First Revision No. 3506-NFPA 5000-2015 [Chapter 8 [Title Only]]

~~Fire-Resistive Materials and Construction~~ Features of Fire Protection

Submitter Information Verification

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Submittal Date: Thu Jul 30 18:39:32 EDT 2015

Committee Statement

Committee Statement: Consistent with title in NFPA 101 and inclusive of provisions found in the Chapter.
Response Message:

First Revision No. 3501-NFPA 5000-2015 [New Section after 8.1.2.2]

8.1.2.3* Wall Marking and Identification.

For other than existing assemblies, where there is an accessible concealed floor, floor/ceiling, or attic space, fire walls, fire barriers, smoke barriers, and smoke partitions shall be permanently identified with signs or stenciling in the concealed space and shall comply with all of the following:

(1) Be located in accessible concealed floor, floor/ceiling, or attic spaces

(2) Be located within 15 ft (4572 mm) of the end of each wall and at intervals not exceeding 30 ft (9144 mm) measured horizontally along the wall or partition

(3) Include lettering not less than 3 in. (76 mm) in height with a minimum ⅜ in. (9.5 mm) stroke in a contrasting color

(4) Identify the wall type and its fire resistive rating as applicable

Supplemental Information

File Name	Description
5000_A.8.1.2.3.docx	

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Committee Statement

Committee Statement: This proposal supports the concept covered by Public Input 119 and 121 for marking fire and smoke rated walls. It clarifies the following points:

The requirements are placed in the general section in Chapter 8 so they are applicable for fire barriers, smoke barriers, and smoke partitions.

Wall markings are only required for assemblies covered by NFPA 101 and NFPA 5000.

The markings are only required for walls that have accessible concealed spaces, and the markings are to be provided in the concealed spaces.

Response Message:

Public Input No. 119-NFPA 5000-2015 [New Section after 8.2.2.1]

Public Input No. 121-NFPA 5000-2015 [New Section after A.8.2.1.1]

A.8.1.2.3 Acceptable wording may read as follows:

2 HOUR FIRE BARRIER, SMOKE BARRIER-PROTECT ALL OPENINGS

First Revision No. 3513-NFPA 5000-2015 [New Section after 8.2.3.3.2]

8.2.4 Smoke Barrier Used as a Fire Barrier.

A smoke barrier shall be permitted to be used as a fire barrier, provided that it meets the applicable requirements of Sections 8.2 through 8.9 .

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Committee Statement

Committee Statement: Section 8.11 currently contains text for fire barriers used as smoke barriers. New language clarifies the application of the Code for those smoke barriers that are also designed and required to comply with the provisions for fire-resistance rated construction. Consistent language is also being added to NFPA 101.

Response Message:

First Revision No. 3515-NFPA 5000-2015 [Sections 8.7, 8.8, 8.9]

8.7 Opening Protectives.

8.7.1 ~~Fire Doors and Fire Windows.~~ General.

~~Where required doors and windows serve as opening protectives, they shall comply with the requirements of~~ NFPA 80 ~~,~~ ~~*Standard for Fire Doors and Other Opening Protectives*~~ . Every opening in a fire barrier shall be protected to limit the spread of fire and restrict the movement of smoke from one side of the fire barrier to the other.

~~**8.7.2** Minimum Fire Protection Rating.~~

Opening protectives shall have a minimum fire protection rating as specified in Table 8.7.2 .

Table 8.7.2 Minimum Fire Ratings for Opening Protectives in Fire Resistance–Rated Assemblies and Fire Rated Glazing Markings

Component	Walls and Partitions (hr)	Fire Door Assemblies (hr)	Door Vision Panel Maximum Size (in. 2) h	Fire Rated Glazing Marking Door Vision Panel	Minimum Side Light/Transom Assembly Rating (hr)		Fire Rated Gla Marking Sid Light/Transom I	
					Fire protection	Fire resistance	Fire protection	F resis
Elevator hoistways	2	1 1½	155 sq. in. f	D-H-90 or D-H-W-90	NP	2	NP	D-H-\
	1	1	155 sq. in. f	D-H-60 or D-H-W-60	NP	1	NP	D-H-
Elevator lobby (per 7.2.13.4)	1	1	100 sq. in. c	≤100 sq.in., D-H-T-60 or D-H-W-60 h	NP	1	NP	D-H-
				>100 sq.in., D-H-W-60 h				
Vertical shafts (including stairways, exits and refuse chutes	2	1 1½	Maximum size tested	D-H-90 or D-H-W-90	NP	2	NP	D-H-\
	1	1	Maximum size tested	D-H-60 or D-H-W-60	NP	1	NP	D-H-
Replacement panels in existing vertical shafts	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-V
Fire barriers	3	3	100 sq. in. c	≤100 sq.in., D-H-180 or D-H-W-180 h	NP	3	NP	D-H-\
				>100 sq.in., D-H-W-180 h				
	2	1 1½	Maximum size tested	D-H-90 or D-H-W-90	NP	2	NP	D-H-\
	1	¾	Maximum size tested d	D-H-45 or D-H-W-45	¾ d	¾ d	D-H-45	D-H-
	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-V

Component	Walls and Partitions (hr)	Fire Door Assemblies (hr)	Door Vision Panel Maximum Size (in.^{2}) h	Fire Rated Glazing Marking Door Vision Panel	Minimum Side Light/Transom Assembly Rating (hr)		Fire Rated Gla Marking Sid Light/Transom I	
					Fire protection	Fire resistance	Fire protection	F resis
Horizontal exits	2	1 1/2	Maximum size tested	D-H-90 or D-H-W-90	NP	2	NP	D-H-\
Horizontal exits served by bridges between buildings	2	3/4	Maximum size tested d	D-H-45 or D-H-W-45	3/4 d	3/4 d	D-H-45	D-H-
Exit access corridors a	1	1/3	Maximum size tested	D-20 or D-W-20	3/4	3/4	D-H-45	D-H-
	1/2	1/3	Maximum size tested	D-20 or D-W-20	1/3	1/3	D-H-20	D-H-
Smoke barriers a	1	1/3	Maximum size tested	D-20 or D-W-20	3/4	3/4	D-H-45	D-H-
Smoke partitions a,b	1/2	1/3	Maximum size tested	D-20 or D-W-20	1/3	1/3	D-H-20	D-H-

NP: Not permitted.

a. Fire doors are not required to have a hose stream test per NFPA 252, *Standard Methods of Fire Tests of Door Assemblies* ; ANSI/UL 10B, *Standard for Fire Tests of Door Assemblies* ; or ANSI/UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies* .

b. For residential board and care, see 32.2.3.1 and 33.2.3.1.

c. Fire resistance rated glazing tested to NFPA 251 shall be permitted in the maximum size tested (*see 8.3.3.7*).

d. Maximum area of individual exposed lights shall be 1296 in.^{2} (0.84 m^2) with no dimension exceeding 54 in. (1.37 m) unless otherwise tested. [**80:** Table 4.4.5 Note b and **80:** 4.4.5.1].

e. Fire rated glazing in exterior windows shall be marked in accordance with Table 8.3.3.12.

f. See ASME A17.1, *Safety Code for Elevators and Escalators* , for additional information.

g. See ASME A17.3, *Safety Code for Existing Elevators and Escalators* , for additional information.

h. Note: 1 in.^{2} = 0.00064516 m^2 .

8.7.2 Minimum Fire Protection Rating.

8.7.2.1*

Fire protection ratings for products required to comply with Section 8.7 shall be as determined and reported by a nationally recognized testing agency in accordance with NFPA 252 ; UL 10B, *Standard for Fire Tests of Door Assemblies* ; UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies* ; NFPA 257 ; or UL 9, *Standard for Fire Tests of Window Assemblies* .

8.7.2.2

The fire protection rating for opening protectives in fire barriers, fire-rated smoke barriers, and fire-rated smoke partitions shall be in accordance with Table 8.7.2.2 .

Opening protectives shall have a minimum fire protection rating as specified in Table 8.7.2.2 .

Table 8.7.2.2 Minimum Fire Ratings for Opening Protectives in Fire Resistance–Rated Assemblies and Fire-Rated Glazing Markings

Component	Walls and Partitions (hr)	Fire Door Assemblies (hr)	Door Vision Panel Maximum Size ($in.^2$)	Fire-Rated Glazing Marking Door Vision Panel	Minimum Side Light/Transom Assembly Rating (hr)		Fire-Rated Glazi Marking Side Light/Transom Pa	
					Fire protection	Fire resistance	Fire protection	Fir resista
Elevator hoistways	2	1 ½	155 $in.^2$ c	D-H-90 or D-H-W-90	NP	2	NP	D-H-W-
	1	1	155 $in.^2$ f	D-H-60 or D-H-W-60	NP	1	NP	D-H-W
Elevator lobby (per 7.2.13.4)	1	1	100 $in.^2$ c	≤100 $in.^2$, D-H-T-60 or D-H-W-60	NP	1	NP	D-H-W
				>100 $in.^2$, D-H-W-60				
Vertical shafts (including stairways, exits, and refuse chutes)	2	1 ½	Maximum size tested	D-H-90 or D-H-W-90	NP	2	NP	D-H-W-
	1	1	Maximum size tested	D-H-60 or D-H-W-60	NP	1	NP	D-H-W
Replacement panels in existing vertical shafts	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-W-2
Fire barriers	3	3	100 $in.^2$ c	≤100 $in.^2$, D-H-180 or D-H-W-180	NP	3	NP	D-H-W-
				>100 $in.^2$, D-H-W-180				

Component	Walls and Partitions (hr)	Fire Door Assemblies (hr)	Door Vision Panel Maximum Size (in.^{2})	Fire-Rated Glazing Marking Door Vision Panel	Minimum Side Light/Transom Assembly Rating (hr)		Fire-Rated Glazi Marking Side Light/Transom Pa	
					Fire protection	Fire resistance	Fire protection	Fir resista
	2	1 ½	Maximum size tested	D-H-90 or D-H-W-90	NP	2	NP	D-H-W-
	1	¾	Maximum size tested [d]	D-H-45 or D-H-W-45	¾ [d]	¾ [d]	D-H-45	D-H-W
	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-W-2
Horizontal exits	2	1 ½	Maximum size tested	D-H-90 or D-H-W-90	NP	2	NP	D-H-W-
Horizontal exits served by bridges between buildings	2	¾	Maximum size tested [d]	D-H-45 or D-H-W-45	¾ [d]	¾ [d]	D-H-45	D-H-W
Exit access corridors [e]	1	⅓	Maximum size tested	D-20 or D-W-20	¾	¾	D- H-45	D-H-W
	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-H-W
Smoke barriers [e]	1	⅓	Maximum size tested	D-20 or D-W-20	¾	¾	D-H-45	D-H-W
Smoke partitions [e,f]	½	½	Maximum size tested	D-20 or D-W-20	½	½	D-H-20	D-H-W

For SI Units, 1 in.^{2} = 0.00064516 m^2.

