specific criteria to be utilized.

Response Message: SR-62-NFPA 409-2025

[Public Comment No. 19-NFPA 409-2024 \[Section No. 7.4.6.6.3\]](#)



Second Revision No. 63-NFPA 409-2025 [Section No. 7.4.6.13]

7.4.6.13

The protection of aircraft paint hangars housing defueled aircraft shall be in accordance comply with either ~~Chapter 7 or Chapter 9 7.4.5~~ of this standard, whichever is applicable .

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 16:21:05 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. This change updates the section reference to be more specific. Additionally, the term "housing defueled aircraft" was added to provide clarity on regarding both defueled and paint hangar criteria.

Response Message: SR-63-NFPA 409-2025

Public Comment No. 112-NFPA 409-2025 [Section No. 7.4.6.13]



Second Revision No. 64-NFPA 409-2025 [Section No. 7.4.6.14]

7.4.6.14

~~The design area of the closed-head water sprinkler system shall not be required to be increased for ceiling slope.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 16:29:38 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. The deletion of these items corresponds to moves made by PC-5 and PC-6.

Response Message: SR-64-NFPA 409-2025

[Public Comment No. 20-NFPA 409-2024 \[Section No. 7.4.6.14\]](#)



Second Revision No. 65-NFPA 409-2025 [Section No. 7.4.6.15]

7.4.6.15

~~The design area of the closed-head water sprinkler system shall not be required to be increased for preaction systems.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 16:30:56 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. The deletion of these items corresponds to moves made by PC-5 and PC-6.

Response Message: SR-65-NFPA 409-2025

[Public Comment No. 21-NFPA 409-2024 \[Section No. 7.4.6.15\]](#)



Second Revision No. 95-NFPA 409-2025 [Section No. 7.4.6.16]

7.4.6.16

~~The protection of an aircraft paint hangar housing defueled aircraft shall be in accordance with the provisions of NFPA 13 for an extra hazard Group 2 occupancy.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 18:41:08 EDT 2025

Committee Statement

Committee Statement: The committee created this SR to eliminate a redundant requirement based on changes to 7.4.6.13. Section 7.4.6.13 currently points to 7.4.5.3, which requires the protection of an aircraft hangar housing defueled aircraft shall be in accordance with the provisions of NFPA 13 for an extra hazard Group 2 occupancy. As section 7.4.5.3 is only applicable to paint hangars, it makes 7.4.6.16 redundant.

Response Message: SR-95-NFPA 409-2025



Second Revision No. 66-NFPA 409-2025 [Section No. 7.5.1.4]

7.5.1.4

Actuation of any manual actuation station shall simultaneously operate all associated low-level foam discharge devices ~~over~~ within the ~~entire~~ hangar fire area or the area as prescribed by 7.5.6.3.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-66_7.5.1.4.docx		

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 17:14:26 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. The actuation of manual stations within hangar fire area may impact multiple systems, some of which may not be located in proximity to the pull station. By referring to 7.5.6.3 ensures that the foam system is not hydraulically overloaded with activation of more systems than designed.

Response Message: SR-66-NFPA 409-2025

[Public Comment No. 114-NFPA 409-2025 \[Section No. 7.5.1.4\]](#)



Second Revision No. 46-NFPA 409-2025 [Section No. 7.5.4.6 [Excluding any Sub-Sections]]

Uniform sprinkler discharge shall be based on a maximum variation of 15 percent between the sprinkler providing the lowest density and the sprinkler providing the greatest density within an individual deluge system as specified in 7.5.4.12, ~~or~~ 7.5.4.13, or 7.5.4.14 .

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:18:32 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-46-NFPA 409-2025

Public Comment No. 25-NFPA 409-2024 [Section No. 7.5.4.6 [Excluding any Sub-Sections]]



Second Revision No. 67-NFPA 409-2025 [Section No. 7.5.5]

7.5.5 Closed-Head Water Sprinkler Systems for Group 1 Hangar Aircraft Storage and Servicing Areas.

7.5.5.1*

Sprinkler systems shall be either wet pipe or preaction; systems designed and installed in accordance with the applicable sections of NFPA 13 and ~~the provisions of~~ this chapter.

