

2021 Virginia Construction Code

CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

SECTION 709 SMOKE BARRIERS

709.1 General.

Vertical and horizontal *smoke barriers* shall comply with this section.

709.2 Materials.

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

709.3 Fire-resistance rating.

A 1-hour *fire-resistance rating* is required for *smoke barriers*.

Exception: *Smoke barriers* constructed of minimum 0.10-inch-thick (2.5 mm) steel in Group I-3 buildings.

709.4 Continuity.

Smoke barriers shall form an effective membrane continuous from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall or floor supported in buildings of other than Type IIB, IIIB or VB construction. *Smoke-barrier walls* used to separate *smoke compartments* shall comply with [Section 709.4.1](#). *Smoke-barrier walls* used to enclose *areas of refuge* in accordance with [Section 1009.6.4](#) or to enclose elevator lobbies in accordance with [Section 405.4.3](#), [3007.6.2](#), or [3008.6.2](#) shall comply with [Section 709.4.2](#).

Exception: *Smoke-barrier walls* are not required in interstitial spaces where such spaces are designed and constructed with ceilings or *exterior walls* that provide resistance to the passage of fire and smoke equivalent to that provided by the *smoke-barrier walls*.

709.4.1 Smoke-barrier assemblies separating smoke compartments.

Smoke-barrier assemblies used to separate *smoke compartments* shall form an effective membrane enclosure that is continuous from an outside wall or *smoke barrier wall* to an outside wall or another *smoke barrier wall* and to the horizontal assemblies.

709.4.2 Smoke-barrier walls enclosing areas of refuge or elevator lobbies.

Smoke-barrier walls used to enclose *areas of refuge* in accordance with [Section 1009.6.4](#), or to enclose elevator lobbies in accordance with [Section 405.4.3](#), [3007.6.2](#), or [3008.6.2](#), shall form an effective membrane enclosure that terminates at a *fire barrier wall* having a level of *fire protection rating* not less than 1 hour, another *smoke barrier wall* or an outside wall. A smoke and draft control door assembly as specified in [Section 716.2.2.1.1](#) shall not be required at each elevator hoistway door opening or at each exit doorway between an *area of refuge* and the exit enclosure.

709.5 Openings.

Openings in a *smoke barrier* shall be protected in accordance with [Section 716](#).

Exceptions:

1. In Group I-1, Condition 2, Group I-2 and *ambulatory care facilities*, where a pair of opposite-swinging doors are installed across a corridor in accordance with [Section 709.5.1](#), the doors shall not be required to be protected in accordance with [Section 716](#). The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of $\frac{3}{4}$ inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. Where permitted by the door manufacturer's listing, positive-latching devices are not required. Factory-applied or field-applied protective plates are not required to be labeled.
2. In Group I-1, Condition 2, Group I-2 and *ambulatory care facilities*, special purpose horizontal sliding, accordion or folding doors installed in accordance with [Section 1010.3.3](#) and protected in accordance with [Section 716](#).

709.5.1 Group I-2 and ambulatory care facilities.

In Group I-2 and *ambulatory care facilities*, where doors protecting openings in *smoke barriers* are installed across a corridor and have hold-open devices, the doors shall be automatic-closing in accordance with [Section 716.2.6.6](#). Such doors shall have a vision panel with fire-protection-rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested.

709.6 Penetrations.

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

709.7 Joints.

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

709.8 Ducts and air transfer openings.

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