



First Revision No. 21-NFPA 33-2025 [Global Input]

[SEE ATTACHED WORD DOC FOR REVISIONS TO SECTION 6.4.1 AND 6.5.4]

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
33_FR21_Section_6.4.1_Section_6.5.4.docx	Revisions to Section 6.4.1 and Section 6.5.4	
33_Global_FR-21_legislative_changes.docx	for prod use	
33_Global_FR-21_FINAL.docx	for balloting	

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 11:58:58 EDT 2025

Committee Statement

Committee Statement: The committee made this revision because the standard requires certain performance requirements, such as, concentrations in the exhaust below 25% of the lower flammable limit for liquid coatings and below 50% of the minimum explosive concentration for powder coatings. It is not justified to consider the exhaust to be considered a Division 1 location. Additionally, the committee made this revision because monitoring the concentration in the process exhaust should provide an additional level of safety, therefore, allowing the area downstream of the concentration monitor to be unclassified.

The revision makes a filtration efficiency that reduces the likelihood of combustible particulate or residue accumulation and should have an impact on the need for a fire protection system. Since the current standard does not require fire protection downstream of the recirculation particulate filters as defined in the standard, the revision clarifies that it would be appropriate to not require fire protection downstream of a filter system with the same performance requirements regardless if the process exhaust is recirculated or not.

This revision is related to FR 52 which updates the definition for Spray Area as well as FR 53 that updates Section 9.1.1.1 requirements.

Response Message: FR-21-NFPA 33-2025

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[FR-21]

6.4.1

The spray area as defined in 3.3.2.3 shall be a Class I, Division 1; Zone 1; Class II, Division 1; or Zone 21 location, whichever is applicable.

6.4.1.1*

The interior of any exhaust duct or exhaust stack leading from a spray application process shall be a Class I, Division 2; Zone 2; Class II, Division 2; or Zone 22 location, whichever is applicable.

A.6.4.1.1

For both liquid and powder applications, the concentration in the exhaust is required to be below an ignitable concentration. If there is not an ignitable concentration under normal operating conditions, then the area should not be considered Division 1. A failure of the ventilation system resulting in lower air flow rates or a failure of the spray operation resulting in higher release of flammable or combustible materials could result in an ignitable concentration. This would justify a Division 2 location.

6.4.1.2

Where exhaust air from a liquid spray operation is recirculated and all the requirements of Section 7.5 are met, see 6.5.4(3).

6.5.4

If spray application operations are confined to an enclosed spray booth or room, ~~electrical~~ area classification shall be as follows:

- (1) The area within 915 mm (3 ft) of any opening shall be ~~classified as a~~ Class I, Division 2; Zone 2; Class II, Division 2; or Zone 22 location~~s~~, whichever is applicable, as shown in Figure 6.5.4.
- (2)* Where automated spray application equipment is used, the area outside the access doors shall be unclassified provided the door interlock prevents the spray application operations when the door is open.
- (3) Where exhaust air from a liquid spray operation is recirculated and all the requirements of Section 7.5 are met, ~~both of~~ the following shall apply:

(a)* ~~The interior of any path downstream of the concentration monitor up to and including the air supply plenum shall be classified as a~~ Class I, Division 2 or Zone 2 location, whichever is applicable ~~unclassified.~~

A.6.5.4(3)(a)

The recirculated air path must be designed for a concentration less than 25 percent of the lower flammable limit and must be monitored and interlocked with the spray

Commented [JV1]: Note: Text is moving to list item below.

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application equipment. The level of safety this provides allows the area downstream of the concentration monitor to be unclassified.

(b)* The interior of any path upstream of the concentration monitor shall be classified as a Class I, Division 2 or Zone 2 location, whichever is applicable.

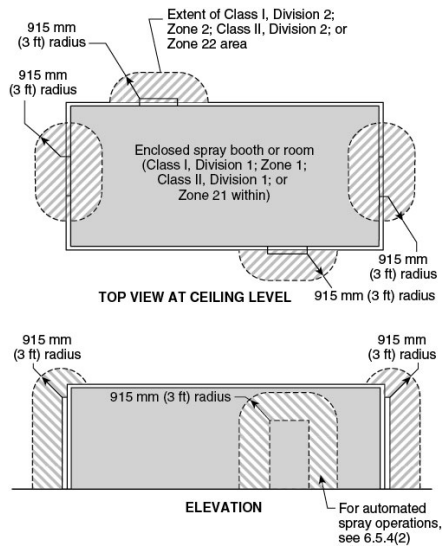
A.6.5.4(3)(b)

The concentration in the recirculated air is required to be below an ignitable concentration. If there is not an ignitable concentration under normal operating conditions, then the area should not be considered Division 1. A failure of the ventilation system resulting in lower air flow rates or a failure of the spray operation resulting in higher release of flammable or combustible materials could result in an ignitable concentration. This would justify a Division 2 location.

(c) The interior of fresh air supply ducts shall be unclassified.

(4) Where exhaust air is not recirculated, the interior of fresh air supply ducts and fresh air supply plenums shall be unclassified.

Figure 6.5.4 Class I, Division 2; Zone 2; Class II, Division 2; or Zone 22 Locations Adjacent to an Enclosed Spray Booth or Spray Room.





First Revision No. 48-NFPA 33-2025 [Global Input]

[MAKE CHANGES TO SECTION 5.3.6.1 AND DELETE SECTION 5.7.2 AS SHOWN BELOW]

5.3.6.1

Spray application of finishing materials containing nitrocellulose or other materials known to be highly susceptible to spontaneous heating or spontaneous ignition shall be permitted in a dry-type spray booth provided that residue is removed from all baffle plates at least daily and all filters are changed at least daily.

5.7.2

~~Filters shall not be used when applying materials known to be highly susceptible to spontaneous heating or spontaneous ignition.~~

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
33_FR48_Section_5.3.6.1_Revision_and_Section_5.7.2_Deletion.docx	Revision to Section 5.3.6.1 and deletion of Section 5.7.2	
33_Global_FR-48_legislative_changes.docx	for prod use	

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Tue May 27 15:55:12 EDT 2025

Committee Statement

Committee Statement: The committee accepts that daily changing of filters and cleaning baffle plates will address the potential ignition hazard created by materials that are susceptible to spontaneous combustion. This revision clarifies that Section 5.3.6.1 allows the use of nitrocellulose when baffle plates have residue removed and filters are changed at least daily. Deleting Section 5.7.2 removes the conflicting statement that filters shall not be used.