7.5.5.2

Sprinkler piping shall be hydraulically sized in accordance with NFPA 13: ~~The~~ with the maximum system size ~~shall not exceed~~ exceeding 4831 m² (52,000 ft²).

7.5.5.3

Sprinkler spacing shall be as specified in 7.5.4.3.

7.5.5.4

Where open hangar doors result in interference with the distribution of water from the hangar sprinkler systems, additional sprinklers shall be provided to ensure required floor coverage.

7.5.5.5

The design density of water from sprinkler systems shall be a minimum of 6.9 L/min/m² (0.17 gpm/ft²) over any 1394 m² (15,000 ft²) area, including the hydraulically most demanding area as defined in NFPA 13.

7.5.5.5.1

~~The design area of the closed-head water sprinkler system shall not be required to be increased for ceiling slope.~~

7.5.5.5.2

~~The design area of the closed-head water sprinkler system shall not be required to be increased for preaction systems.~~

7.5.5.6

Sprinklers shall be nominal K-80 (K-5.6) or K-115 (K-8.0) sprinklers.

7.5.5.7

Quick-response sprinklers having a temperature rating of 79.4°C (175°F) shall be used. Quick-response sprinklers having a temperature rating of 93.3°C (200°F) shall be permitted in areas subject to high ambient temperatures.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 17:37:11 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change corresponds to other actions taken to reorganization content and titles within Chapter 7. See actions via PC-5 and PC-6.

Response SR-67-NFPA 409-2025

Message:

[Public Comment No. 28-NFPA 409-2024 \[Section No. 7.5.5\]](#)



Second Revision No. 68-NFPA 409-2025 [Section No. 7.5.8.4]

7.5.8.4*

The discharge rate of the system shall be based on the rate of application, multiplied by all associated low-level foam discharge devices within the entire hangar fire area or the area as prescribed by 7.5.6.3.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 17:52:58 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification. This language clarifies that the discharge rate should be based on the application rate, multiplied by the system designed area, and not necessarily the entire hangar floor area.

Response Message: SR-68-NFPA 409-2025

[Public Comment No. 116-NFPA 409-2025 \[Section No. 7.5.8.4\]](#)



Second Revision No. 69-NFPA 409-2025 [Section No. 7.5.12]

7.5.12 Closed-Head Foam-Water Sprinkler System for Group II Hangars .

7.5.12.1

Closed-head foam-water sprinkler systems shall be designed and installed in accordance with NFPA 11.

Global SR-39

7.5.12.1.1

Aqueous film-forming foam (AFFF) or synthetic fluorine free foam (SFFF) shall be used.

7.5.12.1.2

Wet pipe foam-water systems shall not be required to be preprimed with foam-water solution.

7.5.12.2

The minimum discharge density shall be 6.5 L/min/m² (0.16 gpm/ft²) of foam solution over the entire storage and service area.

7.5.12.2.1

Where synthetic fluorine free foam (SFFF) concentrate is ~~utilized~~ used, the application rate shall ~~be in accordance~~ comply with the manufacturer's listing.

7.5.12.2.2

The design area of the closed-head foam-water sprinkler system shall not be required to be increased for ceiling slope.

7.5.12.2.3

The design area of the closed-head foam-water sprinkler system shall not be required to be increased for preaction systems.

7.5.12.3

Sprinkler spacing shall not exceed 9.3 m² (100 ft²) as projected on the floor. ~~The maximum distance between sprinklers either on branch lines or between branch lines shall be 3.7 m (12 ft). In buildings with storage bays that are 7.6 m (25 ft) wide, 3.8 m (12 ft 6 in.) shall be permitted.~~

7.5.12.3.1

The maximum distance between sprinklers either on branch lines or between branch lines shall be 3.7 m (12 ft).

7.5.12.3.2

In buildings with storage bays that are 7.6 m (25 ft) wide, a maximum distance of 3.8 m (12 ft 6 in.) shall be permitted.

7.5.12.4

In aircraft storage and servicing areas, the maximum projected floor area under an individual sprinkler system spacing shall not exceed 1393 m² (15,000 ft²).

7.5.12.4.1

Each individual system shall have its own foam concentrate proportioner.

7.5.12.5

Sprinklers shall have a temperature rating of 79.4°C to 107.2°C (175°F to 225°F).

