

2021 Virginia Construction Code

CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

SECTION 713 SHAFT ENCLOSURES

713.1 General.

The provisions of this section shall apply to *shafts* required to protect openings and penetrations through floor/ceiling and roof/ceiling assemblies. *Interior exit stairways* and *ramps* shall be enclosed in accordance with [Section 1023](#).

713.2 Construction.

Shaft enclosures shall be constructed as *fire barriers* in accordance with [Section 707](#) or *horizontal assemblies* in accordance with [Section 711](#), or both.

713.3 Materials.

Shaft enclosures shall be of materials permitted by the building type of construction.

713.4 Fire-resistance rating.

Shaft enclosures shall have a *fire-resistance rating* of not less than 2 hours where connecting four *stories* or more, and not less than 1 hour where connecting less than four *stories*. The number of *stories* connected by the *shaft enclosure* shall include any *basements* but not any *mezzanines*. *Shaft enclosures* shall have a *fire-resistance rating* not less than the floor assembly penetrated, but need not exceed 2 hours. *Shaft enclosures* shall meet the requirements of [Section 703.2.1.1](#).

713.5 Continuity.

Shaft enclosures shall be constructed as *fire barriers* in accordance with [Section 707](#) or *horizontal assemblies* constructed in accordance with [Section 711](#), or both, and shall have continuity in accordance with [Section 707.5](#) for *fire barriers* or [Section 711.2.2](#) for *horizontal assemblies*, as applicable.

713.6 Exterior walls.

Where *exterior walls* serve as a part of a required *shaft enclosure*, such walls shall comply with the requirements of [Section 705](#) for *exterior walls* and the fire-resistance-rated enclosure requirements shall not apply.

Exception: *Exterior walls* required to be fire-resistance rated in accordance with [Section 1021.2](#) for exterior egress balconies, [Section 1023.7](#) for *interior exit stairways* and *ramps* and [Section 1027.6](#) for exterior exit stairways and ramps.

713.7 Openings.

Openings in a *shaft enclosure* shall be protected in accordance with [Section 716](#) as required for *fire barriers*. Doors shall be self- or automatic-closing by smoke detection in accordance with [Section 716.2.6.6](#).

713.7.1 Prohibited openings.

Openings other than those necessary for the purpose of the *shaft* shall not be permitted in *shaft enclosures*.

713.8 Penetrations.

Penetrations in a *shaft enclosure* shall be protected in accordance with [Section 714](#) as required for *fire barriers*. Structural elements, such as beams or joists, where protected in accordance with [Section 714](#) shall be permitted to penetrate a *shaft enclosure*.

713.8.1 Prohibited penetrations.

Penetrations other than those necessary for the purpose of the *shaft* shall not be permitted in *shaft enclosures*.

Exception: *Membrane penetrations* shall be permitted on the outside of *shaft enclosures*. Such penetrations shall be protected in accordance with [Section 714.4.2](#).

713.9 Joints.

Joints in a *shaft enclosure* shall comply with [Section 715](#).

713.10 Duct and air transfer openings.

Penetrations of a *shaft enclosure* by ducts and air transfer openings shall comply with [Section 717](#).

713.11 Enclosure at the bottom.

Shafts that do not extend to the bottom of the building or structure shall comply with one of the following:

1. Be enclosed at the lowest level with construction of the same *fire-resistance rating* as the *lowest floor* through which the *shaft* passes, but not less than the rating required for the *shaft enclosure*.
2. Terminate in a room having a use related to the purpose of the *shaft*. The room shall be separated from the remainder of the building by *fire barriers* constructed in accordance with [Section 707](#) or *horizontal assemblies* constructed in accordance with [Section 711](#), or both. The *fire-resistance rating* and opening protectives shall be not

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less than the protection required for the *shaft enclosure*.

3. Be protected by *approved fire dampers* installed in accordance with their listing at the *lowest floor* level within the *shaft enclosure*.