Response Message: FR-48-NFPA 33-2025

[Public Input No. 13-NFPA 33-2024 \[Section No. 5.3.6.1\]](#)

[Public Input No. 12-NFPA 33-2024 \[Section No. 5.7.2\]](#)



First Revision No. 47-NFPA 33-2025 [Detail]

[Make changes as shown below to account for NFPA 660 consolidation]

A.14.4.1.2

A dust hazard analysis (DHA) can be used to determine if the process generates sufficient combustible dust to be hazardous. See NFPA-652 660 for DHA requirements.

A.15.8.3

Housekeeping of the powder coating area is important to maintain a clean, safe work environment. Regular cleaning of walls, floors, and horizontal surfaces such as ducts, pipes, ledges, beams, and equipment should be put in place to minimize powder and dust accumulation. Reducing additional dust accumulation is a major factor in reducing the hazard in areas where a dust hazard exists. See Annex-~~D~~S in NFPA 654660 for more information on dust layer characterizations and precautions.

A.15.8.4.6

Compressed air hoses are equipped with pressure relief nozzles that limit the discharge gauge pressure to 30 psi (270 kPa) in accordance with the OSHA requirements in 29 CFR 1910.242(b), "Hand and Portable Power Tools and Equipment, General." Refer to NFPA-654 660.

A.15.13.2

See NFPA-654 660 for nonmetallic powders (less than 10 percent metal powder contents) and NFPA-484 660 for metallic powders. See Annex C for additional information on metallic containing powders.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
33_FR47_660_CONSOLIDATION.docx	Revisions from the NFPA 660 consolidation project	
33_Detail_FR-47_legislative_changes.docx	for prod use	

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Tue May 27 13:42:02 EDT 2025

Committee Statement

Committee Statement: This revision is an editorial change. NFPA 660 Standard for Combustible Dusts and Particulate Solids was developed to consolidate the requirements of NFPA 652, Standard on the Fundamentals of Combustible Dust; NFPA 484, Standard for Combustible Metals; and NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids. This revision replaces the pointers to prior individual combustible dust standards

(NFPA 484, 652, 654) with revised pointers to NFPA 660.

Response FR-47-NFPA 33-2025

Message:

[Public Input No. 32-NFPA 33-2025 \[Section No. A.15.8.2\]](#)

[Public Input No. 33-NFPA 33-2025 \[Section No. A.15.8.3.6\]](#)

[Public Input No. 34-NFPA 33-2025 \[Section No. A.15.13.2\]](#)

[Public Input No. 31-NFPA 33-2025 \[Section No. A.14.4.1.2\]](#)



First Revision No. 51-NFPA 33-2025 [Detail]

[ADD NEW DEFINITIONS]

3.3.19 Primary Filter System.

A filter or combination of filters that reduces the concentration in the process exhaust below 25 percent of the minimum explosible concentration (MEC).

3.3.22* Redundant Filter.

A filter placed in the process exhaust downstream of the primary filter that is part of a continuous monitoring system to protect against the consequences of failures.

A.3.3.22 Redundant Filter.

In a process exhaust system where the main contaminant is an aerosol or dust, the redundant filter is normally a HEPA filter or a filter with an efficiency greater than that of the primary filter system. Other terms for a redundant filter include, but are not limited to, a secondary filter, a final filter, or a backup filter.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
33_Detail_FR-51_NEW.docx	for prod use	

Submitter Information Verification

Committee: FAA-AAA

Submission Date: Wed May 28 13:08:23 EDT 2025

Committee Statement

Committee Statement: This revision adds new definitions for the terms 'primary filter systems' and 'redundant filter', which were introduced in Section 6.5.8 with FR 50 and were not previously defined by the standard.

Response Message: FR-51-NFPA 33-2025



First Revision No. 54-NFPA 33-2025 [Detail]

[PLEASE MOVE 9.6.3 AND ALL SUBS TO 9.7.]

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
33_FR54_Ch_9_renumbering.docx	Renumbered Chapter 9	
33_Detail_FR-54_legislative_changes.docx	for prod use	

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Tue Jun 03 11:48:46 EDT 2025

Committee Statement

Committee Statement: This revision was made to clarify that the requirements for Protection for Dry Particulate Scrubbers were not originally intended to fall under Section 9.6 on Specific Process Protection. Protection for Dry Particulate Scrubber is now Section 9.7 and follow on sections are renumbered below. There are no revisions to any requirements.

Response Message: FR-54-NFPA 33-2025



First Revision No. 1-NFPA 33-2025 [Section No. 2.3]

2.3 Other Publications.

2.3.1 ANSI Publications.

American National Standards Institute Inc., ~~25 West 43rd Street, 4th~~ 1180 Avenue of the Americas, 10th Floor, New York, NY 10036.

ANSI/FM 4950, *Evaluating Welding Pads, Welding Blankets and Welding Curtains for Hot Work Operations*, ~~2014~~ 2024 .

2.3.2 ASME Publications.

American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990.

ASME Boiler and Pressure Vessel Code, Section VIII, ~~2021~~ 2023 .

2.3.3 ASTM Publications.

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

ASTM D5/D5M, *Standard Test Method for Penetration of Bituminous Materials*, 2020.

ASTM D56, *Standard Test Method for Flash Point by Tag Closed Cup Tester*, 2022.

ASTM D93, *Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester*, 2020.

ASTM D323, *Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)*, 2020a.

ASTM D3278, *Standard Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus*, 2021.

ASTM D3828, *Standard Test Methods for Flash Point by Small Scale Closed Cup Tester*, 2016a (reapproved 2021).

ASTM D4359, *Standard Test for Determining Whether a Material is a Liquid or a Solid*, 1990 (reapproved ~~2019~~ 2024).

ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, ~~2022~~ 2024 .

ASTM E136, *Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C*, ~~2022~~ 2024c .

ASTM E2652, *Standard Test Method for Assessing Combustibility of Materials Using a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C*, 2022.