7.5.12.6

Foam concentrate supply shall ~~be in accordance~~ comply with 7.6.4.

7.5.12.7*

Branch lines shall be provided with provisions for flushing in accordance with NFPA 25 and NFPA 11.

7.5.12.7.1

Drains shall be a minimum of 25.4 mm (1 in.) in size.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 18:09:35 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter to change the title for Group II hangars. This change corresponds to other reorganization actions within Chapter 7 for clarity.

Response Message: SR-69-NFPA 409-2025

[Public Comment No. 33-NFPA 409-2024 \[Section No. 7.5.12\]](#)



Second Revision No. 70-NFPA 409-2025 [Section No. 7.5.13]

7.5.13* Closed-Head Water Sprinkler System for Group II Hangar Aircraft Storage and Servicing Areas.

7.5.13.1*

Sprinkler systems shall be either wet pipe or preaction, designed and installed in accordance with the applicable sections of NFPA 13 and the provisions of this chapter.

7.5.13.2

Sprinkler piping shall be hydraulically sized in accordance with NFPA 13.

7.5.13.3

Sprinkler spacing shall be as specified in 7.5.4.3.

7.5.13.4

Where open hangar doors result in interference with the distribution of water from the hangar sprinkler systems, additional sprinklers shall be provided to ensure required floor coverage.

7.5.13.5

The design density of water from sprinkler systems shall be a minimum of 6.9 L/min/m² (0.17 gpm/ft²) over any 464.5 m² (5000 ft²) area, including the hydraulically most demanding area as defined in NFPA 13.

7.5.13.5.1

~~The design area of the closed-head water sprinkler system shall not be required to be increased for ceiling slope.~~

7.5.13.5.2

~~The design area of the closed-head water sprinkler system shall not be required to be increased for preaction systems.~~

7.5.13.6

Sprinklers shall be nominal K-80 (K-5.6) or K-115 (K-8.0) sprinklers.

7.5.13.7

Sprinklers shall have a temperature rating of 162°C to 190°C (325°F to 375°F).

7.5.13.7.1

Where a low-level foam system is not provided or ~~ignitable~~ ignitable liquid drainage floor assemblies are provided, sprinklers shall have a temperature rating of 79.4°C to 107.2°C (175°F to 225°F).

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409_SR-70_7.5.13.docx		

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 18:13:54 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This change corresponds to other reorganization actions within Chapter 7 for clarity by adding Group II to the title and deleting 7.5.13.5.1 and 7.5.13.5.2. These sections have been relocated to the General per PC-5 and PC-6.

Response Message: SR-70-NFPA 409-2025

[Public Comment No. 34-NFPA 409-2024 \[Section No. 7.5.13\]](#)



Second Revision No. 71-NFPA 409-2025 [Section No. 7.6.2.13]

7.6.2.13

~~Piping shall be arranged so that maximum foam concentrate demand is supplied by any foam concentrate pump from either primary or reserve foam concentrate tanks.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 18:16:13 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This is being removed as this language is duplicative, being found in 7.6.2.17.

Response Message: SR-71-NFPA 409-2025

[Public Comment No. 35-NFPA 409-2024 \[Section No. 7.6.2.13\]](#)



Second Revision No. 72-NFPA 409-2025 [Section No. 7.6.3.1]

7.6.3.1

The friction losses in piping carrying Newtonian foam concentrate shall be calculated using the Darcy formula, also known as the Fanning formula.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 18:17:17 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. Adding this term provides clarity, and the committee corrected the spelling of Newtonian.

Response Message: SR-72-NFPA 409-2025

[Public Comment No. 36-NFPA 409-2024 \[Section No. 7.6.3.1\]](#)



Second Revision No. 47-NFPA 409-2025 [Section No. 7.6.4.2]

[Global SR-39](#)

7.6.4.2*

The quantities of low-expansion foam concentrate, either protein foam, fluoroprotein, synthetic fluorine free foam (SFFF), or aqueous film-forming foam (AFFF), shall be large enough for a 10-minute foam discharge based on the supply calculation required in ~~7.5.4.4~~ 7.5.4.4.2.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:18:50 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-47-NFPA 409-2025

[Public Comment No. 37-NFPA 409-2024 \[Section No. 7.6.4.2\]](#)