NP: Not permitted.

[a] Fire resistance–rated glazing tested to NFPA 251 shall be permitted in the maximum size tested (*see 8.3.3.7*).

[b] Fire-rated glazing in exterior windows shall be marked in accordance with Table 8.3.3.12.

[c] See ASME A17.1, *Safety Code for Elevators and Escalators* , for additional information.

[d] Maximum area of individual exposed lights shall be 1296 in.^{2} (0.84 m^2), with no dimension exceeding 54 in. (1.37 m) unless otherwise tested. [**80:** Table 4.4.5 Note b and **80:** 4.4.5.1].

[e] Fire doors are not required to have a hose stream test per NFPA 252 ; UL 10B, *Standard for Fire Tests of Door Assemblies* ; or UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies* .

f For residential board and care, see 32.2.3.1 and 33.2.3.1.

8.7.2.3

Openings required to have a fire protection rating by Table 8.7.2.2 shall be protected by approved, listed, and labeled fire door assemblies and fire window assemblies and their accompanying hardware, including all frames, closing devices, anchorage, and sills in accordance with the requirements of NFPA 80 , except as otherwise specified in this *Code* .

8.7.3 Fire Doors.

~~Fire-rated glazing assemblies marked as complying with hose stream requirements (H) shall be permitted in applications that do not require compliance with hose stream requirements. Fire-rated glazing assemblies marked as complying with temperature rise requirements (T) shall be permitted in applications that do not require compliance with temperature rise requirements. Fire-rated glazing assemblies marked with ratings (XXX) that exceed the ratings required by this *Code* shall be permitted.~~

8.7.3.1

Fire door assemblies shall be installed in accordance with NFPA 80 .

8.7.3.2

All fire door assemblies shall bear an approved label.

8.7.3.3

The maximum size of the fire doors shall not exceed that specified in NFPA 80 , except as modified by Chapter 11 .

8.7.3.4*

Unless otherwise specified, fire doors shall be self-closing or automatic-closing.

8.7.4* Floor Fire Door ~~Closers~~ Assemblies .

8.7.4.1

~~Unless otherwise specified, fire doors shall be self-closing or automatic-closing.~~ Floor fire door assemblies used to protect openings in fire resistance–rated floors shall be tested in the horizontal position in accordance with NFPA 288 and shall achieve a fire resistance rating not less than the assembly being penetrated.

8.7.4.2

~~Fire doors used to protect the means of egress shall be self-closing or automatic-closing in accordance with 11.2.1.8.1 .~~ Floor fire door assemblies shall be listed and labeled.

8.7.5 ~~Initiating Devices.~~ Fire Windows.

~~Detection devices activating the closer shall conform to *NFPA 72* , *National Fire Alarm and Signaling Code* ® .~~

8.7.5.1

Fire window assemblies shall be installed in accordance with NFPA 80 .

8.7.5.2

All fire window assemblies shall bear an approved label.

8.7.5.3*

Fire window assemblies shall be permitted in fire barriers having a required fire resistance rating of 1 hour or less and shall be of an approved type with the appropriate fire protection rating for the location in which they are installed.

8.7.6 ~~Fire Door Assemblies and Fire Window Assemblies.~~ Windows in Exterior Walls.

8.7.6.1

~~Openings required to have a fire protection rating by Table 8.7.2 shall be protected by approved, listed, and labeled fire door assemblies and fire window assemblies and their accompanying hardware, including all frames, closing devices, anchorage, and sills in accordance with the requirements of NFPA 80 , *Standard for Fire Doors and Other Opening Protectives* , except as otherwise specified in this *Code* .~~ Three-quarter-hour fire protection–rated windows in exterior walls shall be permitted to have an area not over 84 ft^2 (7.8 m^2), with neither the width nor the height exceeding 12 ft (3660 mm).

8.7.6.2

~~Fire protection ratings for products intended to comply with 8.7.6 shall be as determined and reported by a nationally recognized testing agency in accordance with NFPA 252 , *Standard Methods of Fire Tests of Door Assemblies* , or NFPA 257 , *Standard on Fire Test for Window and Glass Block Assemblies* .~~ Fire windows shall be either fixed or automatic-closing.

~~**8.7.6.2.1**~~

~~NFPA 257 shall evaluate fire protection–rated glazing under positive pressure.~~

~~**8.7.6.2.2**~~

~~NFPA 252 , *Standard Methods of Fire Tests of Door Assemblies* , or UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies* , shall evaluate side-hinged or pivoted-swinging doors under positive pressure.~~

~~**8.7.6.2.3**~~

~~NFPA 252 , *Standard Methods of Fire Tests of Door Assemblies* , shall evaluate doors, other than side-hinged or pivoted-swinging doors, with the neutral pressure plane no higher than the top of the door.~~

~~**8.7.6.2.4**~~

~~All fire door assemblies and fire window assemblies shall bear an approved label.~~

8.7.7 ~~Opening Protectives.~~ Glazing.

8.7.7.1

~~Opening protectives in fire walls and fire barrier walls shall have a fire protection rating in accordance with Table 8.7.2 .~~ Glazing materials that have been listed and labeled to indicate the type of opening to be protected for fire protection purposes shall be permitted to be used in approved opening protectives in accordance with their listing and with the maximum sizes tested.

8.7.7.2

~~Fire door assemblies and fire window assemblies shall be installed in accordance with NFPA 80, *Standard for Fire Doors and Other Opening Protectives*.~~ Fire-rated glazing assemblies shall be permitted as follows:

(1) Those marked as complying with hose stream requirements (H) shall be permitted in applications that do not require compliance with hose stream requirements.

(2) Those marked as complying with temperature rise requirements (T) shall be permitted in applications that do not require compliance with temperature rise requirements.

(3) Those marked with ratings that exceed the ratings required by this *Code* shall be permitted.

Table 8.7.7.2 Marking Fire-Rated Glazing Assemblies

Fire Test Standard	Marking	Definition of Marking
ASTM E119 or UL 263	W	Meets wall assembly criteria
NFPA 257 or UL 9	OH	Meets fire window assembly criteria, including the hose stream test
NFPA 252, UL 10B, or UL 10C	D	Meets fire door assembly criteria
	H	Meets fire door assembly hose stream test
	T	Meets to 450°F (232°C) temperature rise criteria for 30 minutes
	XXX	The time, in minutes, of the fire resistance or fire protection rating of the glazing assembly

8.7.7.3

~~Fire resistance–rated glazing complying with 8.2.2.4.2 shall be permitted in fire doors and fire window assemblies in accordance with their listings.~~ Fire protection–rated glazing shall be marked in accordance with Table 8.7.2.2 and Table 8.7.7.3, and such marking shall be permanently affixed.

8.7.7.4

~~The maximum size of fire doors shall not exceed that specified in NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, except as modified by Chapter 11.~~ Fire protection–rated glazing shall be permitted in fire barriers having a required fire resistance rating of 1 hour or less and shall be of an approved type with the appropriate fire protection rating for the location in which the barriers are installed.

8.7.7.5*

Glazing in fire window assemblies shall be of a design that has been tested to meet the conditions of acceptance of NFPA 257 or UL 9, *Standard for Fire Tests of Window Assemblies*.

8.7.7.6

Fire protection–rated glazing in fire door assemblies shall be of a design that has been tested to meet the conditions of acceptance of NFPA 252; UL 10B, *Standard for Fire Tests of Door Assemblies*; or UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies*.

8.7.7.7

Fire resistance–rated glazing complying with 8.2.2.4.2 shall be permitted in fire doors and fire window assemblies in accordance with their listings.

8.7.7.8

Nonsymmetrical fire protection–rated glazing systems shall be tested with each face exposed to the furnace, and the assigned fire protection rating shall be the shortest duration obtained from the two tests conducted in compliance with NFPA 257 or UL 9, *Standard for Fire Tests of Window Assemblies* .

8.7.7.9

The total combined area of glazing in fire-rated window assemblies and fire-rated door assemblies used in fire barriers shall not exceed 25 percent of the area of the fire barrier that is common with any room.

8.7.8 ~~Floor Fire Door Assemblies.~~ Sidelights and Transoms.

Glazing used in sidelights and transoms adjacent to 20-minute doors in 1-hour corridor fire barriers shall be tested in accordance with 8.7.2 , including hose stream, and shall attain a minimum 45-minute fire protection rating.

