

# 2021 Virginia Construction Code

## CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

### SECTION 706 FIRE WALLS

#### 706.1 General.

Each portion of a *building* separated by one or more fire walls shall be considered a separate *building*. Fire walls shall be constructed in accordance with Sections 706.2 through 706.11. The extent and location of such fire walls shall provide a complete separation. Where a fire wall separates occupancies that are required to be separated by a fire barrier wall, the most restrictive requirements of each separation shall apply. *Equipment* and systems are permitted to serve multiple attached *buildings* on the same lot where separated by one or more fire walls.

#### 706.1.1 Party walls.

Any wall located on a *lot line* between adjacent buildings, which is used or adapted for *joint* service between the two buildings, shall be constructed as a *fire wall* in accordance with Section 706. Party walls shall be constructed without openings and shall create separate buildings.

**Exception:** Openings in a party wall separating an *anchor building* and a *mall* shall be in accordance with [Section 402.4.2.2.1](#).

#### 706.2 Structural stability.

*Fire walls* shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. *Fire walls* designed and constructed in accordance with [NFPA 221](#) shall be deemed to comply with this section.

**Exception:** In *Seismic Design Categories* D through F, where double *fire walls* are used in accordance with [NFPA 221](#), floor and roof sheathing not exceeding  $\frac{3}{4}$  inch (19.05 mm) thickness shall be permitted to be continuous through the wall assemblies of *light frame construction*.

#### 706.3 Materials.

*Fire walls* shall be of any *approved* noncombustible materials.

**Exception:** Buildings of Type V construction.

#### 706.4 Fire-resistance rating.

*Fire walls* shall have a *fire-resistance rating* of not less than that required by [Table 706.4](#).

TABLE 706.4  
FIRE WALL FIRE-RESISTANCE RATINGS

GROUP	FIRE-RESISTANCE RATING (hours)
A, B, E, H-4, I, R-1, R-2, U	3 <sup>a</sup>
F-1, H-3b, H-5, M, S-1	3
H-1, H-2	4 <sup>b</sup>
F-2, S-2, R-3, R-4	2

a. In Type II or V construction, walls shall be permitted to have a 2-hour fire-resistance rating.

b. For Group H-1, H-2 or H-3 buildings, also see [Sections 415.7](#) and [415.8](#).

#### 706.5 Horizontal continuity.

*Fire walls* shall be continuous from *exterior wall* to *exterior wall* and shall extend not less than 18 inches (457 mm) beyond the exterior surface of *exterior walls*.

#### Exceptions:

- Fire walls* shall be permitted to terminate at the interior surface of combustible exterior sheathing or siding provided that the *exterior wall* has a *fire-resistance rating* of not less than 1 hour for a horizontal distance of not less than 4 feet (1220 mm) on both sides of the *fire wall*. Openings within such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of not less than  $\frac{3}{4}$  hour.
- Fire walls* shall be permitted to terminate at the interior surface of noncombustible exterior sheathing, exterior siding or other noncombustible exterior finishes provided that the sheathing, siding or other exterior noncombustible finish extends a horizontal distance of not less than 4 feet (1220 mm) on both sides of the *fire wall*.

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3. *Fire walls* shall be permitted to terminate at the interior surface of noncombustible exterior sheathing where the building on each side of the *fire wall* is protected by an *automatic sprinkler system* installed in accordance with [Section 903.3.1.1](#) or [903.3.1.2](#).

#### **706.5.1 Exterior walls.**

Where the *fire wall* intersects *exterior walls*, the *fire-resistance rating* and opening protection of the *exterior walls* shall comply with one of the following:

1. The *exterior walls* on both sides of the *fire wall* shall have a 1-hour *fire-resistance rating* with  $\frac{3}{4}$ -hour protection where opening protection is required by [Section 705.8](#). The *fire-resistance rating* of the *exterior wall* shall extend not less than 4 feet (1220 mm) on each side of the intersection of the *fire wall* to *exterior wall*. *Exterior wall* intersections at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad) do not need *exterior wall* protection.
2. Buildings or spaces on both sides of the intersecting *fire wall* shall assume to have an imaginary *lot line* at the *fire wall* and extending beyond the exterior of the *fire wall*. The location of the assumed line in relation to the *exterior walls* and the *fire wall* shall be such that the *exterior wall* and opening protection meet the requirements set forth in [Sections 705.5](#) and [705.8](#). Such protection is not required for *exterior walls* terminating at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad).

#### **706.5.2 Horizontal projecting elements.**

*Fire walls* shall extend to the outer edge of horizontal projecting elements such as balconies, roof overhangs, canopies, *marquees* and similar projections that are within 4 feet (1220 mm) of the *fire wall*.

##### **Exceptions:**

1. Horizontal projecting elements without concealed spaces, provided that the *exterior wall* behind and below the projecting element has not less than 1-hour fire-resistance-rated construction for a distance not less than the depth of the projecting element on both sides of the *fire wall*. Openings within such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of not less than  $\frac{3}{4}$  hour.
2. Noncombustible horizontal projecting elements with concealed spaces, provided that a minimum 1-hour fire-resistance-rated wall extends through the concealed space. The projecting element shall be separated from the building by not less than 1-hour fire-resistance-rated construction for a distance on each side of the *fire wall* equal to the depth of the projecting element. The wall is not required to extend under the projecting element where the building *exterior wall* is not less than 1-hour *fire-resistance rated* for a distance on each side of the *fire wall* equal to the depth of the projecting element. Openings within such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of not less than  $\frac{3}{4}$  hour.
3. For combustible horizontal projecting elements with concealed spaces, the *fire wall* need only extend through the concealed space to the outer edges of the projecting elements. The *exterior wall* behind and below the projecting element shall be of not less than 1-hour fire-resistance-rated construction for a distance not less than the depth of the projecting elements on both sides of the *fire wall*. Openings within such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of not less than  $\frac{3}{4}$  hour.
4. [Decks and open porches of buildings in Groups R-3 and R-4.](#)

#### **706.6 Vertical continuity.**

*Fire walls* shall extend from the foundation to a termination point not less than 30 inches (762 mm) above both adjacent roofs.