ASTM E2965, *Standard Test Method for Determination of Low Levels of Heat Release Rate for Materials and Products Using an Oxygen Consumption Calorimeter*, 2022a.

2.3.4 UL Publications.

~~Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096~~ UL Standards & Engagement, 1603 Orrington Ave. 2000, Evanston, IL 60201 .

UL 340, *Tests for Comparative Flammability of Liquids*, 2017 (revised 2024) .

UL 723, *Test for Surface Burning Characteristics of Building Materials*, ~~2021~~ 2018 (revised 2023) .

UL 900, *Air Filter Units*, 2020 2015 (revised 2022) .

UL 2208, *Solvent Distillation Units*, 2020 2010 (revised 2020) .

2.3.5 Other Publications.

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

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed Jan 29 14:01:36 EST 2025

Committee Statement

Committee Statement: Revisions were made to update edition years and titles to Other Publications.

Response Message: FR-1-NFPA 33-2025

[Public Input No. 21-NFPA 33-2025 \[Section No. 2.3.3\]](#)

[Public Input No. 35-NFPA 33-2025 \[Section No. 2.3.4\]](#)



First Revision No. 2-NFPA 33-2025 [Section No. 2.4]

2.4 References for Extracts in Mandatory Sections.

NFPA 30, *Flammable and Combustible Liquids Code*, 2021 2024 edition.

NFPA 56, *Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems*, 2023 edition.

NFPA 69, *Standard on Explosion Prevention Systems*, 2019 2024 edition.

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

NFPA 5000[®], *Building Construction and Safety Code*[®], 2021 2024 edition.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed Jan 29 14:13:55 EST 2025

Committee Statement

Committee Statement: Revisions were made to update the edition years of References for Extracts in Mandatory Sections.

Response Message: FR-2-NFPA 33-2025



First Revision No. 52-NFPA 33-2025 [Section No. 3.3.2.3 [Excluding any Sub-Sections]]

Any fully enclosed, partly enclosed, or unenclosed area in which flammable or combustible vapors, mists, residues, dusts, or deposits are present due to the operation of spray processes, including (1) any area in the direct path of a spray application process; (2) the interior of a spray booth, spray room, or limited finishing workstation, as herein defined; (3) the interior of any exhaust plenum, eliminator section; ~~(4) or scrubber section;~~ (4) the interior of any exhaust duct or exhaust stack leading from a spray application process; ~~(5) the interior of any air recirculation path up to and including recirculation particulate filters;~~ (6) ~~any~~ any solvent concentrator (pollution abatement) unit or solvent recovery (distillation) unit; and ~~(7 5)~~ the inside of a membrane enclosure. The following are not part of the spray area: (1) fresh air make-up units; (2) air supply ducts and air supply plenums; (3) recirculation air supply ducts downstream of recirculation particulate filters; and (4) exhaust ducts from solvent concentrator (pollution abatement) units.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Thu May 29 08:55:53 EDT 2025

Committee Statement

Committee Statement: Revision made to the definition of Spray Area to remove these items from the definition: the interior of any exhaust duct or exhaust stack leading from a spray application process; and the interior of any air recirculation path up to and including recirculation particulate filters. This revision is related to FR 21 that made revisions in Chapter 6 as well as FR 53 that made revisions in Chapter 9.

Response Message: FR-52-NFPA 33-2025



First Revision No. 49-NFPA 33-2025 [Section No. 3.3.22]

3.3.24* Spray Room.

A power-ventilated fully enclosed room with a specified fire resistance rating used for spraying of ignitable (flammable or combustible) materials.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Tue May 27 16:03:52 EDT 2025

Committee Statement

Committee Statement: This revision was made to the definition 'spray room' to align with terminology in the standard.

Response Message: FR-49-NFPA 33-2025



First Revision No. 33-NFPA 33-2025 [Section No. 4.1.1]

4.1.1* Locations in Other Occupancies.

Spray application operations and processes shall not be conducted in any building that is classified as an assembly, educational, day care, health care, ambulatory health care, detention/correctional, residential, mercantile, or business occupancy, unless the following requirements are met:

- (1)* The spraying is located in a room that is separated both vertically and horizontally from all the surrounding areas by fire barriers having a fire resistance rating of not less than 1 hour or in a spray room (see *Section 5.2*).

A.4.1.1(1)

Spray operations can be conducted in a spray room to achieve the required separation. This standard does not specifically require the use of a spray room.

- (2) The room is protected by an approved automatic sprinkler system designed and installed in accordance with NFPA 13.

Submitter Information Verification

Committee: FAA-AAA

Submission Date: Wed May 14 15:58:00 EDT 2025

Committee Statement

Committee Statement: This revision was made to add annex material to Section 4.1.1(1) to clarify that the standard does not require a spray room.

Response Message: FR-33-NFPA 33-2025



First Revision No. 12-NFPA 33-2025 [Section No. 5.3.5]

5.3.5 Powder Coating.

Spray booths that are used exclusively for powder coating shall meet the requirements of Chapter 15.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
33_FR-12_5.3.5_legislative_changes.docx	for prod use	

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Tue May 13 14:29:11 EDT 2025

Committee Statement

Committee Statement: This revision is an editorial change moving requirement from Section 5.3.5.1 to Section 5.3.5 and deletes the subsection title "powder coating" to be consistent with the NFPA Manual of Style.

Response Message: FR-12-NFPA 33-2025

[Public Input No. 15-NFPA 33-2025 \[Section No. 5.3.5\]](#)



First Revision No. 14-NFPA 33-2025 [Section No. 6.4]

6.4 Electrical Devices in Spray Areas.

[Global FR-21](#)

6.4.1

~~The spray area as defined in 3.3.2.3 shall~~ interior of the spray booth or spray room including plenums and ducts for recirculated and exhaust air shall be a Class I, Division 1 2 ; Zone 1 2 ; Class II, Division 1 2 ; or Zone 2 2 location , whichever is applicable.

6.4.1.1*

The interior of any exhaust duct or exhaust stack leading from a spray application process shall be a Class I, Division 2; Zone 2; Class II, Division 2; or Zone 2 location, whichever is applicable.

6.4.1.2

Where exhaust air from a liquid spray operation is recirculated and all the requirements of Section 7.5 are met, see 6.5.4(3).