~~**8.7.8.1**~~

~~Floor fire door assemblies used to protect openings in fire resistance–rated floors shall be tested in the horizontal position in accordance with NFPA 288 , *Standard Methods of Fire Tests of Floor Fire Door Assemblies Installed Horizontally in Fire Resistance–Rated Floor Systems* , and shall achieve a fire resistance rating not less than the assembly being penetrated.~~

~~**8.7.8.2**~~

~~Floor fire door assemblies shall be approved, listed, and labeled.~~

~~**8.7.9** Use of Wired Glass.~~

~~**8.7.9.1**~~

~~Wired glass that is ¼ in. (6.3 mm) thick and labeled for fire protection purposes shall be permitted to be used in approved opening protectives, with the maximum sizes in accordance with their listing.~~

~~**8.7.9.2**~~

~~Other glazing materials that have been tested and labeled to indicate the type of opening to be protected for fire protection purposes shall be permitted to be used in approved opening protectives in accordance with their listing and with the maximum sizes tested.~~

~~**8.7.10** Fire Window Assemblies.~~

~~Fire window assemblies shall be permitted in fire barriers having a required fire resistance rating of 1 hour or less and shall be of an approved type with the appropriate fire protection rating for the location in which they are installed.~~

~~**8.7.11** Windows in Exterior Walls.~~

~~**8.7.11.1**~~

~~Three-quarter-hour fire protection-rated windows in exterior walls shall be permitted to have an area not over 84 ft^2 (7.8 m^2), with neither the width nor the height exceeding 12 ft (3660 mm).~~

~~**8.7.11.2**~~

~~Fire windows shall be either fixed or automatic-closing.~~

8.7.12 Nonsymmetrical Glazing Systems.

Nonsymmetrical fire protection–rated glazing systems shall be tested with each face exposed to the furnace, and the assigned fire protection rating shall be the shortest duration obtained from the two tests conducted in compliance with NFPA 257 , *Standard on Fire Test for Window and Glass Block Assemblies* .

8.7.13 Sidelights and Transoms.

Glazing used in sidelights and transoms adjacent to 20-minute doors in 1-hour corridor fire barriers shall be tested in accordance with 8.7.6 and shall attain a minimum 45-minute fire protection rating, including hose stream.

8.7.14 Identification of Fire Protection–Rated Glazing.

Fire protection–rated glazing shall be marked in accordance with Table 8.7.2 and Table 8.7.14 , and such marking shall be permanently affixed.

Table 8.7.14 Marking Fire-Rated Glazing Assemblies

Fire Test Standard	Marking	Definition of Marking
ASTM E 119 or ANSI/UL 263	W	Meets wall assembly criteria
NFPA 257 or ANSI/UL 9	OH	Meets fire window assembly criteria, including the hose stream test
NFPA 252 or UL 10B or ANSI/UL 10C	D	Meets fire door assembly criteria
-	H	Meets fire door assembly hose stream test
-	T	Meets to 450°F (232°C) temperature rise criteria for 30 minutes
-	XXX	The time, in minutes, of the fire resistance or fire protection rating of the glazing assembly

8.8 Penetrations.

8.8.1 General.

The provisions of Section 8.8 shall govern the materials and methods of construction used to protect through-penetrations and membrane penetrations in fire walls, fire barrier walls, and fire resistance–rated horizontal assemblies.

8.8.1.1

The provisions of Section 8.8 shall govern the materials and methods of construction used to protect through-penetrations and membrane penetrations in fire walls, fire barrier walls, and fire resistance–rated horizontal assemblies.

8.8.1.2

Penetrations shall be installed in accordance with a tested system, and installed and maintained in accordance with the manufacturer's instructions.

8.8.2* Firestop Systems and Devices Required.

Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents and exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device.

8.8.2.1 ~~Testing.~~

~~The firestop system or device shall be tested in accordance with ASTM E 814, *Standard Test Method for Fire Tests of Through-Penetration Fire Stops*, or UL 1479, *Standard for Safety for Fire Tests of Through-Penetration Fire Stops*, under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) between the exposed and the unexposed surface of the test assembly.~~ Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents and exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device.

8.8.2.2 ~~Alternative Requirements.~~ Testing.

The firestop system or device shall be tested in accordance with ASTM E814, *Standard Test Method for Fire Tests of Through-Penetration Fire Stops*, or UL 1479, *Standard for Fire Tests of Through-Penetration Firestops*, at a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) between the exposed and the unexposed surface of the test assembly.

8.8.2.2.1

The requirements of 8.8.2 shall not apply where otherwise permitted by any one of the following:

Where penetrations are tested and installed as part of an assembly in accordance with the UL 263, *Fire Tests of Building Construction and Materials*, and/or ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, rated assembly

Where penetrations through floors are enclosed in a shaft enclosure designed as a fire barrier

Where concrete, grout, or mortar has been used to fill the annular spaces around cast-iron, copper, or steel piping, or steel conduit or tubing, that penetrates one or more concrete or masonry fire resistance–rated assemblies, and the following also apply:

The nominal diameter of each penetrating item shall not exceed 6 in. (150 mm)

The opening size shall not exceed 144 in.^{2} (92,909 mm^2)

Thickness of the concrete, grout, or mortar shall be the full thickness of the assembly.

Where firestopping materials are used with the following penetrating items, the penetration is limited to one floor, and the firestopping material is capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste when subjected to the time–temperature fire conditions of UL 263, *Fire Tests of Building Construction and Materials*, and/or ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) at the location of the penetration for the time period equivalent to the required fire resistance rating of the assembly penetrated:

Steel, ferrous, or copper cables

Cable or wire with steel jackets

Cast-iron, steel, or copper pipes

Steel conduit or tubing

8.8.2.2.2

The maximum nominal diameter of the penetrating item, as indicated in 8.8.2.2.1 (4)(a) through (d), shall not be greater than 4 in. (100 mm) and shall not exceed an aggregate 100 in.^{2} (64,520 mm^2) opening in any 100 ft^2 (9.3 m^2) of floor or wall area.

8.8.2.3 F Ratings.

Firestop systems and devices shall have an ~~F rating~~ F rating of at least ~~1 hour~~ 1 hour, but not less than the required fire resistance rating of the fire barrier penetrated.

8.8.2.4 T Ratings.

~~Penetrations in fire resistance–rated horizontal assemblies shall be required to have a T rating of at least 1 hour, but not less than the fire resistance rating of the horizontal assembly, and shall not be required for either of the following:~~

~~A T rating is not required for floor penetrations contained within the cavity of a wall assembly.~~

~~A T rating is not required for penetrations through floors or floor assemblies where the penetration is not in direct contact with combustible material.~~

8.8.2.4.1

Penetrations in fire resistance–rated horizontal assemblies shall be required to have a T rating of not less than 1 hour, and not less than the fire resistance rating of the horizontal assembly.

8.8.2.4.2

A T rating shall not be required for either of the following:

(1) Floor penetrations contained within the cavity of a wall assembly

(2) Penetrations through floors or floor assemblies where the penetration is not in direct contact with combustible material

8.8.2.5 Alternative Firestop Requirements.

8.8.2.5.1

The requirements of 8.8.2 shall not apply where otherwise permitted by any one of the following:

(1)* Where penetrations are tested and installed as part of an assembly in accordance with UL 263, *Standard for Fire Tests of Building Construction and Materials*, or ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*

(2) Where penetrations through floors are enclosed in a shaft enclosure designed as a fire barrier

(3) Where concrete, grout, or mortar has been used to fill the annular spaces around cast-iron, copper, or steel piping, conduit, or tubing, that penetrates one or more concrete or masonry fire resistance–rated assemblies, and all of the following applies:

(a) The nominal diameter of each penetrating item does not exceed 6 in. (150 mm)

(b) The opening size does not exceed 144 in.^{2} (92,909 mm^2)

(c) Thickness of the concrete, grout, or mortar is the full thickness of the assembly

(4) Where penetration is limited to one floor, the firestopping material is capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste when subjected to the time–temperature fire conditions of UL 263, *Standard for Fire Tests of Building Construction and Materials*, or ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) at the location of the penetration for the time period equivalent to the required fire resistance rating of the assembly penetrated, and the firestopping materials are used with the following penetrating items:

(a) Steel, ferrous, or copper cables

(b) Cable or wire with steel jackets

(c) Cast-iron, steel, or copper pipes

(d) Steel conduit or tubing

8.8.2.5.2

The maximum nominal diameter of the penetrating item, as indicated in 8.8.3.5.1(4)(a) through (d), shall not be greater than 4 in. (100 mm) and shall not exceed an aggregate 100 in.^{2} (64,520 mm^2) opening in any 100 ft^2 (9.3 m^2) of floor or wall area.

8.8.3 ~~Use of~~ Sleeves ~~for Penetration~~.

Where the penetrating item uses a sleeve to penetrate the wall or floor, the sleeve shall be securely set in the wall or floor, and the space between the item and the sleeve shall be filled with a material that complies with 8.8.2.

8.8.4 Insulation and Coverings.

Insulation and coverings for penetrating items shall not pass through the wall or floor unless the insulation or covering has been tested as part of the firestop system or device.

8.8.5 Vibration Isolation.

Where designs take transmission of vibrations into consideration, any vibration isolation shall meet one of the following conditions:

(1) It shall be made on either side of the wall or floor.

(2) It shall be designed for the specific purpose.

8.8.6 Transitions.

8.8.6.1

Where piping penetrates a fire resistance–rated wall or floor assembly, combustible piping shall not connect to noncombustible piping within 36 in. (915 mm) of the firestop system or device, unless it can be demonstrated that the transition will not reduce the fire resistance rating.

8.8.6.2

Unshielded couplings shall not be used to connect noncombustible piping to combustible piping~~,~~ unless it can be demonstrated that the transition complies with the fire-resistive protection requirements of 8.8.2.

8.8.7 Membrane Penetrations.

~~Membrane penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents, exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a membrane of a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device and shall comply with 8.8.2 through 8.8.6.2 .~~

8.8.7.1

Membrane penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents, exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a membrane of a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device and shall comply with 8.8.2 through 8.8.6.2 .

