

NFPA® 105

Standard for Smoke Door Assemblies and Other Opening Protectives

2025 Edition



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NFPA® 105

Standard for

Smoke Door Assemblies and Other Opening Protectives

2025 Edition

This edition of NFPA 105, *Standard for Smoke Door Assemblies and Other Opening Protectives*, was prepared by the Technical Committee on Fire Doors and Windows and acted on by the NFPA membership during the 2024 NFPA Technical Meeting held June 20, 2024. It was issued by the Standards Council on August 29, 2024, with an effective date of September 18, 2024, and supersedes all previous editions.

This edition of NFPA 105 was approved as an American National Standard on September 18, 2024.

Origin and Development of NFPA 105

This publication is the result of a multiyear project by the Technical Committee on Fire Doors and Windows and is based on the acknowledgment that smoke is the principal killer in destructive fires. Historically, fire doors have been permitted to have such clearances and deflections as would permit the passage of relatively great quantities of smoke. Those fire doors, when properly installed, have proven to be adequate barriers against the passage of fire, but improvement was needed to protect against the passage of smoke.

The first (1985) edition of NFPA 105 was a recommended practice and introduced parameters for door performance that would limit smoke spread through a door opening.

The third (1993) edition incorporated new information recognizing that smoke control doors in buildings protected by automatic sprinklers would have substantially lower pressures created by a potential fire.

The 1999 edition included modifications to address the pressure differentials caused by stack effect in elevator hoistways.

The 2003 edition incorporated editorial and formatting updates to comply with the *Manual of Style for NFPA Technical Committee Documents*, as well as formatting requirements for converting from a recommended practice to a standard. The 2003 edition also included significant modifications to Chapter 4 on installation and testing requirements and to Chapter 5 on maintenance requirements. Annex A contained a considerable amount of new and updated information.

The 2007 edition expanded the scope of the document to include smoke dampers. The title of the document was revised, and new chapters on the installation, inspection, testing, and maintenance of smoke dampers were provided. Other technical changes addressed the retention of maintenance records for smoke door assemblies.

The 2010 edition included modifications to smoke damper inspection and testing requirements. The title of the document was also revised.

The 2013 edition added references to NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, for the inspection and testing requirements of smoke door assemblies. Other technical changes addressed the inspection and testing of smoke dampers and labeling of smoke damper access panels.

The 2016 edition of NFPA 105 represented a significant expansion and update of the document.

For consistency with NFPA 80 and to allow for a more user-friendly document, a new chapter was added: Chapter 6, Swinging Doors, which contained provisions specific to the installation of side-hinged and pivoted swinging smoke door assemblies. Provisions for smoke dampers were moved to a new Chapter 7, Installation, Testing, and Maintenance of Smoke Dampers. Additional chapters will be added in future editions of NFPA 105 to address requirements for other specific types of smoke doors and opening protectives.



Also for consistency with NFPA 80, the inspection, testing, and maintenance provisions for smoke door assemblies in Chapter 5 were expanded to address multiple types of smoke doors as well as three types of testing — operational, acceptance, and periodic. A new chapter, Chapter 8, Smoke Protective Curtain Assemblies, addressed the installation, inspection, testing, and maintenance of smoke-protective curtain assemblies used to protect vertical openings. Significant technical changes were also added regarding the acceptance and periodic testing of smoke dampers. Finally, new definitions for *qualified person* and *smoke-protective curtain assembly* were added, along with updates to referenced publications to maintain the requirements and application of NFPA 105 current with industry trends and practices.

Changes for the 2019 edition of NFPA 105 focused primarily on provisions for smoke dampers. The new 7.3.1.2 required that the smoke damper manufacturer's installation and maintenance instructions be maintained on site for new smoke damper installations. Requirements in Chapter 7 for the inspection, testing, and maintenance of smoke dampers were updated with the addition of 7.6.3.3 on a remote inspection method. A new 7.6.2.3 was added to clarify the application of inspection requirements for single inaccessible dampers. New requirements were added to Section 7.5 to further clarify and update the process for smoke damper acceptance testing. A new opening protective that applied to smoke-protective curtain assemblies for hoistways was addressed in the new Chapter 9. A new definition was added to Chapter 3 to describe a smoke-protective curtain assembly for hoistways.

For the 2022 edition, the new 1.3.3 clarified that the standard applies to inspection, testing, and maintenance of all types of smoke-rated opening protectives; new definitions of *annual frequency* and *corridor damper* were provided in Section 3.3; Chapter 7 was revised to include corridor dampers, specify listing requirements, add inspection and testing documentation requirements, clarify that smoke damper inspection and testing must be completed by a qualified person, and enhance damper field modification requirements; and Section 9.1 was revised for testing and identification of smoke-protective curtain assemblies for hoistways. Referenced publications and extracts were also updated.

The 2025 edition includes new requirements in Chapter 7 for operability, prevention of blockage, replacement of dampers, visual inspection for dampers using a remote inspection method, and a performance-based design option for inspection, testing, and maintenance. New requirements have been added to Chapters 8 and 9 for listing of power operators. Referenced publications and extracts have also been updated, including revisions to the damper definitions in Chapter 3.