6.4.2

Electrical wiring and utilization equipment that is located ~~in on~~ the ~~spray area~~ interior of the spray booth or spray room, including plenums and ducts for recirculated and exhaust air, and is not subject to deposits of combustible residues shall be suitable for Class I, Division 1 2 ; Zone 1 2 ; Class II, Division 1 2 ; or Zone 2 2 locations, whichever is applicable.

6.4.3*

Electrical wiring and utilization equipment that is located ~~in on~~ the ~~spray area~~ interior of the spray booth or spray room, including plenums and ducts for recirculated and exhaust air, and is subject to deposits of combustible residues shall be listed for such exposure and shall be suitable for Class I, Division 1 2 ; Zone 1; Class II, Division 1 2 ; or Zone 2 2 locations, whichever is applicable.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Tue May 13 15:18:21 EDT 2025

Committee Statement

Committee Statement: This revision was made to better clarify that the Section 6.4 requirements apply to the interior of the spray booth or spray room including plenums and ducts for recirculated and exhaust.

Response Message: FR-14-NFPA 33-2025

[Public Input No. 28-NFPA 33-2025 \[Section No. 6.4\]](#)

[Public Input No. 29-NFPA 33-2025 \[Section No. 6.5\]](#)



First Revision No. 18-NFPA 33-2025 [New Section after 6.5.5.2]

6.5.6

Pits or trenches that are in or pass through a Class I, Division 1; Zone 1; Class I, Division 2; or Zone 2 location shall be a Class I, Division 1 or Zone 1 location, as shown in Figure 6.5.1 and Figure 6.5.5.2 .

6.5.6.1*

The area classification shall extend the full length of the pit or trench, unless otherwise permitted by an approved performance-based design.

A.6.5.6.1

Without a means to limit the flow of vapors, this area classification can extend the full length of the pit or trench even after it leaves the Class I, Division 1 or Zone 1 location or the surrounding Division 2 or Zone 2 location. Methods such as barriers, liquid traps, or ventilation can be used to reduce the extent of the area classification. Operational and site-specific conditions should be considered when determining the extent of the area classification.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
33_FR18_New_Section_6.5.6.docx	New Section 6.5.6	
33_FR-18_6.5.6_NEW.docx	for prod use	

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Tue May 13 16:11:58 EDT 2025

Committee Statement

Committee Statement: This revision clarifies that current figures do not identify the extent of the classification if the pit continues out beyond the classified area. This change identifies the extent of the area classification within the pit or trench with Figure 6.5.1 and 6.5.2 and includes annex material to provide additional guidance.

Response Message: FR-18-NFPA 33-2025

Public Input No. 5-NFPA 33-2024 [New Section after 6.5.5.2]



First Revision No. 42-NFPA 33-2025 [New Section after 6.5.5.2]

6.5.7*

Where doors, hatches, or other similar devices are used for maintenance access from within the spray booth to spaces that are adjacent the spray booth, the area classification of the space adjacent to the spray booth shall be unclassified.

A.6.5.7

Doors, hatches, or other similar devices used for maintenance access should not be considered an opening as the term is used in this chapter. Therefore, the area outside the booth but adjacent to this maintenance access would not be a hazardous (classified) location.

6.5.7.1

Doors, hatches, or similar devices shall meet the following requirements:

- (1) Have integral seals that prevent leakage out of the spray area.
- (2)* Require a tool to open.

A.6.5.7.1(2). _

A tool can include, but is not limited to, a wrench, screwdriver, or key. The door, hatch, or similar device cannot be opened only by hand.

6.5.7.2*

Doors, hatches, or similar devices shall be verified to be closed during spray operations by either engineering or administrative controls as required by the AHJ.

A.6.5.7.2

The engineering controls could include, but are not limited to, signage and administrative processes or interlocks with spray operation and ventilation.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Thu May 15 14:34:34 EDT 2025

Committee Statement

Committee Statement: This revision clarifies that since doors, hatches or other similar devices used for maintenance access are not open during spraying operations, their presence within the booth wall or ceiling would not impact the adjacent area classification.

Response FR-42-NFPA 33-2025
Message:



First Revision No. 50-NFPA 33-2025 [New Section after 6.5.5.2]

6.5.8*

The area classification for powder collectors shall be as follows:

- (1) The area of the collector upstream of the primary filter system shall be a Class II, Division 1 or Zone 21 location.
- (2) The area classification downstream of the primary filter system but upstream of the redundant filter system shall be a Class II, Division 2 or Zone 22 location.
- (3) The area classification downstream of the redundant filter system shall be unclassified.

A.6.5.8

See 15.7.2 for requirements to recirculate the air from a powder collector.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 28 09:07:43 EDT 2025

Committee Statement

Committee Statement: This revision addresses that the standard had not addressed hazardous (classified) locations in and around powder collectors. This revision identifies the hazardous (classified) locations.

Response Message: FR-50-NFPA 33-2025

Public Input No. 23-NFPA 33-2025 [New Section after 6.5.5.2]



First Revision No. 35-NFPA 33-2025 [Section No. 7.2.3]

7.2.3

For more information on Ventilation for powder spray operations, ~~see~~ shall meet the requirements of Section 15.7.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 16:27:54 EDT 2025

Committee Statement

Committee Statement: This revision was made to clarify that the ventilation requirements for powder spray operations 'shall' comply with section 15.7.

Response Message: FR-35-NFPA 33-2025



First Revision No. 25-NFPA 33-2025 [Section No. 7.4.2]

7.4.2*

Exhaust ducts shall follow the shortest route to the point of discharge and ~~shall~~ meet the following conditions:

- (1) Exhaust ducts shall not penetrate a fire wall.
- (2) Exhaust discharge shall be directed away from any air intakes.
- (3)* Exhaust discharge point shall be at least 1830 mm (6 ft) from any exterior wall or roof.

A.7.4.2(3)

Consideration should be given to rooftop or wall-mounted equipment that could be of combustible construction. The clearance might need to be measured from the equipment and not the roof or wall to which it is mounted.

