

CHAPTER 7

FIRE AND SMOKE PROTECTION FEATURES

User note:

About this chapter: Chapter 7 provides requirements to maintain the fire-resistance ratings of building elements and to limit fire spread. Section 701 addresses the maintenance of and owner's responsibility for construction elements such as fire barriers and smoke barriers. The rest of the chapter deals with various aspects that also must be maintained to achieve overall fire resistance of the main fire- and smoke-resistive features. These include penetrations, joint protection, door and window openings, and duct and air transfer opening protection.

SECTION 701 GENERAL

701.1 Scope. The provisions of this chapter shall govern the inspection and maintenance of the materials, systems and assemblies used for structural *fire resistance*, *fire-resistance-rated* construction separation of adjacent spaces and construction installed to resist the passage of smoke to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings. New buildings shall comply with the *International Building Code*.

701.2 Fire-resistance-rated construction. The *fire-resistance rating* of the following *fire-resistance-rated* construction shall be maintained:

1. Structural members.
2. *Exterior walls*.
3. *Fire walls, fire barriers, fire partitions*.
4. *Horizontal assemblies*.
5. Shaft enclosures.

701.2.1 Hanging displays. The hanging and displaying of salable goods and other decorative materials from acoustical ceiling systems that are part of a *fire-resistance-rated horizontal assembly* shall be prohibited.

701.3 Smoke barriers. The *fire-resistance rating* and smoke-resistant characteristics of *smoke barriers* shall be maintained.

701.4 Smoke partitions. The smoke-resistant characteristics of smoke partitions shall be maintained.

701.5 Maintaining protection. Materials, systems and devices used to repair or protect breaches and openings in *fire-resistance-rated* construction and construction installed to resist the passage of smoke shall be maintained in accordance with Sections 703 through 707.

[S] 701.6 Owner's responsibility. The *owner* shall maintain an inventory of all required *fire-resistance-rated* construction, construction installed to resist the passage of smoke and the construction included in Sections 703 through 707 and Sections 602.4.1 and 602.4.2 of the *International Building Code*, when required by the fire code official. Such construction shall be visually inspected by the *owner* annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated. Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the *owner* unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space.

Exception: When requested by the building owner and approved by the fire code official, the visual inspection required by Section 701.6 may be modified to a time period greater than annually based on the past performance of the owner.

701.7 Unsafe conditions. Where any components in this chapter are not maintained and do not function as intended or do not have the *fire resistance* or the resistance to the passage of smoke required by the code under which the building was constructed, remodeled or altered, such component(s) or portion thereof shall be deemed an unsafe condition, in accordance with Section 114.1.1. Components or portions thereof determined to be unsafe shall be repaired or replaced to conform to that code under which the building was constructed, remodeled or altered or this chapter, as deemed appropriate by the *fire code official*.

Where the condition of components is such that any building, structure or portion thereof presents an imminent danger to the occupants of the building, structure or portion thereof, the *fire code official* shall act in accordance with Section 114.2.

SECTION 702 DEFINITIONS

702.1 Definitions. The following terms are defined in Chapter 2:

DRAFTSTOP.

FIREBLOCKING.

MEMBRANE-PENETRATION FIRESTOP SYSTEM.

OPENING PROTECTIVE.

SMOKE BARRIER.

SMOKE PARTITION.

THROUGH-PENETRATION FIRESTOP SYSTEM.

SECTION 703 PENETRATIONS

703.1 Maintaining protection. Materials and firestop systems used to protect membrane and through penetrations in *fire-resistance-rated* construction and construction installed to resist the passage of smoke shall be maintained. The materials and firestop systems shall be securely attached to or bonded to the construction being penetrated with no openings visible through or into the cavity of the construction. Where the system design number is known, the system shall be inspected to the listing criteria and manufacturer's installation instructions.

703.2 Repair of penetrations. Where damaged, materials used to protect membrane- and through-penetrations shall be replaced or restored with materials or systems that meet or exceed the code requirements applicable at the time when the assembly was constructed, remodeled or altered.

SECTION 704 JOINTS AND VOIDS

704.1 Maintaining protection. Where required when the building was originally constructed, materials and systems used to protect joints and voids in the following locations shall be maintained. The materials and systems shall be securely attached to or bonded to the adjacent construction, without openings visible through the construction.

1. Joints in or between *fire-resistance-rated* walls, floors or floor/ceiling assemblies and roof or roof/ceiling assemblies.
2. Joints in *smoke barriers*.
3. Voids at the intersection of a horizontal floor assembly and an exterior curtain wall.
4. Voids at the intersection of a horizontal *smoke barrier* and an exterior curtain wall.
5. Voids at the intersection of a nonfire-resistance-rated floor assembly and an exterior curtain wall.
6. Voids at the intersection of a vertical *fire barrier* and an exterior curtain wall.
7. Voids at the intersection of a vertical *fire barrier* and a nonfire-resistance-rated roof assembly.

Unprotected joints and voids do not need to be protected where such joints and voids were not required to be protected when the building was originally constructed. Where the system design number is known, the system shall be inspected to the listing criteria and manufacturer's installation instructions.

704.2 Repair of joints and voids. Where damaged, materials used to protect joints and voids shall be replaced or restored with materials or systems that meet or exceed the code requirements applicable at the time when the assembly was constructed, remodeled or altered.

704.3 Opening protectives. Where openings are required to be protected, opening protectives shall be maintained self-closing or automatic-closing by smoke detection. Existing fusible-link-type automatic door-closing devices are permitted if the fusible link rating does not exceed 135°F (57°C).

SECTION 705 DOOR AND WINDOW OPENINGS

705.1 General. Where required when the building was originally constructed, opening protectives installed in *fire-resistance-rated* assemblies, *smoke barriers* and *smoke partitions* shall be inspected and maintained in accordance with this section.

705.2 Inspection and maintenance. *Opening protectives* in *fire-resistance-rated* assemblies shall be inspected and maintained in accordance with NFPA 80. *Opening protectives* in *smoke barriers* shall be inspected and maintained in accordance

with NFPA 80 and NFPA 105. Openings in smoke partitions shall be inspected and maintained in accordance with NFPA 105. Fire doors and smoke and draft control doors shall not be blocked, obstructed, or otherwise made inoperable. Fusible links shall be replaced promptly whenever fused or damaged. *Opening protectives* and smoke and draft control doors shall not be modified.

705.2.1 Labeling requirements. Where *approved* by the *fire code official*, the application of field-applied labels associated with the maintenance of *opening protectives* shall follow the requirements of the *approved* third-party certification organization accredited for *listing* the opening protective.

705.2.2 Signs. Where required by the *fire code official*, a sign shall be permanently displayed on or near each *fire door* in letters not less than 1 inch (25 mm) high to read as follows:

1. For doors designed to be kept normally open: "FIRE DOOR—DO NOT BLOCK."
2. For doors designed to be kept normally closed: "FIRE DOOR—KEEP CLOSED."

705.2.3 Hold-open devices and closers. Hold-open devices and automatic door closers, where provided, shall be maintained. During the period that such device is out of service for repairs, the door it operates shall remain in the closed position.

705.2.4 Door operation. Swinging *fire doors* shall close from the full-open position and latch automatically.

705.2.5 Smoke- and heat-activated doors. Smoke-activated doors shall be maintained to self-close or automatically close upon detection of smoke. Existing fusible-link-type automatic door-closing devices are permitted if the fusible link rating does not exceed 135°F (57°C).

705.2.6 Testing. Horizontal and vertical sliding and rolling *fire doors* shall be inspected and tested annually to confirm proper operation and full closure. Records of inspections and testing shall be maintained.

SECTION 706 DUCT AND AIR TRANSFER OPENINGS

[S] 706.1 Maintaining protection. Dampers protecting ducts and air transfer openings shall be inspected and maintained in accordance with NFPA 80 and NFPA 105. Other products or materials used to protect the openings for ducts and air transfer openings shall be securely attached to or bonded to the construction containing the duct or air transfer opening, without visible openings through or into the cavity of the construction. Any damaged products or materials protecting duct and air transfer openings shall be repaired, restored or replaced.

706.1.1 Testing frequency. Dampers shall be inspected and tested one year after installation and then every four years thereafter. In Group I-2 Occupancies, dampers shall be inspected and tested one year after installation and then every six years thereafter.

706.1.2 Records. Reports of inspections and testing shall be made available to the *fire code official* upon request.

706.1.3 Qualifications. Individuals performing inspections, testing and maintenance shall have certification from an *approved* organization or *approved* school, or an *approved* certificate issued by the manufacture of the damper equipment which demonstrates adequate skills and experience.

706.2 Unprotected openings. Unprotected duct and air transfer openings in *fire-resistance-rated* construction and construction installed to resist the passage of smoke shall be protected so as to comply with requirements that were in effect when the building was constructed.

SECTION 707 CONCEALED SPACES

707.1 Fireblocking and draftstopping. Required *fireblocking* and draftstopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction.

SECTION 708 SPRAY FIRE-RESISTANT MATERIALS AND INTUMESCENT FIRE-RESISTANT MATERIALS

708.1 Maintaining protection. Where required when the building was originally permitted and constructed, spray fire-resistant materials and intumescent fire-resistant materials shall be visually inspected to verify that the materials do not exhibit exposure to the substrate.

