

2021 Virginia Construction Code

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

SECTION 404 ATRIUMS

404.1 General.

The provisions of Sections 404.1 through 404.11 shall apply to buildings containing atriums. Atriums are not permitted in buildings or structures classified as Group H.

Exception: Vertical openings that comply with Sections 712.1.1 through 712.1.3, and Sections 712.1.9 through 712.1.14.

404.2 Use.

The floor of the atrium shall not be used for other than low fire hazard uses and only approved materials and decorations in accordance with the *International Fire Code* shall be used in the atrium space.

Exception: The atrium floor area is permitted to be used for any approved use where the individual space is provided with an automatic sprinkler system in accordance with Section 903.3.1.1.

[F] 404.3 Automatic sprinkler protection.

An approved automatic sprinkler system shall be installed throughout the entire building.

Exceptions:

1. That area of a building adjacent to or above the atrium need not be sprinklered provided that portion of the building is separated from the atrium portion by not less than 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.
2. Where the ceiling of the atrium is more than 55 feet (16 764 mm) above the floor, sprinkler protection at the ceiling of the atrium is not required.

[F] 404.4 Fire alarm system.

A fire alarm system shall be provided in accordance with Section 907.2.14.

404.5 Smoke control.

A smoke control system shall be installed in accordance with Section 909.

Exceptions:

1. In other than Group I-2, and Group I-1, Condition 2, smoke control is not required for atriums that connect only two stories.
2. A smoke control system is not required for atriums connecting more than two stories when all of the following are met:
 - 2.1. Only the two lowest stories shall be permitted to be open to the atrium.
 - 2.2. All stories above the lowest two stories shall be separated from the atrium in accordance with the provisions for a shaft in Section 713.4.

404.6 Enclosure of atriums.

Atrium spaces shall be separated from adjacent spaces by a 1-hour fire barrier constructed in accordance with Section 707 or a horizontal assembly constructed in accordance with Section 711, or both.

Exceptions:

1. A fire barrier is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:
 - 1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the atrium side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;
 - 1.2. The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and
 - 1.3. Where glass doors are provided in the glass wall, they shall be either self-closing or automatic-closing.
2. A fire barrier is not required where a glass-block wall assembly complying with Section 2110 and having a ³/₄-hour fire protection rating is provided.
3. A fire barrier is not required between the atrium and the adjoining spaces of up to three floors of the atrium

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provided that such spaces are accounted for in the design of the smoke control system.

4. A *fire barrier* is not required between the *atrium* and the adjoining spaces where the *atrium* is not required to be provided with a smoke control system.
5. A *horizontal assembly* is not required between the *atrium* and openings for escalators complying with Section 712.1.3.
6. A *horizontal assembly* is not required between the *atrium* and openings for *exit access stairways* and *ramps* complying with Item 4 of Section 1019.3.

[F] 404.7 Standby power.

Equipment required to provide smoke control shall be provided with standby power in accordance with Section 909.11.

404.8 Interior finish.

The *interior finish* of walls and ceilings of the *atrium* shall be not less than Class B. Sprinkler protection shall not result in a reduction in class.

404.9 Exit access travel distance.

Exit access travel distance for areas open to an *atrium* shall comply with the requirements of Section 1017.

404.10 Exit stairways in an atrium.

Where an *atrium* contains an *interior exit stairway* all the following shall be met:

1. The entry to the exit stairway is the edge of the closest riser of the exit stairway.
2. The entry of the exit stairway shall have access from a minimum of two directions.
3. The distance between the entry to an exit stairway in an atrium and the entrance to a minimum of one exit stairway enclosed in accordance with Section 1023.2 shall comply with the separation required by Section 1007.1.1.
4. Exit access travel distance shall be measured to the closest riser of the exit stairway.
5. Not more than 50 percent of the exit stairways shall be located in the same atrium.

404.11 Interior exit stairway discharge.

Discharge of *interior exit stairways* through an *atrium* shall be in accordance with Section 1028.