- (4) Exhaust discharge point shall be at least 3048 mm (10 ft) from openings into the building.
- (5) Exhaust discharge point shall be at least 3048 mm (10 ft) above adjoining grade.
- (6) Exhaust duct shall not discharge in the direction of any combustible construction that is within 7625 mm (25 ft) of the exhaust duct discharge point.
- (7) Exhaust duct shall not discharge in the direction of any unprotected opening in any noncombustible or limited-combustible construction that is within 7625 mm (25 ft) of the exhaust duct discharge point.
- (8) Exhaust duct shall not discharge in the direction of any exit discharge or public way that is within 7625 mm (25 ft) of the exhaust duct discharge point.

A.7.4.2

The objective of these distances is to minimize the potential for exposure to fires in the exhaust duct. Additional distances could be necessary for indoor air quality or outdoor air quality.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 14:40:19 EDT 2025

Committee Statement

Committee Statement: This revision adds annex material for Section 7.4.2 to help the user understand the purpose of these distances and to bring awareness that greater distances may be necessary for air quality purposes. With the increased use of roof top equipment such as solar panels, the distance in Section 7.4.2(3) should take into account these items if there is the possibility they could, due to their combustibility, increase the spread of fire.

Response Message: FR-25-NFPA 33-2025

[Public Input No. 8-NFPA 33-2024 \[Section No. 7.4.2\]](#)



First Revision No. 11-NFPA 33-2025 [Section No. 8.3.3]

8.3.3

Mixing rooms shall meet all of the following requirements:

- (1) Mixing rooms shall meet the ~~construction~~ requirements of Sections 5.1 and 5.3.
- (2) Mixing rooms shall be enclosed with a ceiling and walls on all sides.
- (3) The area of a mixing room shall not exceed 14 m^2 (150 ft^2).
- (4) The total quantity of liquid in a mixing room shall not exceed 80 L/m^2 (2 gal/ft^2) of floor area.
- (5) Mixing rooms shall be designed to contain a spill of the contents in the room.
- (6) Mixing rooms where ignitable (flammable or combustible) liquids at or above their flash point are being dispensed, handled, or transferred shall be provided with mechanical ventilation capable of providing air movement not less than $0.3 \text{ m}^3/\text{min/m}^2$ ($1 \text{ ft}^3/\text{min/ft}^2$) of floor area or $4 \text{ m}^3/\text{min}$ ($150 \text{ ft}^3/\text{min}$), whichever is greater.
- (7) Ventilation systems provided in accordance with 8.3.3(6) shall be in operation during operating hours or whenever vapors are present.
- (8) Mixing rooms shall be classified for the purposes of electrical area classification in accordance with Chapter 7 of NFPA 30.
- (9) Mixing rooms shall be provided with an approved automatic fire protection system that meets all the applicable requirements of Chapter 9.
- (10) Mixing rooms shall be provided with portable fire extinguishers located in accordance with NFPA 10.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Tue May 13 14:17:40 EDT 2025

Committee Statement

Committee Statement: The revision made to clarify that a mixing room should be fully enclosed to provide containment for a spill and the escape of vapor. The current required ventilation rate would be insufficient to provide vapor containment if the mixing room was open on one or more sides.

Response Message: FR-11-NFPA 33-2025

Public Input No. 17-NFPA 33-2025 [Section No. 8.3.3]



First Revision No. 26-NFPA 33-2025 [New Section after 8.3.5]

8.3.6*

Mixing rooms shall be separated from other operations in accordance with Section 5.5 .

A.8.3.6

Mixing rooms are accessory equipment for spray finishing operations, and an adjacent spray booth would not be considered other operations.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 14:44:32 EDT 2025

Committee Statement

Committee Statement: The committee made this revision due to the presence of ignitable liquids in mixing rooms that have the same or greater potential for the spread of fire as a spray booth. This revision clarifies that since the construction of the mixing room is similar to a spray booth, the requirements for locating the mixing room should be the same as those for spray booths.

Response Message: FR-26-NFPA 33-2025

Public Input No. 4-NFPA 33-2024 [New Section after 8.3.5]



First Revision No. 53-NFPA 33-2025 [Sections 9.1.1.1, 9.1.1.2]

9.1.1.1

Spray areas, as defined in this standard, used for liquid spray operations shall be protected with an approved automatic fire protection system.

9.1.1.2

The interior of any exhaust duct or exhaust stack leading from a spray application process shall be protected with an approved automatic fire protection system.

9.1.1.2.1

Where a filter or series of filters capable of removing more than 95 percent of particles 0.3 to 10 μ in size from the airstream is used, the air path downstream of the filter(s) shall not be required to be protected.

9.1.1.2.2

The immediate area downstream of the filter system shall be protected.

9.1.1.3

The interior of any air recirculation path up to and including recirculation particulate filters shall be protected with an approved automatic fire protection system.

9.1.1.3.1

The immediate area downstream of the filter system shall be protected.

9.1.1.4

The automatic fire protection system requirement in 9.1.1.1 shall apply to both manual and automated spray application processes.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
33_FR-53_9.1.1.1_legislative_changes.docx	for prod use	

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Thu May 29 09:13:27 EDT 2025

Committee Statement

Committee Statement: The committee made this revision because the standard requires certain performance requirements, such as, concentrations in the exhaust below 25% of the lower flammable limit for liquid coatings and below 50% of the minimum explosive concentration for powder coatings. It is not justified to consider the exhaust to be considered a Division 1 location. Additionally, the committee made this revision because monitoring the concentration in the process exhaust should provide an additional level of safety, therefore, allowing the area downstream of the concentration monitor to be unclassified. The revision makes a filtration efficiency that reduces the likelihood of combustible particulate or residue accumulation and should have an impact on the need for a fire protection system. Since the current standard does not require fire protection downstream

of the recirculation particulate filters as defined in the standard, the revision clarifies that it would be appropriate to not require fire protection downstream of a filter system with the same performance requirements regardless if the process exhaust is recirculated or not. This revision is related to FR 21 that made revisions in Chapter 6 as well as FR 52 that updated the definition of Spray Area.

Response FR-53-NFPA 33-2025
Message:



First Revision No. 29-NFPA 33-2025 [Section No. 9.1.2]

9.1.2 ~~Mix~~ Mixing Rooms.

9.1.2.1

~~Mix~~ Mixing rooms shall be protected with an approved automatic fire protection systems .