Second Revision No. 48-NFPA 409-2025 [Section No. 7.6.4.4]

7.6.4.4*

The quantity of high-expansion foam concentrate shall be large enough for a 12-minute discharge at the water flow rate based on the supply calculation method required in ~~7.5.4.4~~ 7.5.4.4.2.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:19:07 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-48-NFPA 409-2025

[Public Comment No. 38-NFPA 409-2024 \[Section No. 7.6.4.4\]](#)



Second Revision No. 73-NFPA 409-2025 [Section No. 7.8.2]

7.8.2

~~Manual actuation stations shall be provided for each low-level protection system and shall be located both inside and outside the aircraft maintenance and servicing area. Stations shall be located as close as possible to the aircraft positions to facilitate early system actuation in the event of a fire.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Thu May 08 18:21:46 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter. This is being removed as this language is duplicative, being found in 7.5.1.3.

Response Message: SR-73-NFPA 409-2025

[Public Comment No. 39-NFPA 409-2024 \[Section No. 7.8.2\]](#)



Second Revision No. 49-NFPA 409-2025 [Section No. 7.9.4]

7.9.4

~~Portable fire extinguishers shall be provided in accordance with NFPA 10.~~ Where portable extinguishers are locked up to preclude the possibility of theft, each tenant and aircraft owner shall be provided with a key for the locks.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 17:19:25 EDT 2025

Committee Statement

Committee Statement: This SR updates pointer references due to the reorganization of NFPA 409. For PC-11, the text change clarifies the requirement. For PC-40, a redundant sentence has been removed.

Response Message: SR-49-NFPA 409-2025

[Public Comment No. 40-NFPA 409-2024 \[Section No. 7.9.4\]](#)



Second Revision No. 3-NFPA 409-2025 [Section No. A.1.1.3]

A.1.1.3

This standard is structured on the premise all aircraft hangars will be used by aircraft containing High-Hazard Level 3 contents as defined by NFPA 30, including gasoline, aviation gasoline (AVGAS), diesel, jet fuel A, jet fuel B, and variants of these fuels. Other fuels include, but are not limited to, liquid hydrocarbon fuels, compressed natural gas, liquified natural gas, liquified propane, hydrogen fuels, and stored electrical energy. The application of this standard to various fuels is addressed in Section 1.3.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 12:55:33 EDT 2025

Committee Statement

Committee Statement: The committee agreed to this change to provide reference to the approved changes per PC-94.

Response Message: SR-3-NFPA 409-2025

[Public Comment No. 92-NFPA 409-2025 \[Section No. A.1.1.3\]](#)



Second Revision No. 110-NFPA 409-2025 [Section No. A.3.3.21]

A.3.3.21 Wing Area. [↗](#)

See ~~Table A.3.3.18~~ [A.3.3.19](#) .

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Fri Jul 25 15:13:31 EDT 2025

Committee Statement

Committee Statement: This change was uncovered during the editorial review by NFPA. As Table A.3.3.19 no longer exists, the text was changed to refer to A.3.3.19 only.
Response Message: SR-110-NFPA 409-2025



Second Revision No. 20-NFPA 409-2025 [Section No. A.6.1.1]

A.6.1.1

~~An aircraft hangar with certain door height and area properties might more appropriately be protected as an aircraft hangar with other door height and area properties depending on the operations and aircraft to be stored in the hangar. This could apply in situations where the height of the hangar door and floor area doesn't reflect the hazard of the aircraft or operations that will be located in the hangar.~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 18:38:54 EDT 2025

Committee Statement

Committee Statement: The committee agreed to this deletion, as this commentary is not related to the construction of hangars, and not relevant to 6.1.1.

Response Message: SR-20-NFPA 409-2025

[Public Comment No. 70-NFPA 409-2024 \[Section No. A.6.1.1\]](#)



Second Revision No. 75-NFPA 409-2025 [Section No. A.6.3.1.1]

A.6.3.1.1

Precautions should be taken to ensure ready access to hangars from all sides required by the AHJ, including for ~~area~~ aerial apparatus. Separation should be provided to reduce fire exposure between buildings.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 13:45:55 EDT 2025

Committee Statement

Committee Statement: Annex A editorial updates.