8.8.7.2

The firestop system or device shall be tested in accordance with ASTM ~~E 814~~ E814 , *Standard Test Method for Fire Tests of Through-Penetration Fire Stops*, or UL 1479, *Standard for Fire Tests of Through-Penetration Firestops*, under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) between the exposed and the unexposed surface of the test assembly, unless one of the following ~~criteria is met~~ conditions applies :

(1) Membrane penetrations of ceilings where the ceiling is not an integral part of a fire resistance–rated floor/ceiling or roof/ceiling assembly

(2) Membrane penetrations of steel, ferrous, or copper conduit, piping or tubing, and steel electrical outlet boxes and wires, or combustion vents or exhaust vents where the annular space is protected with an approved material and the aggregate area of the openings does not exceed 100 in.^{2} (64,520 mm^2) in any 100 ft^2 (9.3 m^2) of ceiling area

(3) ~~Membrane penetrations for electrical~~ Electrical outlet boxes and fittings, provided that such devices are listed for use in fire resistance–rated assemblies and are installed in accordance with their listing

(4) ~~Annular~~ The annular space created by the membrane penetration of a fire sprinkler, provided that the space is covered by a metal escutcheon plate

8.8.7.3

Where walls or partitions are required to have a fire resistance rating of not less than 1 hour, recessed fixtures shall be installed in the wall or partition in such a manner that the required fire resistance is not reduced, unless one of the following criteria is met:

(1) Any steel electrical box not exceeding 16 in.^{2} (10,300 mm^2) in area shall be permitted where the aggregate area of the openings provided for the boxes does not exceed 100 in.^{2} (64,520 mm^2) in any 100 ft^2 (9.3 m^2) of wall area, and, where outlet boxes are installed on opposite sides of the wall, the boxes shall be separated by one of the following means:

(a) ~~By a horizontal~~ Horizontal distance of not less than 24 in. (610 mm)

(b) ~~By a horizontal~~ Horizontal distance of not less than the depth of the wall cavity where the wall cavity is filled with cellulose loose-fill, rock wool, or slag wool insulation

(c) ~~By solid~~ Solid fireblocking in accordance with 8.14.2

(d) ~~By other~~ Other listed materials and methods

(2) Membrane penetrations for any listed electrical outlet box made of any material shall be permitted, provided that such boxes have been tested for use in fire resistance–rated assemblies and are installed in accordance with the instructions included in the listing.

(3) The annular space created by the membrane penetration of a fire sprinkler shall be permitted, provided that the space is covered by a metal escutcheon plate.

(4) Membrane penetrations by electrical boxes of any size or type, which have been listed as part of a wall opening protective material system for use in fire resistance–rated assemblies and are installed in accordance with the instructions included in the listing, shall be permitted.

8.8.8 Ducts and Air-Transfer Openings.

8.8.8.1 General.

The provisions of 8.8.8 shall govern the materials and methods of construction used to protect ducts and air-transfer openings in fire walls, fire resistance–rated horizontal assemblies, and fire barrier walls.

8.8.8.2* Fire Damper Requirements.

Fire dampers shall be installed to protect ducts and air-transfer openings that penetrate fire barriers and fire walls as required by other sections of this *Code*.

8.8.8.2.1

Fire dampers shall be designed and tested in accordance with the requirements of UL 555, *Standard for Fire Dampers,* and shall have the minimum fire protection rating specified in Table 8.8.8.2.1 for the rating of the assembly penetrated.

Table 8.8.8.2.1 Fire Damper Rating

Fire Resistance Rating of Assembly	Minimum Damper Rating (hr)
3-hr or greater fire ~~resistance-rated~~ resistance–rated assemblies	3
Less than 3-hr fire ~~resistance-rated~~ resistance–rated assemblies	1½
Ceiling of floor/ceiling or roof/ceiling assemblies	See 8.8.8.6.

8.8.8.2.2

In systems where fans continue to operate in ~~the~~ emergency mode, dynamic fire dampers shall be required.

8.8.8.2.3

Fire dampers shall be required in the following locations:

(1) Ducts and air-transfer openings penetrating walls or partitions having a fire resistance rating of 2 or more hours

(2) Ducts and air-transfer openings penetrating shaft walls having a fire resistance rating of 1 or more hours

(3) Ducts and air-transfer openings penetrating floors that are required to have protected openings where the duct also is not protected by a shaft enclosure

(4) Air-transfer openings that occur in walls or partitions that are required to have a fire~~-resistive~~ resistance rating of 30 minutes or more

8.8.8.2.4

Fire dampers shall not be required in the following locations:

(1) In floors that do not require protected floor openings

(2) In a duct system serving only one floor and used only for exhaust of air to the outside and not penetrating a wall or partition having a required fire resistance rating of 2 hours or more or passing entirely through the system and contained within its own dedicated shaft

(3) Where branch ducts connect to enclosed exhaust risers in which the airflow is upward, and steel subducts at least 22 in. (560 mm) in length are carried up inside the riser at each inlet

8.8.8.3 Installation.

8.8.8.3.1

Air-conditioning, heating, and ventilating ductwork and related equipment, including fire dampers, smoke dampers, combination fire and smoke dampers, and ceiling radiation dampers, shall be installed in accordance with NFPA 90A~~, *Standard for the Installation of Air-Conditioning and Ventilating Systems* ,~~ or NFPA 90B~~, *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems* ,~~ as specified in Chapter 50, where applicable.

8.8.8.3.2

The equipment specified in 8.8.8.3.1 shall be installed in accordance with the requirements of 8.8.8, the manufacturer's installation instructions, its listing, and the mechanical code as specified in Chapter 50.

8.8.8.4 Access and Identification.

8.8.8.4.1 Access.

Fire and smoke dampers shall be provided with an approved means of access, as follows:

(1) The means of access shall be large enough to allow inspection and maintenance of the damper and its operating parts.

(2) The access shall not affect the integrity of fire resistance–rated assemblies.

(3) The access openings shall not reduce the fire resistance rating of the assembly.

(4) Access doors in ducts shall be tight-fitting and suitable for the required duct construction.

(5) Access and maintenance shall comply with the requirements of the mechanical code.

8.8.8.4.2 Identification.

Access points to fire and smoke dampers shall be permanently identified by one of the following:

(1) Label having letters not less than ½ in. (13 mm) in height, reading as follows in 8.8.8.4.2(a), (b), or (c):

(a) FIRE/SMOKE DAMPER

(b) SMOKE DAMPER

(c) FIRE DAMPER

(2) Symbols as approved by the authority having jurisdiction

8.8.8.5* Fire Damper Actuation Device.

The operating temperature of the heat-actuating device shall be approximately 50°F (27.8°C) above the normal temperature within the duct system, but not less than 160°F (71°C); or it shall be not more than 286°F (141°C) where located in a required smoke control system; or, where a combination fire and smoke damper is installed, it shall not exceed 350°F (177°C) where located in a smoke control system.

8.8.8.6 Ceiling Radiation Damper Requirements.

8.8.8.6.1

Ceiling radiation dampers or other methods of protecting openings in fire resistance–rated floor/ceiling or roof/ceiling assemblies shall comply with the construction details of the tested floor/ceiling or roof/ceiling assembly or with listed ceiling air diffusers or listed ceiling radiation dampers.

8.8.8.6.2

Ceiling dampers shall be tested in accordance with UL 555C, *Standard for Ceiling Dampers*.

8.8.8.6.3

Ceiling radiation dampers shall not be required where either of the following apply:

(1) Fire tests in accordance with UL 263, *Standard for Fire Tests of Building Construction and Materials,* or ASTM ~~E 119~~ E119, *Standard Test Methods for Fire Tests of Building Construction and Materials* , ~~fire tests~~ have shown that ceiling radiation dampers are not necessary in order to maintain the fire resistance rating of the assembly.

(2) Exhaust duct penetrations are protected in accordance with 8.8.7, and the exhaust ducts are located within the cavity of a wall and do not pass through another dwelling unit or tenant space.

8.9* Joints.

8.9.1 General.

The provisions of Section 8.9 shall govern the materials and methods of construction used to protect joints within or between fire walls, fire barrier walls, floors, and floor/ceiling and roof/ceiling assemblies in accordance with 8.9.2, and at the intersection of the exterior wall and the perimeter of the floor assembly in accordance with 8.9.~~48.9.48.9.48.9.3~~ .

8.9.2 Joint System ~~Required~~ Requirements .

8.9.2.1*

Joints made within or between fire resistance–rated assemblies shall be protected with a joint system that is designed and tested to prevent the spread of fire for a time period equal to that of the assembly in which the joint is located.

8.9.2.2

~~The materials, systems, or devices specified in 8.9.2.1 shall be tested as part of the assembly in accordance with the requirements of ASTM E 1966, *Standard Test Method for Fire-Resistive Joint Systems* , or ANSI/UL 2079, *Standard for Tests for Fire Resistance of Building Joint Systems* .~~ Joints made within or at the perimeter of fire barriers used as smoke barriers shall be capable of restricting the transfer of smoke in accordance with 8.11.7.4 .

~~**8.9.2.2.1**~~

~~Testing of the joint system shall be representative of the actual installation.~~

~~**8.9.2.2.2**~~

~~All joint systems shall be tested at their maximum joint width in accordance with the requirements of ASTM E 1966 or ANSI/UL 2079 under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) for a time period equal to that of the assembly.~~

~~**8.9.2.2.3**~~

~~All test specimens shall comply with the minimum height or length required by the standard.~~

~~**8.9.2.2.4**~~

~~Wall assemblies shall be subjected to a hose stream test in accordance with ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials* , or UL 263, *Standard for Fire Tests of Building Construction and Materials* .~~

8.9.2.3

Joints shall be installed in accordance with a tested system, and installed and maintained in accordance with the manufacturer's instructions.

8.9.2.4

Testing of the joint system shall be representative of the actual installation suitable for the required engineering demand without compromising the fire resistance rating of the assembly or the structural integrity of the assembly.

