

SECTION 713 — FIRE-RESISTIVE ASSEMBLIES FOR PROTECTION OF OPENINGS

713.1 General. Where required by this code for the fire protection of openings, fire assemblies shall meet the requirements of this section.

713.2 Definitions.

FIRE ASSEMBLY is the assembly of a fire door, fire windows or fire damper, including all required hardware, anchorage, frames and sills.

FIRE ASSEMBLY, AUTOMATIC-CLOSING, is a fire assembly that may remain in an open position and that will close automatically when subjected to one or the other of the following:

1. An increase in temperature.

Unless otherwise specified, the closing device shall be one rated at a maximum temperature of 165°F (74°C).

2. Actuation of a smoke detector.

The closing device shall operate by the activation of an approved listed smoke detector. Smoke detectors shall be installed and maintained as set forth in approved nationally recognized standards.

FIRE ASSEMBLY, SELF-CLOSING, is a fire assembly that is kept in a normally closed position and is equipped with an approved device to ensure closing and latching after having been opened for use.

713.3 Identification of Fire Doors, Fire Windows and Fire Dampers. Fire doors, fire windows and fire dampers shall have an approved label or listing mark, indicating the fire-protection rating, which is permanently affixed at the factory where fabrication and assembly are done. Periodic inspections shall be made by an approved inspection agency during fabrication and assembly.

Labels for fire doors used to protect openings into exit enclosures shall indicate that the temperature rise on the unexposed surface does not exceed 450°F (232°C) above ambient at the end of 30 minutes of the fire exposure specified in UBC Standard 7-2 to show compliance with Section 1006.3.2.3.

Oversized fire doors may be installed when approved by the building official. The doors shall be labeled or be furnished with a certificate of inspection from an approved agency.

713.4 Installation of Fire Doors, Hardware and Frames, and Fire Dampers. Approved fire door hardware and fire door frames including the anchorage thereof shall be installed in accordance with their listing. Fire dampers shall be fabricated and installed in an approved manner.

713.5 Fire-resistive Tests. The fire-protection rating of all types of required fire assemblies shall be determined in accordance with the requirements specified in UBC Standards 7-2, 7-3 and 7-4. The fire-protection rating of fire dampers shall be determined in accordance with the requirements specified within approved recognized standards.

713.6 Hardware.

713.6.1 Closing devices. Every fire assembly shall be provided with a closing device as follows:

1. Fire assemblies required to have a three-hour fire-protection rating shall be automatic-closing fire assemblies. Automatic-closing fire assemblies to be activated by an increase in temperature shall have one heat-actuating device installed on each side of the wall at the top of the opening and one on each side of the wall at the ceiling height where the ceiling is more than 3 feet (914 mm) above the top of the opening.

2. Fire assemblies required to have a one- and one-half-hour, one-hour or three-fourths-hour fire-protection rating shall be either automatic- or self-closing fire assemblies. Automatic-closing fire assemblies to be activated by an increase in temperature shall have heat-actuating devices located as required in Item 1 or by a single fusible link in the opening incorporated in the closing device.

3. Fire door assemblies required to have fire-protection rating, which are installed across a corridor, shall be automatic-closing fire assemblies. Such fire assemblies shall be activated by a smoke detector. All hold-open devices shall be listed for the purpose and shall release or close the door in the event of a power failure at the device.

4. Fire assemblies required by provisions of Chapter 10 shall have closing devices as specified in Chapter 10.

5. Doors that are a part of an automobile ramp enclosure shall be equipped with automatic-closing devices.

Fire doors that are automatic closing by smoke detection shall not have a closing or reclosing delay of more than 10 seconds.

713.6.2 Hinges. Swinging fire doors shall not have less than two hinges, and when such door exceeds 60 inches (1524 mm) in height, an additional hinge shall be installed for each additional 30 inches (762 mm) of height or fraction thereof. Hinges, except for spring hinges, shall be of the ball-bearing or antifriction type. When spring hinges are used for door-closing purposes, not less than one half of the hinges shall be spring hinges.

713.6.3 Latch. Unless otherwise specifically permitted, all single doors and both leaves of pairs of side-hinged swinging doors shall be provided with an automatic latch that will secure the door when it is closed.

713.7 Glazed Openings in Fire Doors. Glazed openings in fire doors shall not be permitted in a fire assembly required to have a three-hour fire-resistive rating.