Response Message: SR-75-NFPA 409-2025



Second Revision No. 23-NFPA 409-2025 [Section No. A.6.4.3.1]

A.6.4.3.1

Group III hangars for small aircraft are typically either ~~are~~ prefabricated assemblies or ~~are~~ locally constructed of unprotected steel or aluminum, light wood framing, or cement or cinder blocks. The majority of the prefabricated types are unprotected steel structures with sheet steel or aluminum roof coverings and sidings. Other prefabricated hangars have wood or cement sidings and wood or plywood doors. Except in unusual circumstances, construction types other than Type II (000) and Type V (000) are unlikely because of cost factors. Earth floors are common. ~~Floor drainage is not required unless the hangar is protected in accordance with Chapter 9, although utility drains are useful and should be provided. The airport operator should have a master key for the Group III hangars on the airport premises so as to provide emergency access in case of fire. (See A.6.4.2.1.)~~

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Tue May 06 19:21:04 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter to remove the annex material on floor drainage and master key, as it is not addressed by section 6.4, which pertains to construction. The phrase "are typically" is added for editorial consistency.

Response Message: SR-23-NFPA 409-2025

[Public Comment No. 111-NFPA 409-2025 \[Section No. A.6.4.3.1\]](#)



Second Revision No. 28-NFPA 409-2025 [Section No. A.6.7]

A.6.7 [🔗](#)

~~*Depth of Draft Curtains.* Draft curtains should extend down from the roof or ceiling of aircraft storage and servicing areas not less than one-eighth of the height from the floor to the roof or ceiling. Under curved or sloping roofs extending to grade level or close to grade level, draft curtains need not be continued below 4.8 m (16 ft) from the floor.~~

Installation of Draft Curtains. Draft curtains should be installed, preferably at right angles to the hangar doors, forming roof pockets that are rectangular in shape. Hangars that are long and narrow, however, might best be subdivided by a "grid" system of draft curtains that are both at right angles and parallel to the doors. In arch-type hangars, draft curtains can be hung on exposed interior roof supports running parallel to the doors. The method of installation should be based on obtaining maximum operational efficiency from the sprinkler protection; ~~taking into consideration~~ considering mean wind conditions, floor drains, floor pitch, and details of occupancy usage.

Roof Sections as Draft Curtains. Structural features of a building that serve the purpose of draft curtains (e.g., roof monitors, sawtooth roofs, ~~etc.~~) can be permitted in lieu of specially constructed draft curtains.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Wed May 07 12:22:42 EDT 2025

Committee Statement

Committee Statement: The committee agreed with the submitter with modification, as the A.6.7.1.2 was relocated to A.6.7.1.4 to match changes made via PC-98.

Response Message: SR-28-NFPA 409-2025

[Public Comment No. 71-NFPA 409-2024 \[Section No. A.6.7\]](#)



Second Revision No. 109-NFPA 409-2025 [Section No. A.6.12.2.3]

A.6.12.2.3.1.1

Personnel should be ~~fully~~ instructed ~~that to shut off fans~~ in the event of a serious gasoline or similar flammable liquid spill on the hangar floor, ~~the fans should be shut off~~.

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 16 14:49:30 EDT 2025

Committee Statement

Committee Statement: The committee agreed to the change for 6.12.2.3.1. The change for 6.12.3.3.1.1 was not included as this section has been deleted per SR-17.

Response Message: SR-109-NFPA 409-2025

[Public Comment No. 72-NFPA 409-2024 \[Sections A.6.12.2.3, A.6.12.3.3\]](#)



Second Revision No. 76-NFPA 409-2025 [Section No. A.6.18.2.1]

A.6.18.2.1

As used in 6.18.2.1, the term *column* refers to the column only. It does not apply to other primary structural elements that might or might not be essential to the vertical stability of the columns, such as lateral or diagonal bracing members.-

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 13:46:37 EDT 2025

Committee Statement

Committee Statement: Annex A editorial updates.

Response Message: SR-76-NFPA 409-2025



Second Revision No. 77-NFPA 409-2025 [Section No. A.7.4.2.1]

A.7.4.2.1

Sprinkler systems complying with 7.5.5 should be considered part of the overall fire protection concept for the hangar. Sprinkler systems used in conjunction with low-level foam systems (complying with 7.5.2 or 7.5.3) or with an ILDFA might be considered appropriate protection for fueled aircraft where hazardous operations are occurring within the hangar. Sprinkler systems alone might be considered appropriate protection for fueled aircraft that is simply stored within the hangar, where nonhazardous operations are occurring (*see 7.4.2.5*) or where determined by a risk assessment or performance-based design (*see Chapter 5*).