9.1.2.2

~~Mix~~ Mixing room intake or exhaust ducts shall not require protection.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 15:11:04 EDT 2025

Committee Statement

Committee Statement: This revision updated the term 'mix room' to 'mixing room' to be consistent with language in Chapter 8. The revision also changed 'fire protection systems' to singular to be consistent with other requirements in Chapter 9.

Response Message: FR-29-NFPA 33-2025

[Public Input No. 25-NFPA 33-2025 \[Section No. 9.1.2\]](#)



First Revision No. 24-NFPA 33-2025 [New Section after 9.1.3.2]

9.1.3.3

Rooms used for the storage or handling of powders shall be protected with an approved automatic fire protection system.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 14:34:24 EDT 2025

Committee Statement

Committee Statement: This revision adds protection requirements for rooms used for powder storage and handling. This revision aligns with protection requirements for mixing rooms.

Response Message: FR-24-NFPA 33-2025

[Public Input No. 26-NFPA 33-2025 \[New Section after 9.1.3.2\]](#)



First Revision No. 37-NFPA 33-2025 [Section No. 10.4]

10.4 High-Pressure Hose Lines.

High-pressure hose lines that convey ignitable (flammable or combustible) coating material in airless spray application operations shall be inspected daily and shall be repaired or replaced as necessary. Hose lines and equipment shall be located so that, in the event of a leak or rupture, coating material will not be discharged into any space containing a source of ignition.

10.4.1*

High-pressure hose lines that convey ignitable (flammable or combustible) coating material in airless spray application operations shall be inspected daily and shall be repaired or replaced as necessary.

A.10.4.1

High-pressure hose lines for airless spray application operations operate at pressures of 2482 kPa (360 psi) or greater.

10.4.2

Hose lines and equipment shall be located so that, in the event of a leak or rupture, coating material will not be discharged into any space containing a source of ignition.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
33_FR-37_10.4_legislative_changes.docx	for prod use	

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Thu May 15 11:36:13 EDT 2025

Committee Statement

Committee Statement: High-pressure is not a defined term and is an unenforceable. Editorial revision were made to separate two distinct requirements into their own sections. The change also adds annex material to help identify the situation in which the inspection frequency applies, high pressure hose lines 360 PSI is based on industry standard UL 1450.

Response Message: FR-37-NFPA 33-2025



First Revision No. 31-NFPA 33-2025 [New Section after 13.7.3]

13.7.3.1

A high-temperature limit switch shall not be required where the adjacent or connected room or equipment used for drying includes a high-temperature limit that shuts down the heat source if the temperature in the adjacent or connected room or equipment exceeds 105°C (221°F).

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 15:30:00 EDT 2025

Committee Statement

Committee Statement: This revision clarifies that if the temperature in the adjacent or connected space cannot exceed 221 F, then the spray area cannot exceed 221 F. In such situations, the temperature protection is addressed by the high-temperature-limit switch in the adjacent room.

Response Message: FR-31-NFPA 33-2025

Public Input No. 3-NFPA 33-2024 [New Section after 13.7.3]



First Revision No. 36-NFPA 33-2025 [Section No. 14.3.9]

14.3.9

Portable spot-drying, curing, or fusion apparatus shall be permitted to be used in a limited finishing workstation, provided that it is not located within the hazardous (classified) location defined in ~~14.3.5~~ 14.3.6 when spray application operations are being conducted.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Thu May 15 10:23:51 EDT 2025

Committee Statement

Committee Statement: This revision was made to correct the old cross reference Section 14.3.5 to the appropriate section for hazardous (classified) locations in Section 14.3.6.

Response Message: FR-36-NFPA 33-2025



First Revision No. 23-NFPA 33-2025 [New Section after 15.8.1]

15.8.2

Rooms used for the storage and handling of powders shall meet the following requirements:

- (1) Rooms shall meet the construction requirements of Section 5.1 or Section 5.3
- (2) Rooms shall be protected with an approved automatic fire protection system
- (3) The electrical area classification and the extent of the area classification shall be based upon a review of the operation and site conditions
- (4) The electrical area classification of the interior of the room used for the storage of powder in containers that meet the requirements of 15.8.1 shall be considered unclassified
- (5) Rooms used for powder unloading, bag dumping stations, or pneumatic conveying systems shall be ventilated to contain and remove escaping powder
- (6) Powered vehicles for moving powder shall be listed for the electrical area classification in which they are used
- (7) The area classification shall be documented

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 14:00:43 EDT 2025

Committee Statement

Committee Statement: The standard is currently silent on requirements for rooms used for the storage and handling of powder. The revision add new requirements in Section 15.8.2 regarding protection, area classification, and ventilation.

Response Message: FR-23-NFPA 33-2025

[Public Input No. 27-NFPA 33-2025 \[New Section after 15.8.1\]](#)



First Revision No. 22-NFPA 33-2025 [Section No. 15.8.4.1]

15.8.5.1

Powder unloading, bag dumping stations, and pneumatic conveying systems located in, connected to, or adjacent to the spray area shall be Class II, Division 2 ~~as defined in 6.3.2.2~~ or ~~Zone 22 as defined in 6.3.2.5 2~~ or Zone 22 locations .

15.8.5.1.1*

The extent of the area classification shall be based upon a review of the operation and site conditions.

A.15.8.5.1.1

See NFPA 70 and NFPA 499 for additional guidance on establishing the hazardous (classified) locations. If adequate ventilation is not provided, the area classification might need to be reevaluated.

15.8.5.1.2

The area classification shall be documented.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 13:40:55 EDT 2025

Committee Statement

Committee Statement: The committee recognizes that the standard had not addressed the extent of the hazardous (classified) locations in and adjacent to these processes. This revision was made to require a review to identify the extent based upon a review of the operation. Annex material is also added to assist with the review. Since the hazardous (classified) locations are process dependent and not explicitly defined in the standard, the area classification shall be documented. Added NFPA 499 to Annex E with FR 46.

