

# 2021 Virginia Construction Code

## CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

### SECTION 707 FIRE BARRIERS

#### 707.1 General.

Fire barriers installed as required elsewhere in this code or the [International Fire Code](#) shall comply with this section.

#### 707.2 Materials.

Fire barriers shall be of materials permitted by the building type of construction.

#### 707.3 Fire-resistance rating.

The fire-resistance rating of fire barriers shall comply with this section.

##### 707.3.1 Shaft enclosures.

The fire-resistance rating of the fire barrier separating building areas from a shaft shall comply with [Section 713.4](#).

##### 707.3.2 Interior exit stairway and ramp construction.

The fire-resistance rating of the fire barrier separating building areas from an interior exit stairway or ramp shall comply with [Section 1023.1](#).

##### 707.3.3 Enclosures for exit access stairways.

The fire-resistance rating of the fire barrier separating building areas from an exit access stairway or ramp shall comply with [Section 713.4](#).

##### 707.3.4 Exit passageway.

The fire-resistance rating of the fire barrier separating building areas from an exit passageway shall comply with [Section 1024.3](#).

##### 707.3.5 Horizontal exit.

The fire-resistance rating of the separation between building areas connected by a horizontal exit shall comply with [Section 1026.1](#).

##### 707.3.6 Atriums.

The fire-resistance rating of the fire barrier separating atriums shall comply with [Section 404.6](#).

##### 707.3.7 Incidental uses.

The fire barrier separating incidental uses from other spaces in the building shall have a fire-resistance rating of not less than that indicated in [Table 509.1](#).

##### 707.3.8 Control areas.

Fire barriers separating control areas shall have a fire-resistance rating of not less than that required in [Section 414.2.4](#).

##### 707.3.9 Separated occupancies.

Where the provisions of [Section 508.4](#) are applicable, the fire barrier separating mixed occupancies shall have a fire-resistance rating of not less than that indicated in [Table 508.4](#) based on the occupancies being separated.

##### 707.3.10 Fire areas.

The fire barriers, fire walls, horizontal assemblies or combinations thereof separating a single occupancy into different fire areas shall have a fire-resistance rating of not less than that indicated in [Table 707.3.10](#). The fire barriers, fire walls, horizontal assemblies or combinations thereof separating fire areas of mixed occupancies shall have a fire-resistance rating of not less than the highest value indicated in [Table 707.3.10](#) for the occupancies under consideration.

TABLE 707.3.10

FIRE-RESISTANCE-RATING REQUIREMENTS FOR FIRE BARRIERS, FIRE WALLS OR HORIZONTAL ASSEMBLIES  
BETWEEN FIRE AREAS

OCCUPANCY GROUP	FIRE-RESISTANCE RATING (hours)
H-1, H-2	4
F-1, H-3, S-1	3
A, B, E, F-2, H-4, H-5, I, M, R, S-2	2
U	1

#### 707.4 Exterior walls.

Where exterior walls serve as a part of a required fire-resistance-rated shaft, or separation or enclosure for a stairway,

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*ramp or exit passageway*, such walls shall comply with the requirements of [Section 705](#) for exterior walls and the fire-resistance-rated enclosure or separation requirements shall not apply.

**Exceptions:**

1. Exterior walls required to be fire-resistance rated in accordance with [Section 1021](#) for exterior egress balconies, [Section 1023.7](#) for interior exit stairways and ramps, [Section 1024.8](#) for exit passageways and [Section 1027.6](#) for exterior exit stairways and ramps.
2. Exterior walls required to be fire-resistance rated in accordance with [Section 1207](#) of the *International Fire Code* for enclosure of energy storage systems.

**707.5 Continuity.**

Fire barriers shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed space, such as the space above a suspended ceiling. Joints and voids at intersections shall comply with [Sections 707.8](#) and [707.9](#).

**Exceptions:**

1. Shaft enclosures shall be permitted to terminate at a top enclosure complying with [Section 713.12](#).
2. Interior exit stairway and ramp enclosures required by [Section 1023](#) and exit access stairway and ramp enclosures required by [Section 1019](#) shall be permitted to terminate at a top enclosure complying with [Section 713.12](#).
3. An exit passageway enclosure required by [Section 1024.3](#) that does not extend to the underside of the roof sheathing, slab or deck above shall be enclosed at the top with construction of the same fire-resistance rating as required for the exit passageway.

**707.5.1 Supporting construction.**

The supporting construction for a fire barrier shall be protected to afford the required fire-resistance rating of the fire barrier supported. Hollow vertical spaces within a fire barrier shall be fireblocked in accordance with [Section 718.2](#) at every floor level.

**Exceptions:**

1. The maximum required fire-resistance rating for assemblies supporting fire barriers separating tank storage as provided for in [Section 415.9.1.2](#) shall be 2 hours, but not less than required by [Table 601](#) for the building construction type.
2. Supporting construction for 1-hour fire barriers required by [Table 509.1](#) in buildings of Types IIB, IIIB and VB construction is not required to be fire-resistance rated unless required by other sections of this code.

**707.6 Openings.**

Openings in a fire barrier shall be protected in accordance with [Section 716](#). Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m<sup>2</sup>). Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps and exit passageways shall also comply with [Sections 1019](#), [1023.4](#) and [1024.5](#), respectively.

**Exceptions:**

1. Openings shall not be limited to 156 square feet (15 m<sup>2</sup>) where adjoining floor areas are equipped throughout with an automatic sprinkler system in accordance with [Section 903.3.1.1](#).
2. Openings shall not be limited to 156 square feet (15 m<sup>2</sup>) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door serving enclosures for exit access stairways and ramps, and interior exit stairways and ramps.
3. Openings shall not be limited to 156 square feet (15 m<sup>2</sup>) or an aggregate width of 25 percent of the length of the wall where the opening protective has been tested in accordance with [ASTM E119](#) or [UL 263](#) and has a minimum fire-resistance rating not less than the fire-resistance rating of the wall.
4. Fire window assemblies permitted in atrium separation walls shall not be limited to a maximum aggregate width of 25 percent of the length of the wall.
5. Openings shall not be limited to 156 square feet (15 m<sup>2</sup>) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door assembly in a fire barrier separating an enclosure for exit access stairways and ramps, and interior exit stairways and ramps from an exit passageway in accordance with [Section 1023.3.1](#).

**707.7 Penetrations.**

Penetrations of fire barriers shall comply with [Section 714](#).

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**707.7.1 Prohibited penetrations.**

Penetrations into enclosures for *exit access stairways* and *ramps*, *interior exit stairways* and *ramps*, and *exit passageways* shall be allowed only where permitted by [Sections 1019](#), [1023.5](#) and [1024.6](#), respectively.

**707.8 Joints.**

*Joints* made in or between *fire barriers*, and *joints* made at the intersection of *fire barriers* with underside of a fire-resistance-rated floor or roof sheathing, slab or deck above, and the exterior vertical wall intersection shall comply with [Section 715](#).

**707.9 Voids at intersections.**

The voids created at the intersection of a *fire barrier* and a nonfire-resistance-rated *roof assembly* or a nonfire-resistance-rated *exterior wall* assembly shall be filled. An *approved* material or system shall be used to fill the void, and shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

**707.10 Ducts and air transfer openings.**

Penetrations in a *fire barrier* by ducts and air transfer openings shall comply with [Section 717](#).