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 13:47:02 EDT 2025

Committee Statement

Committee Statement: Annex A editorial updates.

Response Message: SR-77-NFPA 409-2025



Second Revision No. 78-NFPA 409-2025 [Section No. A.7.5.7.3]

A.7.5.7.3

As found within ~~the requirements of NFPA 11~~, the rate of foam breakdown by sprinklers is recommended to be determined either by test or, in the absence of specific data, by the following formula, as it relates to the overhead sprinkler system in aircraft storage and servicing floor area:

$$R_s = S \times Q \quad [A.7.5.7.3]$$

where:

S = foam breakdown in m³/min · L/min (ft³/min · gpm) of sprinkler discharge-

Q = estimated total discharge from maximum number of sprinklers expected to operate in L/min (gpm)

S shall be ~~is~~ 0.0748 m³/min · L/min (10 ft³/min · gpm).

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 13:47:39 EDT 2025

Committee Statement

Committee Statement: Annex A editorial updates.

Response Message: SR-78-NFPA 409-2025



Second Revision No. 79-NFPA 409-2025 [Section No. A.7.5.14.4]

A.7.5.14.4



~~The allowance for the required sprinkler flow is not intended to require that the~~ The entire sprinkler flow required by this standard is not intended to be accounted for in the allowance for the required sprinkler flow in the drainage rate of the ~~ignitable ignitable~~ liquid drainage floor assembly. The manufacturer of the ~~ignitable ignitable~~ liquid drainage floor assembly should be consulted and test data permitted to determine an appropriate sprinkler flow allowance based on the number of sprinklers expected to operate in a fuel fire scenario. The sprinkler flow rate of 600 gpm (2271 L/min) was based upon the flow rate recommended in FM ~~Global Property Loss Prevention Data Sheet DS~~ 7-93, "Aircraft Hangars, Aircraft Manufacturing and Assembly Facilities, and Protection of Aircraft Interiors During Assembly."

Submitter Information Verification

Committee: AIS-AAA

Submittal Date: Fri May 09 13:48:06 EDT 2025

Committee Statement

Committee Statement: Annex A editorial updates.

Response Message: SR-79-NFPA 409-2025



Second Revision No. 105-NFPA 409-2025 [Chapter D]

Annex E Informational References

E.1 Referenced Publications.

The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

E.1.1 NFPA Publications.

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 2 , Hydrogen Technologies Code , 2026 edition.

NFPA 4 , Standard for Integrated Fire Protection and Life Safety System Testing , 2024 edition.

NFPA 11, Standard for Low-, Medium-, and High-Expansion Foam, 2024 edition.

NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection, 2022 edition.

NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, 2025 edition.

NFPA 22, Standard for Water Tanks for Private Fire Protection, 2023 edition.

NFPA 25 , Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems , 2026 edition.

NFPA 30 , Flammable and Combustible Liquids Code , 2024 edition.

NFPA 33 , Standard for Spray Application Using Flammable or Combustible Materials , 2024 edition.

NFPA 52 , Vehicular Natural Gas Fuel Systems Code , 2026 edition.

NFPA 55 , Compressed Gases and Cryogenic Fluids Code , 2026 edition.

NFPA 58 , Liquefied Petroleum Gas Code , 2024 edition.

NFPA 68, Standard on Explosion Protection by Deflagration Venting, 2023 edition.

NFPA 70® , National Electrical Code® , 2026 edition.

NFPA 72®, National Fire Alarm and Signaling Code®, 2025 edition.

NFPA 77, Recommended Practice on Static Electricity, 2024 edition.

NFPA 80, Standard for Fire Doors and Other Opening Protectives, 2025 edition.

NFPA 91 , Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids , 2026 edition.

NFPA 220, Standard on Types of Building Construction, 2024 edition.

NFPA 306 , Standard for the Control of Gas Hazards on Vessels , 2024 edition.

NFPA 407, Standard for Aircraft Fuel Servicing, 2022 edition.