Response Message: FR-22-NFPA 33-2025

Public Input No. 14-NFPA 33-2025 [Section No. 15.8.4.1]



First Revision No. 40-NFPA 33-2025 [Section No. 18.5.2]

18.5.2

Travel distance to an exit from within a membrane enclosure shall comply with Table 40.2.6 40.2.6.1 in NFPA 101 for general industrial occupancies.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Thu May 15 13:52:47 EDT 2025

Committee Statement

Committee Statement: Revision made to update cross reference to Table 40.2.6.1.

Response Message: FR-40-NFPA 33-2025



First Revision No. 30-NFPA 33-2025 [Section No. A.7.3]

A.7.3

All spray areas require make-up air, and since the air exhausted from spray application operations is normally contaminated and can be recirculated only under rigidly controlled conditions, the source of the make-up air should be given careful consideration. When the capacity of the ventilating fan is low and the area where the exhaust system is located is large, sufficient make-up air often can be provided by natural infiltration of air through building walls, windows, doors, and so forth. In general, if the volume of the room or building where the exhaust system is located is not equal to at least 20 times the volumetric capacity of the fans (three air changes per hour), then additional make-up air should be provided. Outside air should be tempered and might have to be dehumidified or chilled for proper operation of the spray application apparatus. Automatic controls, including a high-temperature-limit switch, fan interlocks, and safety shutoff valves, should be provided for safe operation.

The method of distributing the make-up air requires careful consideration. If the velocities and distribution of air through baffles, filters, and registers have not been carefully designed, the spray application operation can be inefficient. The velocity of the air through filters, and so forth, should not exceed 60 m/min (200 ft/min). Higher velocities can disrupt spray application operations due to turbulent airflow in the vicinity of the spray apparatus. This turbulence can also cause a properly designed exhaust system to fail to confine and remove vapors or to fail to confine and control residues, dusts, and deposits.

In some heating arrangements, forced make-up or replacement air directly compensating for the contaminated air exhausted from spray application operations is used in place of or to augment general area heating and ventilation.

With the many variables that can be encountered in heating and ventilating systems, it generally is advisable to engage the services of a qualified ventilating engineer to obtain a safe and efficient installation.

The features that should be considered include the following:

- (1) Location of sources of heat to comply with Chapter 6
- (2) Locating air intakes to prevent ~~recalculation~~ recirculation of contaminated air, and equipping air intakes with appropriate screens or filters
- (3) Automatic temperature and proportioning controls, including an independent excess temperature limit control
- (4) A safety system interlocked with the heater to automatically provide for its safe ignition and to minimize the hazards that might result from failure of its proper operating cycle, proper pressure of fuel supply, ventilation, and electrical power
- (5) An interlock between the spray booth exhaust system and the make-up air system to ensure that both systems are operable and provide a proper balance of supply and replacement air
- (6) In the case of direct-fired units, operating controls that ensure that concentrations of unburned fuel or products of combustion, if inhaled, are kept to levels that are safe for operating personnel
- (7) In the case of direct expansion (DX) cooling or de-humidification systems utilizing flammable refrigerants, safety controls address potential release of refrigerant into the air stream. See ANSI/ASHRAE Safety Standard 15, *Safety Standard for Refrigeration Systems*, for guidance.

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed May 14 15:13:16 EDT 2025

Committee Statement

Committee Statement: Revision made to correct the incorrect term used (recalculation vs recirculation) in item (2). The revision also added new item (7) which references ASHRAE 15 to provide guidance for cooling and dehumidification systems that utilize flammable refrigerants.

Response Message: FR-30-NFPA 33-2025

[Public Input No. 2-NFPA 33-2024 \[Section No. A.7.3\]](#)



First Revision No. 19-NFPA 33-2025 [Section No. B.1]

B.1 General.

Some paints, varnishes, lacquers, and other coating materials contain Class I [FP < 100°F (37.8°C (100°F))] solvents. In addition, such solvents are often added as thinners. When exposed to the atmosphere, these solvents give off vapors that mix with the surrounding air. If the concentration reaches as much as approximately 1 percent solvent in the air, these vapors can be ignited and an explosion can occur. Spray applications using only liquids that have relatively high flash points, although less likely to produce flammable atmospheres than those using low flash point liquids, can, nevertheless, result in mists that are capable of propagating a flame in a manner similar to combustible solids in dust explosions.

Theoretical considerations can assist in hazard evaluation in some instances. For example, if we assume that 3.8 L (1 gal) of the average solvent will occupy approximately 0.7 m^3 (23 ft^3) when evaporated into vapor at average room temperature. Therefore, if 3.8 L (1 gal) of liquid solvent is completely evaporated and thoroughly mixed with the surrounding air of an enclosure, the enclosure has to have a volume of more than 70 m^3 (2500 ft^3) to avoid a flammable mixture, assuming the lower limit of the flammable range of the solvent is 1 percent in the air. This is a conservative number; almost all the solvents used in spray finishing have a lower flammable limit greater than 1 percent. In using such theoretical considerations, caution should be exercised to prevent erroneous conclusions. When liquids are sprayed, the area in the direct path of the spray will exceed the lower flammable limit. Vapors from most solvents are heavier than air, and small quantities of vapor can form a flammable mixture in low, unventilated spaces in the vicinity of or even remote from the point of evaporation before they mix with the full volume of available air by natural diffusion and the mixture becomes too lean to burn. When liquid is sprayed, the rate of evaporation is greatly increased, so the lower flammable limit is quickly reached. For these reasons, a safety factor of 4 to 1 has been traditionally used and the ventilation requirement rounded off to 75 m^3/L (10,000 ft^3/gal) evaporated at the maximum flow rate of the spray apparatus.

Adequate mechanical ventilation throughout all the areas where flammable vapors or mists might be present is essential to prevent the formation of flammable mixtures. The volume of air movement necessary will vary with the arrangement of spraying operations, the amount of spray material used in a given length of time, and the rate of evaporation of the particular solvent.

Submitter Information Verification

Committee: FAA-AAA

Submission Date: Tue May 13 17:02:42 EDT 2025

Committee Statement

Committee Statement: The committee made this revision to update the values to be consistent with the MOS for rounding (accuracy +/- 10%).

Response Message: FR-19-NFPA 33-2025

Public Input No. 1-NFPA 33-2024 [Section No. B.1]



First Revision No. 46-NFPA 33-2025 [Section No. E.1.1]

E.1.1 NFPA Publications.

