

BCAC ITEM 4-1 SEPTEMBER 14, 2017

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SECTION 404 ATRIUMS

404.1 General. ~~The provisions of Sections 404.1 through 404.10 shall apply to buildings or structures containing vertical openings defined as *atriums*. "Atriums." Atriums in buildings or structures not classified as Group H shall comply with this section. Atriums are not permitted in buildings or structures classified as Group H. In other than Group H occupancies, and where permitted by Section 712.1.7, the provisions of Sections 404.1 through 404.10 shall apply to buildings or structures containing vertical openings defined as "Atriums."~~

BCAC notes 9/14/2017:apply to buildings or atriums??

404.1.1 Definition. The following term is defined in Chapter 2:

ATRIUM.

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.

Exception: In other than Group I-2, and Group I-1, Condition 2, smoke control is not required for *atriums* that connect only two *stories*.

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces in accordance with Section 712.7.1 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 any three floors of the *atrium* provided such spaces are accounted for in the design of the smoke control system.

[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 with no reduction in class for sprinkler protection.

404.9 **Exit access travel distance.** *Exit access* travel distance for areas open to an *atrium* shall comply with the requirements of Section 1017.4 ~~this section~~.

~~404.9.1 Egress not through the atrium.~~ Where required access to the exits is not through the *atrium*, *exit access* travel distance shall comply with Section 1017.

~~404.9.2 Exit access travel distance at the level of exit discharge.~~ Where the path of egress travel is through an *atrium* space, *exit access* travel distance at the *level of exit discharge* shall be determined in accordance with Section 1017.

~~404.9.3 Exit access travel distance at other than the level of exit discharge.~~ Where the path of egress travel is not at the *level of exit discharge* from the *atrium*, that portion of the total permitted *exit access* travel distance that occurs within the *atrium* shall be not greater than 200 feet (60 960 mm).

404.10 **Interior exit stairways.** Discharge A maximum of 50 percent of *interior exit stairways* are permitted to egress through an *atrium* on the level of exit discharge shall be in accordance with Section 1028.

BCAC Notes: Coordinate with FCAC at October meeting.

Move separation requirements to 712 (pointer left in Section 404)

712.1.7 **Atriums.** Atriums in buildings or structures not classified as Group H shall comply with Section 404. Atriums are not permitted in buildings or structures classified as Group H. In other than Group H occupancies, atriums complying with Section 404 shall be permitted.

712.1.7.1 **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 any three floors of the atrium provided such spaces are accounted for in the design of the smoke control system.

Move exit access travel distance requirements to 1017 (pointer left in Section 404)

1017.4 Atriums. Exit access travel distance for areas open to an atrium shall comply with the requirements of this section.

1017.4.1 Egress not through the atrium. Where required access to the exits is not through the atrium, exit access travel distance shall comply with Section 1017.2

1017.4.2 Exit access travel distance at the level of exit discharge. Where the path of egress travel is through an atrium space, exit access travel distance at the level of exit discharge shall be determined in accordance with Section 1017.2

1017.4.3 Exit access travel distance at other than the level of exit discharge. Where the path of egress travel is not at the level of exit discharge from the atrium, that portion of the total permitted exit access travel distance that occurs within the atrium shall be not greater than 200 feet (60 960 mm).

Move interior exit stair discharge requirements to 1028 (pointer left in Section 404)

1028.1 General. Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide a direct path of egress travel to grade. The exit discharge shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and minimum width or required capacity of the required exits.

Exceptions:

1. (No changes to exception)
2. (No changes to exception)
3. (No changes to exception)

4. A maximum of 50 percent of interior exit stairways are permitted to egress through an atrium on the level of exit discharge in accordance with Section 1028.

Reason: The purpose of this proposal is to relocate portions of the Section 404 atrium requirements to other appropriate portions of the IBC. As defined in Chapter 2, an atrium is a particular type of a vertical

opening in a building or structure, but not the only method permitted by Chapter 7 for dealing with a vertical opening.

A proposal last cycle (G51-15) attempted to relocate the entire Section 404 provisions into Section 712. While the proposal was disapproved by a vote of 8-6, there was support expressed for considering a relocation of these provisions if clarifications to the existing text were provided and at least a minimum set of provisions be retained in Chapter 4 as a starting point for addressing requirements specific to certain building features.

This proposal retains Section 404 but makes some targeted relocations. The basic requirement for fire barriers or horizontal assemblies separating an atrium from adjacent spaces are moved to Section 712, putting them in the portion of the code dealing with separation requirements for other types of vertical and horizontal openings. Requirements relative to exit access travel distance and interior exit stair discharge are also moved to Section 1017 and Section 1028 respectively. While these provisions perhaps appear specific to atriums, they are not entirely self-contained and clearly need to be evaluated as part of the general travel distance and exit discharge requirements for the building. The atrium-specific requirements should be in the same place. In all cases, pointers are left in Section 404 so the link is not totally lost and code users still have Section 404 as a guide to all of the considerations for atriums.

Finally, the charging language is clarified. A circular reference between Section 404 and Section 712.1 is removed. The existing language, especially in Section 404, also makes it vague as to whether an atrium is allowed in a Group H building or structure, versus another method of treating a vertical opening. The implication (especially in Section 712.1) is that such an atrium is not permitted. The charging language in both sections is revised accordingly.

Use the following instead of a separate exception.

1028.1 General. Exits shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide a direct path of egress travel to grade. The *exit discharge* shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and minimum width or required capacity of the required exits.

Exceptions:

1. Not more than 50 percent of the number and minimum width or required capacity of *interior exit stairways* and *ramps* is permitted to egress through areas, including atriums, on the level of discharge provided that all of the following conditions are met: