

2021 Virginia Construction Code

CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

SECTION 715 JOINTS AND VOIDS

Relocated

715.1 General.

The provisions of this section shall govern the materials and methods of construction used to protect *joints* and voids in or between horizontal and vertical assemblies.

715.2 Installation.

Systems or materials protecting *joints* and voids shall be securely installed in accordance with the manufacturer's installation instructions in or on the *joint* or void for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to resist the passage of fire and hot gases. *Fire-resistant joint systems* or systems used to protect voids at exterior curtain walls and fire-resistance-rated floor intersections shall also be installed in accordance with the listing criteria.

Relocated

715.3 Fire-resistance-rated assembly intersections.

Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved *fire-resistant joint* system designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the wall, floor or roof in or between which the system is installed.

Exception: *Fire-resistant joint* systems shall not be required for *joints* in the following locations:

1. Floors within a single *dwelling unit*.
2. Floors where the *joint* is protected by a shaft enclosure in accordance with [Section 713](#).
3. Floors within *atriums* where the space adjacent to the *atrium* is included in the volume of the *atrium* for smoke control purposes.
4. Floors within *malls*.
5. Floors and ramps within parking garages or structures constructed in accordance with [Sections 406.5](#) and [406.6](#).
6. *Mezzanine* floors.
7. Walls that are permitted to have unprotected openings.
8. Roofs where openings are permitted.
9. Control *joints* not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with [ASTM E119](#) or [UL 263](#).
10. The intersection of exterior curtain wall assemblies and the roof slab or roof deck.

715.3.1 Fire test criteria.

Fire-resistant joint systems shall be tested in accordance with the requirements of either [ASTM E1966](#) or [UL 2079](#). Nonsymmetrical wall *joint* systems shall be tested with both faces exposed to the furnace, and the assigned *fire-resistance rating* shall be the shortest duration obtained from the two tests. Where evidence is furnished to show that the wall was tested with the least fire-resistant side exposed to the furnace, subject to acceptance of the *building official*, the wall need not be subjected to tests from the opposite side.

Exception: For exterior walls with a horizontal *fire separation distance* greater than 10 feet (3048 mm), the joint system shall be required to be tested for interior fire exposure only.

715.4 Exterior curtain wall/fire-resistance-rated floor intersections.

Voids created at the intersection of exterior curtain wall assemblies and fire-resistance-rated floor or floor/ceiling assemblies shall be protected with an approved *perimeter fire containment* system to prevent the interior spread of fire. Such systems shall provide an *F rating* for a time period not less than the *fire-resistance rating* of the floor or floor/ceiling assembly.

715.4.1 Fire test criteria.

Perimeter fire containment systems shall be tested in accordance with the requirements of [ASTM E2307](#).

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Exception: Voids created at the intersection of the exterior curtain wall assemblies and floor assemblies where the vision glass extends to the finished floor level shall be permitted to be protected with an approved material to prevent the interior spread of fire. Such material shall be securely installed and capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E119 time-temperature fire conditions under a minimum positive pressure differential of 0.01 inch (0.254 mm) of water column (2.5 Pa) for the time period not less than the fire-resistance rating of the floor assembly.

715.5 Exterior curtain wall/nonfire-resistance-rated floor assembly intersections.

Voids created at the intersection of exterior curtain wall assemblies and nonfire-resistance-rated floor or floor/ceiling assemblies shall be **filled** with an *approved* material or system to retard the interior spread of fire and hot gases between *stories*.

715.6 Exterior curtain wall/vertical fire barrier intersections.

Voids created at the intersection of nonfire-resistance-rated exterior curtain wall assemblies and **vertical** *fire barriers* shall be filled **with an** approved material or system to retard the **interior spread** of fire and hot gases.

715.7 Curtain wall spandrels.

Height and *fire-resistance* requirements for curtain wall spandrels shall comply with **Section 705.8.5**. Where **Section 705.8.5** does not require fire-resistance-rated **curtain wall spandrels**, the requirements of **Sections 715.4 and 715.5** shall still apply to the intersection between the **curtain wall spandrels** and the floor.

715.8 Joints and voids in smoke barriers.

Fire-resistant joint systems **protecting joints** in *smoke barriers*, and **perimeter fire containment systems protecting voids** at the intersection of a horizontal *smoke barrier* and an exterior curtain wall, shall be tested in accordance with the requirements of **UL 2079** for air leakage. The L rating of the joint system shall not exceed 5 cubic feet per minute per linear foot (0.00775 m³/s m) of joint at 0.30 inch (74.7 Pa) of water for both the ambient temperature and elevated temperature tests.