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

NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2022 2025 edition.

NFPA 30, *Flammable and Combustible Liquids Code*, 2024 2027 edition.

NFPA 51B, *Standard for Fire Prevention During Welding, Cutting, and Other Hot Work*, 2024 edition.

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

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

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

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

NFPA 72[®], *National Fire Alarm and Signaling Code*[®], 2022 2025 edition.

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

NFPA 86, *Standard for Ovens and Furnaces*, 2023 2027 edition.

NFPA 101[®], *Life Safety Code*[®], 2024 2027 edition.

NFPA 400, *Hazardous Materials Code*, 2022 2025 edition.

~~NFPA 484, *Standard for Combustible Metals*, 2022 edition.~~

~~NFPA 499, *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, 2027 edition.~~

~~NFPA 652, *Standard on the Fundamentals of Combustible Dust*, 2019 edition.~~

~~NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids*, 2020 edition.~~

~~NFPA 660, *Standard for Combustible Dusts and Particulate Solids*, 2025 edition.~~

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
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Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Tue May 27 12:01:15 EDT 2025

Committee Statement

Committee Statement: This revision adds NFPA 660 and deletes NFPA 652 and NFPA 654 which were both incorporated into NFPA 660. Revision also adds NFPA 499 into the NFPA Publications as it was incorporated into the standard by FR 22.

Response FR-46-NFPA 33-2025

Message:

[Public Input No. 30-NFPA 33-2025 \[Section No. E.1.1\]](#)



First Revision No. 3-NFPA 33-2025 [Section No. E.1.2]

E.1.2 Other Publications.

E.1.2.1 ASHRAE Publications.

ASHRAE, 180 Technology Parkway, Peachtree Corners, GA 30092.

ANSI/ASHRAE Standard 15, *Safety Standard for Refrigeration Systems*, 2024.

E.1.2.2 ASSP Publications.

American Society of Safety Professionals, 520 N. Northwest Hwy, Park Ridge, IL 60068.

ASSP ANSI/AIHA/ASSE Z9.7, *Recirculation of Air from Industrial Process Exhaust Systems*, 2007.

E.1.2.3 ASTM Publications.

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

ASTM D257, *Standard Test Methods for DC Resistance or Conductance of Insulating Materials*, 2014 (reapproved 2021) e1.

E.1.2.4 CENELEC Publications.

CENELEC, European Committee for Electrotechnical Standardization, CEN-CENELEC Management Centre, Rue de la Science 23, B-1040 Brussels, Belgium.

BS EN 50050-1, *Electrostatic hand-held spraying equipment — Safety requirements — Part 1: Hand-held spraying equipment for ignitable liquid coating materials*, 2013.

BS EN 50050-2, *Electrostatic hand-held spraying equipment — Safety requirements — Part 2: Hand-held spraying equipment for ignitable coating powder*, 2013.

BS EN 50050-3, *Electrostatic hand-held spraying equipment — Safety requirements — Part 3: Hand-held spraying equipment for ignitable flock*, 2013.

E.1.2.5 FEMA Publications.

Fire Equipment Manufacturers Association, Inc., 1300 Sumner Avenue, Cleveland, OH 44115-2851.

“Recommendations for Protection of Curtained Limited Finishing Workstations.”

E.1.2.6 FM Publications.

FM Global, 270 Central Avenue, Johnston, RI 02919.

FM 7260, *Electrostatic Finishing Equipment*, 2022.

FM 6036, *Flexible Hose Assemblies for Flammable Gases and/or Ignitable Liquids*, 2013.

FM 4651, *Plastic Suspended Ceiling Panels*, 1978.

E.1.2.7 ISA Publications.

International Society of Automation, 67 T. W. Alexander Drive, P.O. Box 12277, Research Triangle Park, NC 27709.

ANSI/ISA 60079-10-2 (12.10.05)-2013, *Explosive Atmospheres — Part 10-2: Classification of areas — Combustible dust atmospheres*, 2013.

E.1.2.8 SAE Publications.

SAE International, Society of Automotive Engineers, 901 15th Street, NW, Suite 520, Washington, DC 20005.

SAE J343, *Test and Test Procedures for SAE 100R Series Hydraulic Hose and Hose Assemblies*, 2017 2023 .

E.1.2.9 SMACNA Publications.

Sheet Metal and Air Conditioning Contractors' National Association, 4201 Lafayette Center Drive, Chantilly, VA 20151-1219.

ANSI/SMACNA 002, *Rectangular Industrial Duct Construction Standards*, 2011.

ANSI/SMACNA 005, *Round Industrial Duct Construction Standards*, 2013.

E.1.2.10 UL Publications.

~~Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096~~ UL Standards & Engagement, 1603 Orrington Ave. 2000, Evanston, IL 60201 .

UL 723S, *Outline of Investigation for Drop-Out Ceilings Installed Beneath Automatic Sprinklers*, 2006 (revised 2016) .

E.1.2.11 US Government Publications.

US Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401.

Title 29, Code of Federal Regulations, Part 1910.242(b), "Hand and Portable Power Tools and Equipment, General."

Title 40, Code of Federal Regulations, Part 63, Appendix A, "Test Methods, Pollutant Measurement Methods from Various Waste Media, Method 319 — Determination of Filtration Efficiency for Paint Overspray Arrestors."

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed Apr 02 13:41:33 EDT 2025

Committee Statement

Committee Statement: Revisions were made to update the titles and edition years in Other Publications. Revision also adds a new ASHRAE 15 reference to reflect new material made in FR 30.

Response Message: FR-3-NFPA 33-2025

Public Input No. 22-NFPA 33-2025 [Section No. E.1.2.2]

Public Input No. 36-NFPA 33-2025 [Section No. E.1.2.9]



First Revision No. 4-NFPA 33-2025 [Section No. E.3]

E.3 References for Extracts in Informational Sections.

NFPA 30, *Flammable and Combustible Liquids Code*, 2021 2024 .

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

Submitter Information Verification

Committee: FAA-AAA

Submittal Date: Wed Apr 02 15:06:35 EDT 2025

Committee Statement

Committee Statement: Updates to edition years were made in the References for Extracts in informational Sections.

Response Message: FR-4-NFPA 33-2025