Exceptions:

1. The fire-resistance-rated room separation is not required, provided that the only openings in or penetrations of the *shaft enclosure* to the interior of the building occur at the bottom. The bottom of the *shaft* shall be closed off around the penetrating items with materials permitted by [Section 718.3.1](#) for draftstopping, or the room shall be provided with an *approved automatic sprinkler system*.
2. A *shaft enclosure* containing a waste or linen chute shall not be used for any other purpose and shall discharge in a room protected in accordance with [Section 713.13.4](#).
3. The fire-resistance-rated room separation and the protection at the bottom of the *shaft* are not required provided that there are no combustibles in the *shaft* and there are no openings or other penetrations through the *shaft enclosure* to the interior of the building.

713.12 Enclosure at top.

The top of *shaft enclosures* shall comply with one of the following:

1. Extend to the underside of the roof sheathing, deck or slab of the building, and the *roof assembly* shall comply with the requirements for the type of construction as specified in [Table 601](#).
2. Terminate below the *roof assembly* and be enclosed at the top with construction of the same *fire-resistance rating* as the topmost floor penetrated by the shaft, but not less than the *fire-resistance rating* required for the shaft enclosure.
3. Extend past the *roof assembly* and comply with the requirements of [Section 1511](#).

713.12.1 Penthouse mechanical rooms.

A fire/smoke damper shall not be required at the penetration of the rooftop structure where *shaft enclosures* extend up through the *roof assembly* into a rooftop structure conforming to [Section 1511](#). Ductwork in the *shaft* shall be connected directly to HVAC equipment.

713.13 Waste , recycling and linen chutes and incinerator rooms.

Waste, recycling and linen chutes shall comply with the provisions of [NFPA 82](#), Chapter 6 and shall meet the requirements of [Sections 712](#) and [713.13.1](#) through [713.13.6](#). Incinerator rooms shall meet the provisions of [Sections 713.13.4](#) and [713.13.5](#).

Exception: Chutes serving and contained within a single *dwelling unit*.

713.13.1 Waste, recycling and linen chute enclosures.

A *shaft enclosure* containing a recycling, waste or linen chute shall not be used for any other purpose and shall be enclosed in accordance with [Section 713.4](#). A *shaft enclosure* shall be permitted to contain recycling and waste chutes. Openings into the *shaft*, from access rooms and discharge rooms, shall be protected in accordance with this section and [Section 716](#). Openings into chutes shall not be located in *corridors*. Doors into chutes shall be *self-closing*. Discharge doors shall be self- or automatic-closing upon the actuation of a smoke detector in accordance with [Section 716.2.6.6](#), except that heat-activated closing devices shall be permitted between the *shaft* and the discharge room.

713.13.2 Materials.

A *shaft enclosure* containing a waste, recycling, or linen chute shall be constructed of materials as permitted by the building type of construction.

713.13.3 Chute access rooms.

Access openings for waste, recycling or linen chutes shall be located in rooms or compartments enclosed by not less than 1-hour *fire barriers* constructed in accordance with [Section 707](#) or *horizontal assemblies* constructed in accordance with [Section 711](#), or both. Openings into the access rooms shall be protected by opening protectives having a *fire protection rating* of not less than $\frac{3}{4}$ hour. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with [Section 716.2.6.6](#). The room or compartment shall be configured to allow the access door to the room or compartment to close and latch with the access panel to the chute in any position.

713.13.4 Chute discharge room.

Waste, recycling or linen chutes shall discharge into an enclosed room separated by *fire barriers* with a *fire-resistance rating* not less than the required fire rating of the *shaft enclosure* and constructed in accordance with [Section 707](#) or *horizontal assemblies* constructed in accordance with [Section 711](#), or both. Openings into the discharge room from the remainder of the building shall be protected by opening protectives having a *fire protection rating* equal to the protection required for the *shaft enclosure*. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with [Section 716.2.6.6](#). Waste chutes shall not terminate in an incinerator room. Waste and linen rooms that are not provided

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with chutes need only comply with [Table 509.1](#).

713.13.5 Incinerator room.

Incinerator rooms shall comply with [Table 509.1](#).

713.13.6 Automatic sprinkler system.

An *approved automatic sprinkler system* shall be installed in accordance with [Section 903.2.11.2](#).

713.14 Elevator, dumbwaiter and other hoistways.

Elevator, dumbwaiter and other hoistway enclosures shall be constructed in accordance with [Sections 712](#) and [713](#), and [Chapter 30](#).