8.9.2.5

The materials, systems, or devices specified in 8.9.2.1 shall be tested as part of the assembly in accordance with the requirements of ASTM E1966, *Standard Test Method for Fire-Resistive Joint Systems* , or UL 2079, *Standard for Tests for Fire Resistance of Building Joint Systems* .

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8.9.2.6

Joints made between a fire barrier and a non-fire-resistance–rated floor or roof sheathing, slab, or deck above shall be protected by an approved continuity head-of-wall joint system installed as tested in accordance with ASTM E2837, *Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies* , and the system shall have an F rating and T rating of not less than the required fire resistance rating of the fire barrier.

8.9.2.7

All joint systems shall be tested at their maximum joint width in accordance with the requirements of ASTM E1966, *Standard Test Method for Fire-Resistive Joint Systems,* or UL 2079, *Standard for Tests for Fire Resistance of Building Joint Systems,* under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) for a time period equal to that of the assembly.

8.9.2.8

All test specimens shall comply with the minimum height or length required by the standard.

8.9.2.9

Wall assemblies shall be subjected to a hose stream test in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials* , or UL 263, *Standard for Fire Tests of Building Construction and Materials* .

8.9.3 Exterior Curtain Walls and the Perimeter Joint.

8.9.3.1*

The provisions of 8.9.3 shall be intended to restrict the interior vertical passage of flame and hot gases from one floor to another at the location where the floor intersects the inside of an exterior curtain wall assembly.

8.9.3.2

Floor assemblies that are required to be a fire barrier shall extend to, and be tight against, the exterior curtain wall.

8.9.3.3

Where fire resistance–rated floor or floor/ceiling assemblies are required, voids created at the intersection of the exterior curtain wall assemblies and such floor or floor/ceiling assemblies shall be sealed with approved materials.

8.9.3.3.1

The approved materials specified in 8.9.3.3 shall be securely installed in accordance with the approved system.

8.9.3.3.2

The approved materials specified in 8.9.3.3 shall be capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected to the time–temperature fire conditions of UL 263, *Standard for Fire Tests of Building Construction and Materials* , or ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials* , under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) for a time period at least equal to the fire resistance rating of the floor assembly, or when tested in accordance with ASTM E2307, *Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-Story Test Apparatus* , and having an F rating equal to the fire resistance rating of the floor assembly.

8.9.3.4

Height and fire resistance requirements for curtain wall spandrels shall comply with 37.1.4 .

8.9.4 Exterior Curtain Walls and the Perimeter Joint.

8.9.4.1*

The provisions of 8.9.4~~8.9.4~~8.9.4~~8.9.4~~8.9.3 shall be intended to restrict the interior vertical passage of flame and hot gases from one floor to another at the location where the floor intersects the inside of an exterior curtain wall assembly.

8.9.4.2

Floor assemblies that are required to be a fire barrier shall extend to, and be tight against, the exterior curtain wall.

8.9.4.3

Where fire resistance–rated floor or floor/ceiling assemblies are required, voids created at the intersection of the exterior curtain wall assemblies and such floor or floor/ceiling assemblies shall be sealed with approved materials.

8.9.4.3.1

The approved materials specified in 8.9.4.3~~8.9.4.3~~8.9.4.3~~8.9.4.3~~8.9.3.3 shall be securely installed in accordance with the approved system.

8.9.4.3.2

The approved materials specified in 8.9.4.3~~8.9.4.3~~8.9.4.3~~8.9.4.3~~8.9.3.3 shall be capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected to the time–temperature fire conditions of UL 263, *Fire Tests of Building Construction and Materials*, and/or ASTM ~~E 119~~ E119 , *Standard Test Methods for Fire Tests of Building Construction and Materials*, under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) for a time period at least equal to the fire resistance rating of the floor assembly, or when tested in accordance with ASTM ~~E 2307~~ E2307 , *Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-Story Test Apparatus*, and having an F rating equal to the fire resistance rating of the floor assembly.

8.9.4.3.3

Where the fire resistance rating of the floor assembly is less than the time period determined in accordance with 8.9.4.3.2~~8.9.4.3.2~~8.9.4.3.2~~8.9.4.3.2~~8.9.3.3.2 , the time period shall be permitted to be not less than the fire resistance rating of the floor assembly.

8.9.4.4

Height and fire resistance requirements for curtain wall spandrels shall comply with 37.1.4 .

Supplemental Information

File Name	Description
5000_A.8.7.7.5.docx	
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Submitter Information Verification

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Committee Statement

Committee Statement: ALL: At the end of the 2015 revision cycle a task group was formed to evaluate the requirements for opening protectives. The current requirements for opening protectives are unorganized and not presented in a logical, user friendly format. The goal of the proposed changes is to reorganize the provisions for opening protectives and to make consistent the provisions in both NFPA 101 and NFPA 5000. The proposed changes are intended to be strictly editorial in nature and include reordering and renumbering requirements for better usability and application of the opening protective provisions. Any revisions that were outside of the scope of the task group were discussed by the committee and are substantiated below.

Former section 8.7.6.2.1 was deleted as NFPA 257 requires all fire protection rated glazing shall be evaluated under positive pressure and is addressed by the general reference to NFPA 257.

Section 8.7.3.1: 2015 text has multiple references for fire doors to be compliant with NFPA 80. References to NFPA 80 was combined to require installation, inspection, testing, and maintenance in accordance with NFPA 80 in once section.

Section 8.7.3.4: The pointer to Section 11.2.1.8 was deleted as it is too limiting and implies that the provision may only be applicable to those doors in the means of egress as addressed by 11.2.1.8.1 or buildings with low or ordinary hazard contents.

Section 8.7.3.5: Existing provision referencing NFPA 72 was deleted as it is already addressed by the reference to NFPA 80 noted above.

Section 8.8.3 and 8.9.2.3: To be consistent with other opening protectives, the ‘Testing, Installation, Inspection, and Maintenance’ directives for penetrations and joints need to be specific in the code. New language provides installation and maintenance provisions for penetrations. Language is consistence with opening protectives such as fire doors and glazing providing language that installation, testing and maintenance be in accordance with NFPA 80.

Section 8.9: The current requirements do not clearly explain the purpose for the joint protection in the fire barrier or when a fire barrier is used as a smoke barrier. Revisions consolidate the requirements already scattered through the section into an easier to use format.

A.8.7.7.5 is being added for consistency with NFPA 101.

Response Message:

Public Input No. 92-NFPA 5000-2015 [Sections 8.7, 8.8, 8.9]

Public Input No. 124-NFPA 5000-2015 [Section No. 8.7.4]

8.7.7.5 Some window assemblies have been tested to meet the conditions of acceptance of ASTM E 119 or ANSI/UL 263. Where such assemblies are used, the provisions of Section 8.3 or Section 8.4 should be applied instead of those of 8.7.2.1.

8.7 Opening Protectives.

8.7.1 General. Every opening in a fire barrier shall be protected to limit the spread of fire and restrict the movement of smoke from one side of the fire barrier to the other.

8.7.2 Minimum Fire Protection Rating

8.7.2.1* Fire protection ratings for products intended required to comply with 8.7 shall be as determined and reported by a nationally recognized testing agency in accordance with NFPA 252; ANSI/UL 10B; ANSI/UL 10C; NFPA 257; or ANSI/UL 9.

8.7.2.2 The fire protection rating for opening protectives in fire barriers, fire-rated smoke barriers, and fire-rated smoke partitions shall be in accordance with Table 8.7.2.2.

INSERT TABLE 8.7.2 FROM NFPA 5000 2015 EDITION AS TABLE 8.7.2.2

8.7.2.3 Openings required to have a fire protection rating by Table 8.7.2.2 shall be protected by approved, listed, and labeled fire door assemblies and fire window assemblies and their accompanying hardware, including all frames, closing devices, anchorage, and sills in accordance with the requirements of NFPA 80, Standard for Fire Doors and Other Opening Protectives, except as otherwise specified in this Code.

8.7.3 Fire Doors

8.7.3.1 Fire door assemblies shall be installed in accordance with NFPA 80.

8.7.3.2 All fire door assemblies shall bear an approved label.

8.7.3.3 The maximum size of fire doors shall not exceed that specified in NFPA 80, except as modified by Chapter 11.

8.7.3.4* Unless otherwise specified, fire doors shall be self-closing or automatic-closing.

8.7.4 Floor Fire Door Assemblies.

8.7.4.1 Floor fire door assemblies used to protect openings in fire resistance–rated floors shall be tested in the horizontal position in accordance with NFPA 288 and shall achieve a fire resistance rating not less than the assembly being penetrated.

8.7.4.2 Floor fire door assemblies shall be listed, and labeled.

8.7.5 Fire Windows

8.7.5.1 Fire window assemblies shall be installed in accordance with NFPA 80.

8.7.5.2 All fire window assemblies shall bear an approved label.

8.7.5.3* Fire window assemblies shall be permitted in fire barriers having a required fire resistance rating of 1 hour or less and shall be of an approved type with the appropriate fire protection rating for the location in which they are installed.

8.7.6 Windows in Exterior Walls.

8.7.6.1 Three-quarter-hour fire protection-rated windows in exterior walls shall be permitted to have an area not over 84 ft2 (7.8 m2), with neither the width nor the height exceeding 12 ft (3660 mm).

8.7.6.2 Fire windows shall be either fixed or automatic-closing.

8.7.7 Glazing

8.7.7.1 Glazing materials that have been listed and labeled to indicate the type of opening to be protected for fire protection purposes shall be permitted to be used in approved opening protectives in accordance with their listing and with the maximum sizes tested.

8.7.7.2 Fire-rated glazing assemblies marked as complying with hose stream requirements (H) shall be permitted in applications that do not require compliance with hose stream requirements. Fire-rated glazing assemblies marked as complying with temperature rise requirements (T) shall be permitted in applications that do not require compliance with temperature rise requirements. Fire-rated glazing assemblies marked with ratings (XXX) that exceed the ratings required by this Code shall be permitted.

8.7.7.3 Fire protection–rated glazing shall be marked in accordance with Table 8.7.2.2 and Table 8.7.7.2, and such marking shall be permanently affixed.

INSERT TABLE 8.7.14 FROM NFPA 5000 2015 EDITION AS TABLE 8.7.2.2

8.7.7.4 Fire protection–rated glazing shall be permitted in fire barriers having a required fire resistance rating of 1 hour or less and shall be of an approved type with the appropriate fire protection rating for the location in which the barriers are installed.

8.7.7.5* Glazing in fire window assemblies shall be of a design that has been tested to meet the conditions of acceptance of NFPA 257 or ANSI/UL 9. Fire protection–rated glazing in fire door assemblies shall be of a design that has been tested to meet the conditions of acceptance of NFPA 252; ANSI/UL 10B; or ANSI/UL 10C.

8.7.7.6 Fire resistance–rated glazing complying with 8.2.2.4.2 shall be permitted in fire doors and fire window assemblies in accordance with their listings.

8.7.7.7 Nonsymmetrical fire protection–rated glazing systems shall be tested with each face exposed to the furnace, and the assigned fire protection rating shall be the shortest duration obtained from the two tests conducted in compliance with NFPA 257 or ANSI/UL 9.

8.7.7.8 The total combined area of glazing in fire-rated window assemblies and fire-rated door assemblies used in fire barriers shall not exceed 25 percent of the area of the fire barrier that is common with any room

8.7.8 Sidelights and Transoms. Glazing used in sidelights and transoms adjacent to 20-minute doors in 1-hour corridor fire barriers shall be tested in accordance with 8.7.2, including hose stream, and shall attain a minimum 45-minute fire protection rating.

8.8 Penetrations.

8.8.1 General.

8.8.1.1 The provisions of Section 8.8 shall govern the materials and methods of construction used to protect through-penetrations and membrane penetrations in fire walls, fire barrier walls, and fire resistance–rated horizontal assemblies.

8.8.1.2 Penetrations shall be installed in accordance with a tested system, and installed and maintained in accordance with the manufacturer's instructions.

8.8.2* Firestop Systems and Devices Required.

8.8.2.1 Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents and exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device.

8.8.2.2 Testing. The firestop system or device shall be tested in accordance with ASTM E 814 or ANSI/UL 1479 at a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) between the exposed and the unexposed surface of the test assembly.

8.8.2.3 F Ratings. Firestop systems and devices shall have an F-rating of not less than 1-hour, and not less than the required fire resistance rating of the fire barrier penetrated.

8.8.2.4 T Ratings.

8.8.2.4.1 Penetrations in fire resistance–rated horizontal assemblies shall be required to have a T rating of not less than 1 hour, and not less than the fire resistance rating of the horizontal assembly.

8.8.2.4.2 A T rating shall not be required for either of the following:
(1) Floor penetrations contained within the cavity of a wall assembly.
(2) Penetrations through floors or floor assemblies where the penetration is not in direct contact with combustible material.

8.8.2.5 Alternative Firestop Requirements.

8.8.3.5.1 The requirements of 8.8.2 shall not apply where otherwise permitted by any one of the following:
(1)*Where penetrations are tested and installed as part of an assembly in accordance with the ANSI/UL 263 or ASTM E 119 rated assembly
(2) Where penetrations through floors are enclosed in a shaft enclosure designed as a fire barrier

(3) Where concrete, grout, or mortar has been used to fill the annular spaces around cast-iron, copper, or steel piping, conduit, or tubing, that penetrates one or more concrete or masonry fire resistance–rated assemblies, and all of the following shall apply:
(a) The nominal diameter of each penetrating item shall not exceed 6 in. (150 mm)
(b) The opening size shall not exceed 144 in.2 (92,909 mm2)
(c) Thickness of the concrete, grout, or mortar shall be the full thickness of the assembly.
(4) Where firestopping materials are used with the following penetrating items, the penetration is limited to one floor, and the firestopping material is capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste when subjected to the time–temperature fire conditions of ANSI/UL 263 or ASTM E 119, under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) at the location of the penetration for the time period equivalent to the required fire resistance rating of the assembly penetrated:
(a) Steel, ferrous, or copper cables
(b) Cable or wire with steel jackets
(c) Cast-iron, steel, or copper pipes
(d) Steel conduit or tubing

8.8.2.5.2 The maximum nominal diameter of the penetrating item, as indicated in 8.8.3.5.1(4)(a) through (d), shall not be greater than 4 in. (100 mm) and shall not exceed an aggregate 100 in.2 (64,520 mm2) opening in any 100 ft2 (9.3 m2) of floor or wall area.

8.8.3 Sleeves. Where the penetrating item uses a sleeve to penetrate the wall or floor, the sleeve shall be securely set in the wall or floor, and the space between the item and the sleeve shall be filled with a material that complies with 8.8.2.

8.8.4 Insulation and Coverings. Insulation and coverings for penetrating items shall not pass through the wall or floor unless the insulation or covering has been tested as part of the firestop system or device

8.8.5 Vibration Isolation. Where designs take transmission of vibrations into consideration, any vibration isolation shall meet one of the following conditions:
(1) It shall be provided on either side of the wall or floor.
(2) It shall be designed for the specific purpose.

8.8.6 Transitions.

8.8.6.1 Where piping penetrates a fire resistance–rated wall or floor assembly, combustible piping shall not connect to noncombustible piping within 36 in. (915 mm) of the firestop system or device, unless it can be demonstrated that the transition will not reduce the fire resistance rating.

8.8.6.2 Unshielded couplings shall not be used to connect noncombustible piping to combustible piping, unless it can be demonstrated that the transition complies with the fire-resistive protection requirements of 8.8.2.

8.8.7 Membrane Penetrations.

8.8.7.1 Membrane penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents, exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a membrane of a wall, floor, or floor/ceiling assembly

constructed as a fire barrier shall be protected by a firestop system or device and shall comply with 8.8.2 through 8.8.6.2.

8.8.7.2 The firestop system or device shall be tested in accordance with ASTM E 814 or ANSI/UL 1479 at a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) between the exposed and the unexposed surface of the test assembly, unless one of the following criteria is met:
(1) Membrane penetrations of ceilings that are not an integral part of a fire resistance–rated floor/ceiling or roof/ceiling assembly
(2) Membrane penetrations of steel, ferrous, or copper conduits, and pipes, tubes, or combustion vents or exhaust vents where the annular space is protected with an approved material and the aggregate area of the openings does not exceed 100 in.2 (64,520 mm2) in any 100 ft2 (9.3 m2) of ceiling area
(3) Electrical outlet boxes and fittings, provided that such devices are listed for use in fire resistance–rated assemblies and are installed in accordance with their listing
(4) The annular space created by the membrane penetration of a fire sprinkler, provided that the space is covered by a metal escutcheon plate

8.8.7.3 Where walls or partitions are required to have a minimum 1 hour fire resistance rating, recessed fixtures shall be installed in the wall or partition in such a manner that the required fire resistance is not reduced, unless one of the following criteria is met:
(1) Any steel electrical box not exceeding 16 in.2 (10,300 mm2) in area shall be permitted where the aggregate area of the openings provided for the boxes does not exceed 100 in.2 (64,520 mm2) in any 100 ft2 (9.3 m2) of wall area, and, where outlet boxes are installed on opposite sides of the wall, the boxes shall be separated by one of the following means:
(a) Horizontal distance of not less than 24 in. (610 mm)
(b) Horizontal distance of not less than the depth of the wall cavity where the wall cavity is filled with cellulose loose-fill, rock wool, or slag wool insulation
(c) Solid fireblocking in accordance with 8.14.2
(d) Other listed materials and methods
(2) Membrane penetrations for any listed electrical outlet box made of any material shall be permitted, provided that such boxes have been tested for use in fire resistance–rated assemblies and are installed in accordance with the instructions included in the listing.
(3) The annular space created by the membrane penetration of a fire sprinkler shall be permitted, provided that the space is covered by a metal escutcheon plate.
(4) Membrane penetrations by electrical boxes of any size or type, which have been listed as part of a wall opening protective material system for use in fire resistance–rated assemblies and are installed in accordance with the instructions included in the listing, shall be permitted.

8.8.8 Ducts and Air-Transfer Openings.

8.8.8.1 General. The provisions of 8.8.8 shall govern the materials and methods of construction used to protect ducts and air-transfer openings in fire walls, fire resistance–rated horizontal assemblies, and fire barrier walls.

8.8.8.2* Fire Damper Installation Requirements. Fire dampers shall be installed to protect ducts and air-transfer openings that penetrate fire barriers and fire walls as required by other sections of this Code.

8.8.8.2.1

Fire dampers shall be designed and tested in accordance with the requirements of UL 555 and shall have the minimum fire protection rating specified in Table 8.8.8.2.1 for the rating of the assembly penetrated.

INSERT Table 8.8.8.2.1 FROM NFPA 5000 2015 EDITION

8.8.8.2.2 In systems where fans continue to operate in the emergency mode, dynamic fire dampers shall be required.

8.8.8.2.3 Fire dampers shall be required in the following locations:
(1) Ducts and air-transfer openings penetrating walls or partitions having a fire resistance rating of 2 or more hours
(2) Ducts and air-transfer openings penetrating shaft walls having a fire resistance rating of 1 or more hours
(3) Ducts and air-transfer openings penetrating floors that are required to have protected openings where the duct also is not protected by a shaft enclosure
(4) Air-transfer openings that occur in walls or partitions that are required to have a fire-resistive rating of 30 minutes or more

8.8.8.2.4 Fire dampers shall not be required in the following locations:
(1) In floors that do not require protected floor openings
(2) In a duct system serving only one floor and used only for exhaust of air to the outside and not penetrating a wall or partition having a required fire resistance rating of 2 hours or more or passing entirely through the system and contained within its own dedicated shaft
(3) Where branch ducts connect to enclosed exhaust risers in which the airflow is upward, and steel subducts at least 22 in. (560 mm) in length are carried up inside the riser at each inlet

8.8.8.3 Installation.

8.8.8.3.1 Air-conditioning, heating, and ventilating ductwork and related equipment, including fire dampers, smoke dampers, combination fire and smoke dampers, and ceiling radiation dampers, shall be installed in accordance with NFPA 90A or NFPA 90B as specified in Chapter 50, where applicable.

8.8.8.3.2 The equipment specified in 8.8.8.3.1 shall be installed in accordance with the requirements of 8.8.8, the manufacturer's installation instructions, its listing, and the mechanical code as specified in Chapter 50.

8.8.8.4 Access and Identification.

8.8.8.4.1 Access Fire and smoke dampers shall be provided with an approved means of access, as follows:
(1) The means of access shall be large enough to allow inspection and maintenance of the damper and its operating parts.
(2) The access shall not affect the integrity of fire resistance–rated assemblies.
(3) The access openings shall not reduce the fire resistance rating of the assembly.
(4) Access doors in ducts shall be tight-fitting and suitable for the required duct construction.

(5) Access and maintenance shall comply with the requirements of the mechanical code.

8.8.8.4.2 Identification. Access points to fire and smoke dampers shall be permanently identified by one of the following:
(1) Label having letters not less than 1⁄2 in. (13 mm) in height reading as follows in 8.8.8.4.2(a), (b), or (c):
(a) FIRE/SMOKE DAMPER
(b) SMOKE DAMPER
(c) FIRE DAMPER
(2) Symbols as approved by the authority having jurisdiction

8.8.8.5***** Fire Damper Actuation Device. The operating temperature of the heat-actuating device shall be approximately 50°F (27.8°C) above the normal temperature within the duct system, but not less than 160°F (71°C); or it shall be not more than 286°F (141°C) where located in a required smoke control system; or, where a combination fire and smoke damper is installed, it shall not exceed 350°F (177°C) where located in a smoke control system.

8.8.8.6 Ceiling Radiation Damper Requirements.

8.8.8.6.1 Ceiling radiation dampers or other methods of protecting openings in fire resistance–rated floor/ceiling or roof/ceiling assemblies shall comply with the construction details of the tested floor/ceiling or roof/ceiling assembly or with listed ceiling air diffusers or listed ceiling radiation dampers.

8.8.8.6.2 Ceiling dampers shall be tested in accordance with UL 555C.

8.8.8.6.3 Ceiling radiation dampers shall not be required where either of the following apply:
(1) ANSI/UL 263 or ASTM E 119 fire tests have shown that ceiling radiation dampers are not necessary in order to maintain the fire resistance rating of the assembly.
(2) Exhaust duct penetrations are protected in accordance with 8.8.7, and the exhaust ducts are located within the cavity of a wall and do not pass through another dwelling unit or tenant space.

8.9* Joints.

8.9.1 General. The provisions of Section 8.9 shall govern the materials and methods of construction used to protect joints within or between fire walls, fire barrier walls, floors, and floor/ceiling and roof/ceiling assemblies in accordance with 8.9.2, and at the intersection of the exterior wall and the perimeter of the floor assembly in accordance with 8.9.3.

8.9.2 Joint System Requirements.

8.9.2.1* Joints made within or between fire resistance–rated assemblies shall be protected with a joint system that is designed and tested to prevent the spread of fire for a time period equal to that of the assembly in which the joint is located.

8.9.2.2 Joints made within or at the perimeter of fire barriers used as smoke barriers shall be capable of restricting the transfer of smoke in accordance with 8.11.7.4.

8.9.2.3 Joints shall be installed in accordance with a tested system, and installed and maintained in accordance with the manufacturer's instructions.

8.9.2.4 Testing of the joint system shall be representative of the actual installation suitable for the required engineering demand without compromising the fire resistance rating of the assembly or the structural integrity of the assembly.

8.9.2.5 The materials, systems, or devices specified in 8.9.2.1 shall be tested as part of the assembly in accordance with the requirements of ASTM E 1966 or ANSI/UL 2079.

8.9.2.6 All joint systems shall be tested at their maximum joint width in accordance with the requirements of ASTM E 1966 or ANSI/UL 2079 under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) for a time period equal to that of the assembly.

8.9.2.7 All test specimens shall comply with the minimum height or length required by the standard.

8.9.2.8 Wall assemblies shall be subjected to a hose stream test in accordance with ASTM E 119 or ANSI/UL 263.

8.9.3 Exterior Curtain Walls and the Perimeter Joint.

8.9.3.1* The provisions of 8.9.3 shall be intended to restrict the interior vertical passage of flame and hot gases from one floor to another at the location where the floor intersects the inside of an exterior curtain wall assembly.

8.9.3.2 Floor assemblies that are required to be a fire barrier shall extend to, and be tight against, the exterior curtain wall.

8.9.3.3 Where fire resistance–rated floor or floor/ceiling assemblies are required, voids created at the intersection of the exterior curtain wall assemblies and such floor or floor/ceiling assemblies shall be sealed with approved materials.

8.9.3.3.1 The approved materials specified in 8.9.3.3 shall be securely installed in accordance with the approved system.

8.9.3.3.2 The approved materials specified in 8.9.3.3 shall be capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected to the time–temperature fire conditions of ANSI/UL 263 or ASTM E 119, under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) for a time period at least equal to the fire resistance rating of the floor assembly, or when tested in accordance with ASTM E 2307, Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-Story Test Apparatus, and having an F rating equal to the fire resistance rating of the floor assembly.

8.9.3.3.3 Where the fire resistance rating of the floor assembly is less than the time period determined in accordance with 8.9.3.3.2, the time period shall be permitted to be not less than the fire resistance rating of the floor assembly.

8.9.3.4 Height and fire resistance requirements for curtain wall spandrels shall comply with 37.1.4.

First Revision No. 8001-NFPA 5000-2015 [Detail]

Add new text:

8.9.2.2.3 Joints made between a fire barrier and a non-fire-resistance-rated floor or roof sheathing, slab or deck above shall be protected by an approved continuity head of wall joint system installed as tested in accordance with ASTM E2837,*Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies* and the system shall have an F rating and T rating of not less than the required fire resistance rating of the fire barrier.

Submitter Information Verification

Submitter Full Name: KRISTIN BIGDA
Organization: NATIONAL FIRE PROTECTION ASSOC
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 11 13:24:53 EDT 2015

Committee Statement and Meeting Notes

Committee Statement: The extension of the fire barrier to the next horizontal assembly needs to be tested as the assembly itself. The ASTM standard provides the continuity to protect the system consistent with the barrier.

Response Message:

Committee Notes:

Date	Submitted By	
Aug 11, 2015	KRISTIN BIGDA	ballotable detail, new section 8.9.2.2.3

Public Input No. 120-NFPA 5000-2015 [New Section after 8.9.2.2]

First Revision No. 3509-NFPA 5000-2015 [Section No. 8.10.3.1]

8.10.3.1

Doors in smoke partitions shall comply with 8.10.3.2 through ~~8.10.3.5~~ 8.10.3.6.

Submitter Information Verification

Submitter Full Name: Kristin Bigda
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 04 14:04:45 EDT 2015

Committee Statement

Committee Statement: Renumbering section per new 8.10.3.6.
Response Message:

First Revision No. 3505-NFPA 5000-2015 [New Section after 8.10.3.5]

8.10.3.6

Shutters that protect openings shall be automatic closing upon detection of smoke by smoke detectors installed in accordance with *NFPA 72* .

Submitter Information Verification

Submitter Full Name: Kristin Bigda
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 30 18:37:25 EDT 2015

Committee Statement

Committee Statement: In order to limit the transfer of smoke an opening provided with a shutter must close upon smoke detector activation and not merely a fusible link. The new language will provide direction on how to install a shutter in a smoke partition to avoid problems during commissioning.

Response Message:

First Revision No. 3510-NFPA 5000-2015 [Sections 8.11.5.2, 8.11.5.3, 8.11.5.4, 8.11.5.5]

8.11.5.2

Penetrations for cables, cable trays, conduits, pipes, tubes, vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor/ceiling assembly constructed as a smoke barrier, or through the ceiling membrane of ~~a~~ the roof/ceiling of a smoke barrier, shall be protected by a listed system ~~or a material capable of restricting the transfer of smoke.~~ tested in accordance with the requirements of UL 1479 for air leakage. The air leakage rate of the penetration assemblies, measured at 0.30 in. (7.47 Pa) of water in both the ambient temperature and elevated temperature tests, shall not exceed:

(1) 5 ft^3/m per ft^2 (0.025 m^3/s per m^2) of penetration opening for each through-penetration firestop system

(2) A total cumulative leakage of 50 ft^3/m (0.024 m^3/s) for any 100 ft^2 (9.3 m^2) of wall area or floor area

8.11.5.3

Where a smoke barrier is also constructed as a fire barrier, the penetrations shall be protected in accordance with the requirements of Section 8.8 to limit the spread of fire for a time period equal to the fire resistance rating of the assembly, as required by 8.11.5, to restrict the transfer of smoke, unless the requirements of 8.11.5.4 are met.

8.11.5.4

Where sprinklers penetrate a single membrane of a ~~fire resistance-rated~~ fire resistance–rated assembly in buildings equipped throughout with an approved automatic fire sprinkler system, noncombustible escutcheon plates shall be permitted, provided that the space around each sprinkler penetration does not exceed ½ in. (13 mm), measured between the edge of the membrane and the sprinkler.

