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## CODE CORNER

### ABOUT CODE CORNER

CCFS would like to remind you to check with your local "Authority Having Jurisdiction (AHJ)" for questions and opinions concerning your local Fire and Building Codes. The information contained in this article is supplied as a courtesy by the International Code Council (ICC) and is based on the International Fire and Building Codes and their respective commentaries. Your local codes or ordinances may vary.

ICC COMMENTARY, IFC (2003)

### SECTION 703 FIRE-RESISTANCE-RATED CONSTRUCTION

**703.1 Maintenance.** The required fire-resistance rating of fire-resistance-rated construction (including walls, fire stops, shaft enclosures, partitions and floors) shall be maintained. Such elements shall be properly repaired, restored or replaced when damaged, altered, breached or penetrated. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings, and holes made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self-closing or automatic-closing doors of approved construction meeting the fire protection requirements for the assembly.

*∫ The code requires that all equipment, systems, devices and safeguards required by the current and past codes be maintained in good working order (see Section 102.1). Section 703.1 reiterates this requirement specifically for fire-resistance-rated assemblies.*

Once a building is occupied, its component parts are often damaged, altered or penetrated for installation of new piping, wiring and the like. These actions may reduce the effectiveness of assemblies that must be fire-resistance rated. This section requires that any damage to a fire-resistance-rated assembly be repaired in a manner that restores the original required

performance characteristics. Similarly, if a fire-resistance-rated assembly is altered or penetrated, the alteration or penetration must comply with the applicable requirements of the International Building Code® (IBC®) for that kind of alteration or penetration.

A common violation of fundamental safety principles, as well as the code, is having wooden or rubber floor wedges prop open fire doors or smoke barrier doors. This renders them totally ineffective as opening protectives. Building maintenance personnel who do not understand the purpose of barrier doors often do this to aid movement of people, equipment or air in a hallway or other passage without realizing the potential hazard if a fire were to occur.

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

*∫ Fireblocking and draftstopping retard the spread of fire and the products of combustion. To fulfill their intended function, fireblocking and draftstopping must be properly maintained. Most frequently, damage or repairs to other building components, such as mechanical piping, results in fireblocking or draftstopping being removed and not properly replaced. This section specifically requires that when fireblocking and draftstopping required by the IBC are damaged, removed or otherwise altered, they must be replaced or restored.*

**703.1.2 Smoke barriers.** Required smoke barrier partitions shall be maintained to prevent the passage of smoke and all openings protected with approved smoke

barrier doors or leakage-rated (smoke) dampers.

*☞ Smoke barriers are a key component in a passive fire safety design for institutional occupancies (Groups I-2 and I-3) as part of the defend-in-place strategy for moving occupants to a tenable portion of the building. The IBC includes requirements for fire-resistance ratings (1 hour), continuity and opening and penetration protection. This section of the code reinforces the application of these requirements by specifically citing smoke barriers as a necessary assembly that warrants stringent maintenance.*

**703.2 Opening protectives.** Opening protectives shall be maintained in an operative condition in accordance with NFPA 80. Fire doors and smoke barrier doors shall not be blocked or obstructed or otherwise made inoperable. Fusible links shall be replaced promptly whenever fused or damaged. Fire door assemblies shall not be modified.

*☞ Openings in fire-resistance-rated assemblies must be protected to prevent the passage of fire. After opening protectives are installed and approved, they may become damaged, corroded or otherwise less effective than required. This section specifically requires that all opening protectives required by the IBC be maintained in compliance with NFPA 80. This section requires the maintenance of fire doors and smoke barrier doors so that they can perform their intended function, which is to prevent the passage of smoke, fire or combustion products through openings in fire-resistance-rated walls, ceilings and shafts during a fire emergency. Sections 703.2.2 and 703.2.3 indicate specific points of inspection and enforcement regarding these doors. Prohibited modifications to fire door assemblies include the attachment of materials, cutting, boring holes or other alterations that could affect the performance of the door as a fire protection rated assembly.*

**703.2.1 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.

*☞ Any door in a fire-resistance-rated wall represents a potential “weak link” in maintaining the degree of compartmentation intended by the code. That is the reason for requiring a rated assembly. The IBC calls for adequate opening protection in the form of a door with a specified fire protection rating. This section allows the fire code official to require signage on or near the rated doors to make the occupants aware of the importance of the door in the passive fire protection philosophy of the code. Also, see the commentary to Section 703.1 for a discussion on the improper use of props to hold doors open.*

**703.2.2 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.

*☞ The only devices acceptable for holding fire doors open are fire-detector-activated automatic-closing devices that automatically close the doors (or allow the doors to swing closed using self-closing devices) in the event of a fire. Numerous devices, such as electromagnetic hold-opens, pneumatic systems and systems of pulleys and weights connected to a fusible link, are available. The detection method for the closing device must be consistent with the purpose of the opening protective; that is, doors in smoke barriers must be activated by smoke detectors. Heat detectors or fusible links are adequate where maintenance of the fire-resistance rating alone is required. If smoke-detector-activated automatic door closers are used and the detectors are interconnected with a required fire alarm system, the devices and wiring methods must be checked for compatibility with the fire alarm system control panel before installation. Some fire alarm control equipment is compatible only with the manufacturer’s automatic smoke detectors.*

**703.2.3 Door operation.** Swinging fire doors shall close from the full-open position and latch automatically. The door closer shall exert enough force to close and latch the door from any partially open position.

⚡ *Fire doors must be closed to be effective. Swinging fire doors should be frequently checked to make sure they close and latch on their own power from any position.*

**703.3 Ceilings.** The hanging and displaying of salable goods and other decorative materials from acoustical ceiling systems that are part of a fire-resistance-rated floor/ceiling or roof/ceiling assembly, shall be prohibited.

⚡ *Fire-resistance-rated floor/ceiling and roof/ceiling assemblies must be tested using the methods in ASTM E 119 to demonstrate a fire-resistance rating. Locating a substantial fuel load directly beneath an acoustical ceiling, however, may expose the ceiling to a direct fire source that could breach the ceiling, which is an integral part of the tested assembly. Depending on the contribution of the ceiling to the overall rating, this may result in the assembly not functioning as the code intends.*

**703.4 Testing.** Horizontal and vertical sliding and rolling fire doors shall be inspected and tested annually to confirm proper operation and full closure. A written record shall be maintained and be available to the fire code official.

⚡ *Annual tests are intended to determine that required fire and smoke-barrier doors operate freely and close completely. Where fusible links are used as the releasing mechanism, the link may be temporarily removed rather than activated during testing. Fusible links in poor condition must be replaced as part of the maintenance of fire-resistance components. Smoke detectors and heat detectors other than fusible links must be tested as required by the manufacturer's instructions (see NFPA 72 for recommended testing procedures for various fire detectors). Written records must indicate the date, time, test method and person conducting the test for each opening protective. These records must be maintained by the owner and made available to the fire code official for review. This requirement relieves the fire code official of the administrative burden of maintaining test records.*