NFPA 410, Standard on Aircraft Maintenance, 2025 edition.

NFPA 415, Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways, 2026 edition.

NFPA 551, Guide for the Evaluation of Fire Risk Assessments, 2022 edition.

NFPA 780, Standard for the Installation of Lightning Protection Systems, 2023 2026 edition.

NFPA 855 , Standard for the Installation of Stationary Energy Storage Systems , 2026 edition.

NFPA 5000®, Building Construction and Safety Code®, 2024 edition.

E.1.2 Other Publications.**E.1.2.1 ASTM Publications.**

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM E108, Standard Test Methods for Fire Tests of Roof Coverings, 2020a 2025 .

E.1.2.2 FM Approvals LLC.

FM Approvals [LLC](#) , 1151 Boston-Providence Turnpike, P.O. Box 9102, Norwood, MA 02062.

FM Approval Standard 3260, *Radiant Energy-Sensing Fire Detectors for Automatic Fire Alarm Signaling*, August 2023.

FM Approval Standard 5130, *Examination Standard for Foam Extinguishing Systems* , [May 2021](#).

~~Approval Standard~~ FM Approval Standard 6090, *Ignitable Liquid Drainage Floor Assemblies*, May 2017.

FM DS 5-48, *"Automatic Fire Detection," April 2025*.

FM DS 7-91, *"Hydrogen," January 2021, revised January 2024*.

FM ~~Global Property Loss Prevention Data Sheet~~ [DS 7-93](#), *"Aircraft Hangars, Aircraft Manufacturing and Assembly Facilities, and Protection of Aircraft Interiors During Assembly," April 2017, revised July 2022*.

E.1.2.3 IEC Publications.

International Electrotechnical Commission, 3, rue de Varembé, P.O. Box 131, CH-1211 Geneva 20, Switzerland.

CISPR 16, *Specification for radio disturbance and immunity measuring apparatus and methods*, 2015.

IEC 61000-4-2, *Electromagnetic compatibility (EMC) — Part 4-2: Testing and measurement techniques — Electrostatic discharge immunity test*, 2008.

IEC 61000-4-3, *Electromagnetic compatibility (EMC) — Part 4-3: Testing and measurement techniques — Radiated, radio-frequency, electromagnetic field immunity test*, 2020.

IEC 61000-4-4, *Electromagnetic compatibility (EMC) — Part 4-4: Testing and measurement techniques — Electrical fast transient/burst immunity test*, 2012.

IEC 61000-4-5, *Electromagnetic compatibility (EMC) — Part 4-5: Testing and measurement techniques — Surge immunity test*, 2014, amended 2017.

IEC 61000-4-6, *Electromagnetic compatibility (EMC) — Part 4-6: Testing and measurement techniques — Immunity to conducted disturbances, induced by radio-frequency fields*, 2023.

E.1.2.4 Jane's Information Group Publications.

Jane's Information Group Ltd., Sentinel House, 163 Brighton Road, Coulsdon, Surrey, CR5 2YH, United Kingdom.

Jane's All the World's Aircraft, various editions.

E.1.2.5 SFPE Publications.

Society of Fire Protection Engineers, 9711 Washingtonian Blvd, Suite 380, Gaithersburg, MD 20878.

Engineering Guide: Performance-Based Fire Protection, 2nd Edition, 2007.

Guidelines for Peer Review in the Fire Protection Design Process, 2020.

E.1.2.6 UL Publications.

Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

[UL 162](#) , *Foam Equipment and Liquid Concentrates* , [2024](#).

UL 790, *Test Methods for Fire Tests of Roof Coverings*, 2022.

E.1.2.7 US Government Publications.

US Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401-0001.

MIL-STD 461G RS103, *Radiated Susceptibility, Electric Field*, 2015.

E.2 Informational References. (Reserved)

E.3 References for Extracts in Informational Sections.

NFPA 5000[®], Building Construction and Safety Code[®], 2024 edition.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
409-2022_Annex_D.docx		
409-2022_Annex_D_SR-105.docx	For prod use	

Submitter Information Verification

Committee: AIS-AAA
Submittal Date: Wed May 14 10:55:11 EDT 2025

Committee Statement

Committee Statement: Informational reference updates.
Response Message: SR-105-NFPA 409-2025