8.11.5.5

Where the penetration item uses a sleeve to penetrate the smoke barrier, the sleeve shall be securely set in the smoke barrier, and the space between the item and the sleeve shall be filled with a listed system or a material capable of restricting the transfer of smoke in accordance with 8.11.5.2 .

Submitter Information Verification

Submitter Full Name: Kristin Bigda
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 04 14:32:22 EDT 2015

Committee Statement

Committee Statement: Penetrations through smoke barriers are to restrict the passage of smoke. In NFPA 101/5000, there is no performance test standard listed nor value provided for the designer to use for compliance. Using this performance requirement will provide a measure of consistency and predictability for the installed system.

A nationally recognized testing laboratory through performance testing proves that any product is smoke resistant after it is tested. Otherwise, smoke barriers receive whatever material that the contractors think works for limiting smoke. The quantified air leakage rating ("L") in UL 1479 provides designers a quantified value to communicate through construction documents to contractors for compliance.

Over 1/3 of the tested Firestop Systems have L Ratings. The labor and material to install an L rated firestop system is the same as non L Rated firestop assembly.

This would follow the same approach currently taken in NFPA 5000 for other elements within smoke barriers and would be consistent with the current smoke barrier requirements in other model codes. Consistent changes are also being proposed for NFPA 101.

Response Message:

Public Input No. 117-NFPA 5000-2015 [Sections 8.11.5.2, 8.11.5.3, 8.11.5.4, 8.11.5.5]

First Revision No. 3511-NFPA 5000-2015 [Section No. 8.11.7]

8.11.7 Joints.

8.11.7.1

The provisions of 8.11.7 shall govern the materials and methods of construction used to protect joints in between and at the perimeter of smoke barriers where smoke barriers meet other smoke barriers, the floor or roof deck above, or the outside walls.

8.11.7.2

Joints made within, between, or at the perimeter of smoke barriers shall be protected with a listed joint system ~~or a material~~ that is ~~capable of restricting the transfer of smoke.~~ tested in accordance with the requirements of UL 2079, *Tests for Fire Resistance of Building Joint Systems* , for air leakage. The L rating of the joint system shall not exceed 5 ft^3 /m per ft (0.00775 m^3 /s per m) of joint at 0.30 in. (7.47 Pa) of water for both the ambient temperature and elevated temperature tests.

8.11.7.3

Joints made within or between smoke barriers shall be protected with a listed joint system or a material that is capable of restricting the transfer of smoke in accordance with 8.11.7.2 .

8.11.7.4

Smoke barriers that are constructed as fire barriers shall be protected with a listed joint system that is designed and tested to resist the spread of fire for a time period equal to the required fire resistance rating of the assembly in accordance with Section 8.9 and to restrict the transfer of smoke.

8.11.7.5

Testing of the joint system in a smoke barrier that also serves as fire barrier shall be representative of the actual installation suitable for the required engineering demand without compromising the fire resistance rating of the assembly or the structural integrity of the assembly.

Submitter Information Verification

Submitter Full Name: Kristin Bigda
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 05 11:03:58 EDT 2015

Committee Statement

Committee Statement: Joints in or between smoke barriers are to restrict the passage of smoke. In NFPA 101/5000, there is no performance test standard listed nor value provided for the

designer to use for compliance.

A nationally recognized testing laboratory through performance testing proves that any product is smoke resistant after it is tested. Otherwise, smoke barriers receive whatever material that the contractors think works for limiting smoke. The quantified air leakage rating ("L") based on UL 2079 testing provides designers a quantified value to communicate through construction documents to contractors for compliance.

Over 1/3 of the tested Firestop Systems have L Ratings. The labor and material to install an L rated firestop system is the same as non L Rated firestop assembly.

This would follow the same approach currently taken in NFPA 5000 for other elements within smoke barriers and would be consistent with the current smoke barrier requirements in other model codes.

Using this performance requirement will provide a measure of consistency and predictability for the installed system

Response Message:

Public Input No. 112-NFPA 5000-2015 [Section No. 8.11.7]

First Revision No. 3512-NFPA 5000-2015 [Section No. 8.12.5.1]

8.12.5.1

Where permitted by Chapters 15 through 31 and 33 through 34, unenclosed vertical openings not concealed within the building construction shall be permitted as follows:

(1) Such openings shall connect not more than two adjacent stories (one floor pierced only).

(2) Such openings shall be separated from unprotected vertical openings serving other floors by a barrier complying with 8.6.5.

(3)* Such openings shall be separated from corridors.

(4)* Such openings shall be separated from other fire or smoke compartments on the same floor.

(5) Such openings shall be separated from the corridor referenced in 8.12.5.1(3) by a smoke partition, unless Chapters 15 through 31 and 33 through 34 require the corridor to have a fire resistance rating.

(6)* Such openings shall not serve as a required means of egress.

Supplemental Information

File Name	Description
5000_A.8.12.5.1_3_.docx	

Submitter Information Verification

Submitter Full Name: Kristin Bigda
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 05 14:24:22 EDT 2015

Committee Statement

Committee Statement: This annex note is intended to clarify the code requirement, not change it. It is not clear to all AHJ's and designers what type of separation from corridors is required, as this provision is allowed by 10 of the occupancy chapters for new construction, not all of which have the same requirements for construction of corridor walls.

Response Message:

A.8.12.5.1(3) The intent of this requirement is to provide the same separation as required for corridor walls of the applicable occupancy chapter. For example, a convenience opening on one floor in a health care occupancy would be required to be separated from the corridor and areas open to the corridor on the adjacent floor by a barrier that limits the transfer of smoke, in accordance with 18.3.6.2.3, not a one hour rated wall with opening protectives.

First Revision No. 3507-NFPA 5000-2015 [Section No. 8.13.2.1]

8.13.2.1

The aggregate area of mezzanines within a room, other than ~~those located in special-purpose industrial occupancies~~ normally unoccupied equipment platforms , shall not exceed one-third the open area of the room in which the mezzanines are located.

Submitter Information Verification

Submitter Full Name: Kristin Bigda
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 30 18:41:17 EDT 2015

Committee Statement

Committee Statement: Current 8.13.2.1 does not mean to exempt partial levels serving as equipment platforms from the 1/3 aggregate area criterion where those platforms are there for the function/access/servicing of the large pieces of industrial equipment (think, for example, of a distillation tower). The exemption is meant to keep from penalizing the multiple industrial levels around a piece of equipment, regardless of occupancy, as would occur if the levels, in aggregate, failed the mezzanine maximum area test and had to be considered as floors or stories.

Response Message:

First Revision No. 3508-NFPA 5000-2015 [Section No. 8.14.1.1]

8.14.1.1

Any concealed combustible space in which exposed building materials ~~having~~ have a flame spread index greater than ~~Class A are exposed~~ 25, when tested in accordance with 10.2.3, shall be draftstopped as follows:

(1) Every exterior and interior wall and partition shall be firestopped at each floor level, at the top story ceiling level, and at the level of support for roofs.

(2) Every unoccupied attic space shall be subdivided by draftstops into areas not to exceed 3000 ft^2 (280 m^2).

(3) Any concealed space between the ceiling and the floor or roof above shall be draftstopped for the full depth of the space along the line of support for the floor or roof structural members and, if necessary, at other locations to form areas not to exceed 1000 ft^2 (93 m^2) for any space between the ceiling and floor and 3000 ft^2 (280 m^2) for any space between the ceiling and roof.

Submitter Information Verification

Submitter Full Name: Kristin Bigda
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 04 12:21:01 EDT 2015

Committee Statement

Committee Statement: In reference to attic draftstops, both 101 and 5000 exempt attics with materials “having a flame spread index greater than Class A” There is no such thing as a flame spread index greater than Class A – flame spread index is a dimensionless, numerical value that comes from the tunnel test (ASTM E84); Class A refers to an interior finish classification defined by the code (FSI of 0-25 and SDI of 0-450).

Response Message:

Public Input No. 126-NFPA 5000-2015 [Section No. 8.14.1.1]

First Revision No. 3503-NFPA 5000-2015 [Section No. 8.14.1.3]

8.14.1.3

Draftstopping materials shall be not less than ½ in. (13 mm) type X gypsum board~~, 15/32 in. (12 mm) wood structural panel,~~ or other approved materials that are adequately supported.

Submitter Information Verification

Submitter Full Name: Kristin Bigda
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 30 18:20:26 EDT 2015

Committee Statement

Committee Statement: Recent significant fires in buildings with unsprinklered concealed combustible attics demonstrate the need for additional performance from draftstopping materials in limiting fire spread in these spaces. This revision changes the materials so a minimum 25 minute calculated fire resistive material is utilized in lieu of the current allowance for a 10 minute material. This will provide improvements to fire containment in non-fire sprinkler protected concealed combustible spaces, improved firefighter safety and allow firefighters much needed additional time during response and mobilization in dealing with fires that progress into these spaces.

Response Message:

Public Input No. 24-NFPA 5000-2015 [Section No. 8.14.1.3]

First Revision No. 3504-NFPA 5000-2015 [Section No. 8.16.1.3]

8.16.1.3

Any material that is subject to an increase in flame spread rating or smoke developed index beyond the limits herein established through the effects of age, moisture, or other atmospheric conditions shall not be permitted, unless such material complies with one of the following:

(1) Duct and pipe insulation, coverings, and linings contained in plenums for buildings of all types of construction shall comply with the requirements of ~~7.2.3.2.15~~ NFPA 90A .

(2) Foamed plastic insulation, other than duct and pipe insulation, coverings, and linings contained in plenums shall comply with Chapter 48.

Submitter Information Verification

Submitter Full Name: Kristin Bigda
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 30 18:28:00 EDT 2015

Committee Statement

Committee Statement: Section 7.2.3.2.15 does not exist in NFPA 5000 and the appropriate reference for duct and pipe insulation, coverings, and linings contained in plenums is to NFPA 90A.

Response Message:

Public Input No. 70-NFPA 5000-2015 [Section No. 8.16.1.3]