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2025 Edition

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Information on referenced and extracted publications can be found in Chapter 2 and Annex C.

Chapter 1 Administration

1.1 Scope. This standard shall prescribe minimum requirements for smoke door assemblies for use in providing safety to life and protection of property from smoke.

1.2* Purpose. The purpose of this standard shall be to provide a means to restrict the movement of smoke through door assemblies in order to maintain a tenable environment.

1.3* Application. This standard shall regulate the installation, maintenance, and testing of smoke door assemblies.

1.3.1* This standard shall regulate smoke door assemblies that are intended to restrict the passage of smoke at temperatures up to 400°F (204°C).

1.3.2* This standard shall not regulate elevator hoistway doors.

1.3.3* This standard shall regulate the periodic inspection, testing, and maintenance of all types of smoke-rated opening protectives.

1.4 Retroactivity. This standard is based on product and engineering practices recognized as acceptable at the date of issue. Therefore, the provisions of this standard are not intended to be applied retroactively to installations that were in compliance at the time of installation.

1.5 Equivalency.

1.5.1 This standard shall not prohibit the development of new, modified, or improved devices that meet the intent of these requirements. It shall be the responsibility of the manufacturer to furnish the information necessary to update the requirements pertaining to such new and improved devices.

1.5.2 For devices not described in this standard, the authority having jurisdiction (AHJ) shall request descriptive information from manufacturers that is provided by a testing laboratory concerning acceptable methods for satisfactory field installation based on fire tests and engineering studies for operation and maintenance considerations, where applicable.

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 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 92, *Standard for Smoke Control Systems*, 2024 edition.

NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*, 2022 edition.

2.3 Other Publications.

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

ASME A17.1/CSA B44, *Safety Code for Elevators and Escalators*, 2019.

2.3.2 BHMA Publications. Builders Hardware Manufacturers Association, 355 Lexington Avenue, 15th Floor, New York, NY 10017.

ANSI/BHMA A156.1, *Standard for Butts and Hinges*, 2021.

ANSI/BHMA A156.4, *Door Controls — Closers, Grade 1*, 2019.

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

UL 10B, *Fire Tests of Door Assemblies*, 2008, revised 2020.

UL 10C, *Positive Pressure Fire Tests of Door Assemblies*, 2016, revised 2021.

UL 555, *Fire Dampers*, 2006, revised 2020.

UL 555S, *Smoke Dampers*, 2014, revised 2020.

UL 864, *Standard for Control Units and Accessories for Fire Alarm Systems*, 2014, revised 2020.

UL 1784, *Air Leakage Tests of Door Assemblies*, 2015, revised 2020.

2.3.4 Other Publications.

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

▲ 2.4 References for Extracts in Mandatory Sections.

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 92, *Standard for Smoke Control Systems*, 2024 edition.

Chapter 3 Definitions

▲ 3.1 General.

■ **3.1.1** The definitions contained in this chapter shall apply to the terms used in this standard.

■ **3.1.2** Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used.

■ **3.1.3** *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3.2.4* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.5 Shall. Indicates a mandatory requirement.

3.2.6 Should. Indicates a recommendation or that which is advised but not required.

3.2.7 Standard. An NFPA standard, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and that is in a form generally suitable for mandatory reference by another standard or code or for

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3.3 General Definitions.

3.3.1 Annual Frequency. Occurring once per year, with a minimum of 9 months and a maximum of 15 months between each occurrence.

3.3.2 Damper.

▲ **3.3.2.1 Combination Fire-Smoke Damper.** A listed device installed in the ducts or air transfer openings of fire-resistance-rated walls, barriers, partitions, or floors that meets both the fire damper and smoke damper requirements. [90A, 2024]

3.3.2.2 Corridor Damper. A listed device intended for use where air ducts penetrate or terminate at horizontal openings in the ceilings of fire-resistance-rated corridors and where the corridor ceiling is constructed as required for the corridor walls. [90A, 2024]

▲ **3.3.2.3 Smoke Damper.** A listed device within an air distribution system to control the movement of smoke. [90A, 2024]

3.3.3 Qualified Person. A person who, by possession of a recognized degree, certificate, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with the subject matter, the work, or the project.

3.3.4 Smoke Door. The door component of a smoke door assembly.

3.3.5 Smoke Door Assembly. Any combination of a door, frame, hardware, and any other accessories that together restrict smoke movement through door openings by limiting the amount of air that can pass through the assembly.

3.3.6 Smoke-Protective Curtain Assembly. Assembly typically consisting of a fabric curtain, bottom bar, guides, coil, operating and closing system.

3.3.7 Smoke-Protective Curtain Assembly for Hoistways. An assembly typically consisting of a housing, smoke-protective curtain, side retention system, bottom bar, and closing device that deploys the curtain to protect a hoistway opening.

3.3.8 Temperature.

3.3.8.1 Ambient Temperature. An assumed air temperature at the exposed face of the door at or near 75°F (24°C).

3.3.8.2* Elevated Temperature. An assumed air temperature at the exposed face of the door in excess of ambient temperature.

3.3.9* Tenable Environment. An environment in which smoke and heat are limited or otherwise restricted to maintain the impact on occupants to a level that is not life threatening. [92, 2024]