##### **Exceptions:**

1. Stepped buildings in accordance with [Section 706.6.1](#).
2. Two-hour fire-resistance-rated walls shall be permitted to terminate at the underside of the roof sheathing, deck or slab, provided that:
  - 2.1. The lower *roof assembly* within 4 feet (1220 mm) of the wall has not less than a 1-hour *fire-resistance rating* and the entire length and span of supporting elements for the rated *roof assembly* has a *fire-resistance rating* of not less than 1 hour.
  - 2.2. Openings in the roof shall not be located within 4 feet (1220 mm) of the *fire wall*.
  - 2.3. Each building shall be provided with not less than a Class B *roof covering*.
3. Walls shall be permitted to terminate at the underside of noncombustible roof sheathing, deck or slabs where both buildings are provided with not less than a Class B *roof covering*. Openings in the roof shall not be located within 4 feet (1220 mm) of the *fire wall*.
4. In buildings of Types III, IV and V construction, walls shall be permitted to terminate at the underside of combustible roof sheathing or decks, provided that all of the following requirements are met:
  - 4.1. Roof openings are not less than 4 feet (1220 mm) from the *fire wall*.
  - 4.2. The roof is covered with a minimum Class B *roof covering*.

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- 4.3. The roof sheathing or deck is constructed of *fire-retardant-treated wood* for a distance of 4 feet (1220 mm) on both sides of the wall or the roof is protected with  $\frac{5}{8}$ -inch (15.9 mm) Type X *gypsum board* directly beneath the underside of the roof sheathing or deck, supported by not less than 2-inch (51 mm) nominal ledgers attached to the sides of the roof framing members for a distance of not less than 4 feet (1220 mm) on both sides of the *fire wall*.
5. In buildings designed in accordance with [Section 510.2](#), *fire walls* located above the 3-hour *horizontal assembly* required by [Section 510.2](#), Item 1 shall be permitted to extend from the top of this *horizontal assembly*.
6. Buildings with sloped roofs in accordance with [Section 706.6.2](#).

#### 706.6.1 Stepped buildings.

Where a *fire wall* also serves as an *exterior wall* for a building and separates buildings having different roof levels, such wall shall terminate at a point not less than 30 inches (762 mm) above the lower roof level. *Exterior walls above the fire wall extending more than 30 inches (762 mm) above the lower roof shall be of* not less than 1-hour fire-resistance-rated construction from both sides with openings protected by fire assemblies having a *fire protection rating* of not less than  $\frac{3}{4}$  hour. *Portions of the exterior walls greater than 15 feet (4572 mm) above the lower roof shall be of nonfire-resistance-rated construction unless otherwise rated construction is required by other provisions of this code.*

**Exception:** *A fire wall serving as part of an exterior wall that separates buildings having different roof levels shall be permitted to terminate at the underside of the roof sheathing, deck or slab of the lower roof, provided that Items 1, 2 and 3 are met. The exterior wall above the fire wall is not required to be of fire-resistance-rated construction unless required by other provisions of this code.*

1. The lower *roof assembly* within 10 feet (3048 mm) of the *fire wall* has not less than a 1-hour *fire-resistance rating*.
2. The entire length and span of supporting elements for the *rated roof assembly* shall have a *fire-resistance rating* of not less than 1 hour.
3. Openings in the lower roof shall not be located within 10 feet (3048 mm) of the *fire wall*.

#### 706.6.2 Buildings with sloped roofs.

Where a *fire wall* serves as an interior wall for a building, and the roof on one side or both sides of the *fire wall* slopes toward the *fire wall* at a slope greater than 2 units vertical in 12 units horizontal (2:12), the *fire wall* shall extend to a height equal to the height of the roof located 4 feet (1219 mm) from the *fire wall* plus 30 inches (762 mm). The extension of the *fire wall* shall be not less than 30 inches (762 mm).

#### 706.7 Combustible framing in fire walls.

Adjacent combustible members entering into a concrete or masonry *fire wall* from opposite sides shall not have less than a 4-inch (102 mm) distance between embedded ends. Where combustible members frame into hollow walls or walls of hollow units, hollow spaces shall be solidly filled for the full thickness of the wall and for a distance not less than 4 inches (102 mm) above, below and between the structural members, with noncombustible materials *approved for fireblocking*.

#### 706.8 Openings.

Each opening through a *fire wall* shall be protected in accordance with [Section 716](#) and shall not exceed 156 square feet (15 m<sup>2</sup>). The aggregate width of openings at any floor level shall not exceed 25 percent of the length of the wall.

##### Exceptions:

1. Openings are not permitted in party walls constructed in accordance with [Section 706.1.1](#).
2. Openings shall not be limited to 156 square feet (15 m<sup>2</sup>) where both buildings are equipped throughout with an *automatic sprinkler system* installed in accordance with [Section 903.3.1.1](#).

#### 706.9 Penetrations.

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

#### 706.10 Joints.

*Joints* made in or between *fire walls* shall comply with [Section 715](#).

#### 706.11 Ducts and air transfer openings.

Ducts and air transfer openings shall not penetrate *fire walls*.

**Exception:** Penetrations by ducts and air transfer openings of *fire walls* that are not on a *lot line* shall be allowed provided that the penetrations comply with [Section 717](#). The size and aggregate width of all openings shall not exceed the limitations of [Section 706.8](#).