The area of glazed openings in a fire door required to have one- and one-half-hour or one-hour fire-resistive rating shall be limited to 100 square inches (64 500 mm²) with a minimum dimension of 4 inches (102 mm). When both leaves of a pair of doors have observation panels, the total area of the glazed openings shall not exceed 100 square inches (64 500 mm²) for each leaf.

Glazed openings shall be limited to 1,296 square inches (0.84 m²) in wood and plastic-faced composite or hollow metal doors, per light, when fire-resistive assemblies are required to have a three-fourths-hour fire-resistive rating.

713.8 Fire Window Size. Fire windows required to have a three-fourths-hour fire-protection rating for protection of openings in exterior walls shall have an area not greater than 84 square feet (7.8 m²) with neither width nor height exceeding 12 feet (3658 mm) and for protection of openings in interior walls shall be limited in area and size to that tested.

713.9 Glazing. Glazing materials and glass block assemblies shall be qualified by tests in accordance with UBC Standard 7-2 (for fire doors) or UBC Standard 7-4 (for fire windows) as appropriate for the use, and they shall be labeled for the required fire-protection rating and installed in accordance with their listing. Glazing in fire door assemblies and in fire window assemblies subject to human impact in hazardous locations as indicated in Section 2406.4 shall comply with Section 2406.3.

713.10 Smoke Dampers. Not less than Class II, 250°F (121°C) smoke dampers complying with approved recognized standards (see Chapter 35, Part IV) shall be installed and be accessible for

inspection and servicing in the following ducted or unducted air openings at:

1. Penetrations of area or occupancy separation walls.
2. Penetrations of the fire-resistive construction of horizontal exit walls or corridors serving as a means of egress.

EXCEPTION: Openings for steel ducts penetrating the required fire-resistive construction of corridors are not required to have smoke dampers when such ducts are of not less than 0.019-inch (0.48 mm) thickness (No. 26 galvanized sheet steel gage) and have no openings serving the corridor.

3. Penetrations of shaft enclosures.

EXCEPTION: Exhaust-only openings serving continuously operating fans and protected using the provisions of Chapter 9.

4. Penetrations of smoke barriers.
5. Penetrations of elevator lobbies required by Section 3002.
6. Penetrations of areas of refuge.

EXCEPTION: Ventilation systems specifically designed and protected to supply outside air to these areas during an emergency.

A smoke damper need not be provided when it can be demonstrated that the smoke damper is not essential to limit the passage of smoke under passive conditions and the proper function of a smoke-control system complying with Chapter 9 does not depend on the operation of the damper. Smoke dampers may be omitted at openings that must be maintained open for proper operation of a mechanical smoke-control system, provided that adequate protection against smoke migration, in the event of system failure, has been provided.

Smoke dampers shall be closed by actuation of a smoke detector installed in accordance with the Fire Code and one of the following applicable methods:

1. Where a damper is installed within a duct, a smoke detector shall be installed in the duct within 5 feet (1524 mm) of the damper with no air outlets or inlets between the detector and the damper. The detector shall be listed for the air velocity, temperature and humidity anticipated at the point where it is installed.

2. Where a damper is installed within an unducted opening in a wall, a spot-type detector listed for releasing service shall be installed within 5 feet (1524 mm) horizontally of the damper.

3. Where a damper is installed in a ceiling, a spot-type detector listed for releasing service shall be installed on the ceiling within 5 feet (1524 mm) of the damper.

4. Where a damper is installed in a corridor wall or ceiling, the damper may be controlled by a smoke-detection system installed in the corridor.

5. When a total-coverage smoke-detection system is provided within all areas served by an HVAC system, dampers may be controlled by the smoke-detection system.

713.11 Fire Dampers. Fire dampers complying with the requirements of approved recognized standards (see Chapter 35, Part IV) shall be installed and be accessible for inspection and servicing in the following ducted and unducted air openings at:

1. Penetrations through area separation walls or occupancy separations.
2. Penetrations of the fire-resistive construction of horizontal exit walls or corridors serving as a means of egress.

EXCEPTION: Openings for steel ducts penetrating the required fire-resistive construction of corridors are not required to have smoke dampers when such ducts are of not less than 0.019-inch (0.48 mm) thickness (No. 26 galvanized sheet steel gage) and have no openings serving the corridor.

3. Penetrations of shaft enclosures.