CHAPTER 34
EXISTING STRUCTURES

SECTION 3401
GENERAL

3401.1 Scope. The provisions of this chapter shall control the alteration, repair, addition and change of occupancy of existing structures.

Exception: Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300-02.

3401.2 Maintenance. Buildings, structures, equipment and parts thereof, shall be maintained in a safe and sanitary condition and in accordance with the condition(s) established in current and any previous plan approvals and certificates of occupancy. Devices or safeguards which are required by this code shall be maintained in conformance with the code edition under which installed. The owner or the owner’s designated agent shall be responsible for the maintenance of buildings and structures. To determine compliance with this subsection, the building official shall have the authority to require a building or structure to be reinspected. The requirements of this chapter shall not provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures without approval of the building official.

3401.3 Compliance with other codes. Deleted.

SECTION 3402
DEFINITIONS

3402.1 Definitions. The following term shall, for the purposes of this chapter and as used elsewhere in the code, have the following meaning:

CHANGE OF OCCUPANCY. A change in the purpose or level of activity within a structure that involves a change in the application of the requirements of the code.

TECHNICALLY INFEASIBLE. An alteration of a building or a facility that has little likelihood of being accomplished because the existing structural conditions require the removal or alteration of a load-bearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces or features which are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility.

SECTION 3403
ADDITIONS, ALTERATIONS OR REPAIRS

3403.1 Existing buildings or structures. Additions or alterations to any building or structure shall conform with the requirements of the code for new construction. Additions or alterations shall not be made to an existing building or structure which will cause the existing building or structure to be in violation of any provisions of this code. An existing building plus additions shall comply with the height and area provisions of Chapter 5. Portions of the structure not altered and not affected by the alteration are not required to comply with the code requirements for a new structure. See Section 3409 of this code for accessibility requirements applicable to additions and alterations.

Exception: For buildings and structures in flood hazard areas established in Section 1612.3, any additions, alterations or repairs that constitute substantial improvement of the existing structure, as defined in Section 1612.2, shall comply with the flood design requirements for new construction and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

3403.1.1 Additions to buildings of Groups R and I occupancies. Additions to existing buildings shall comply with the requirements of this code for new construction. The combined height and area of the existing building and the new addition shall not exceed the height and area allowed by Chapter 5. Where a fire wall that complies with Section 705 is provided between the addition and the existing building, the addition shall be considered a separate building.

3403.1.2 Additions to buildings of Groups other than R and I occupancies. Additions to existing buildings shall comply with the requirements of this code for new construction. When the combined height and area of the existing building and the new addition exceeds the height and area allowed by Chapter 5, a fire wall that complies with Section 705 or a fire barrier that complies with Section 706 shall be provided between the addition and the existing building. When a fire wall is constructed to separate the existing building from the addition, the addition shall be considered a separate building. When a fire barrier is constructed to separate the existing building from the addition, the combined height and area of the addition and existing building shall be used to determine construction type and fire protection requirements for the addition.

3403.2 Structural. Additions or alterations to an existing structure shall not increase the force in any structural element by more than 5 percent, unless the increased forces on the element are still in compliance with the code for new structures, nor shall the strength of any structural element be decreased to less than that required by this code for new structures. Where repairs are made to structural elements of an existing building, and uncovered structural elements are found to be unsound or otherwise structurally deficient, such elements shall be made to conform to the requirements for new structures.

3403.2.1 Existing live load. Where an existing structure is altered or repaired, the minimum design loads for the structure shall be the loads applicable at the time of erection, provided that public safety is not endangered thereby.

3403.2.2 Live load reduction. If the approved live load is less than required by Section 1607, the areas designed for
the reduced live load shall be posted in with the approved load. Placards shall be of an approved design.

3403.3 Nonstructural. Nonstructural alterations or repairs to an existing building or structure are permitted to be made of the same materials of which the building or structure is constructed, provided that they do not adversely affect any structural member or the fire-resistance rating of any part of the building or structure.

3403.4 Stairways. An alteration or the replacement of an existing stairway in an existing structure shall not be required to comply with the requirements of a new stairway as outlined in Section 1009 where the existing space and construction will not allow a reduction in pitch or slope.

3403.5 Alterations to other systems, components and materials. Alterations to existing systems (egress, fire protection, smoke control, mechanical, plumbing, etc.), and materials or building components not otherwise provided for in Section 3403, shall conform to that required for new construction to the extent of the alteration. The existing systems, materials or components shall not be required to comply with all of the requirements of this code for new construction except to the extent that they are affected by the alteration. Additions or alterations to existing systems, materials or components shall not cause them to become unsafe, hazardous, overloaded or become less effective than when originally installed, constructed and/or approved.

3403.6 Repairs to other systems, components and materials. Repairs to existing systems and materials or building components not otherwise provided for in Section 3403 shall not be required to meet the provisions for new construction, provided such work is done in accordance with the conditions of the existing approval in the same manner and arrangement as was in the existing system, is not less safe than when originally installed and is approved.

SECTION 3404
FIRE ESCAPES

3404.1 Where permitted. Fire escapes shall be permitted only as provided for in Sections 3404.1.1 through 3404.1.4.

3404.1.1 New buildings. Fire escapes shall not constitute any part of the required means of egress in new buildings.

3404.1.2 Existing fire escapes. Existing fire escapes shall be continued to be accepted as a component in the means of egress in existing buildings only.

3404.1.3 New fire escapes. New fire escapes for existing buildings shall be permitted only where exterior stairs cannot be utilized due to lot lines limiting stair size or due to the sidewalks, alleys or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.

Exception: In existing adult group homes and when an existing building is proposed to be used for a change of occupancy to an adult group home, new fire escapes shall be permitted as a means of emergency escape/fire department access.

3404.1.4 Limitations. Fire escapes shall comply with this section and shall not constitute more than 50 percent of the required number of exits nor more than 50 percent of the required exit capacity.

3404.2 Location. Where located on the front of the building and where projecting beyond the building line, the lowest landing shall not be less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counter-balanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall not be less than 12 feet (3658 mm).

3404.3 Construction. The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other approved noncombustible materials. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type 5 construction. Walkways and railings located over or supported by combustible roofs in buildings of Type 3 and 4 construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

3404.4 Dimensions. Stairs shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairs not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 8 inches (203 mm) below the door.

3404.5 Opening protective. Doors and windows along the fire escape shall be protected with 3/4-hour opening protective.

SECTION 3405
GLASS REPLACEMENT

3405.1 Conformance. The installation or replacement of glass shall be as required for new installations.

SECTION 3406
CHANGE OF OCCUPANCY

3406.1 Conformance. No change of occupancy shall be made to any building unless such building is made to comply with the requirements of this code for such division or group of occupancy. Subject to the approval of the building official, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

3406.2 Certificate of occupancy. A certificate of occupancy shall be issued where it has been determined that the requirements of Section 3406 have been met, there are no outstanding orders and it has been determined that no serious hazards exist.

3406.3 Stairways. Existing stairways in an existing structure shall not be required to comply with the requirements of a new stairway as outlined in Section 1009 where the existing space and construction will not allow a reduction in pitch or slope.
SECTION 3407
HISTORIC BUILDINGS

3407.1 Historic buildings. The provisions of this code relating to the construction, repair, alteration, addition, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings where such buildings are judged by the building official to not constitute a distinct life safety hazard.

3407.2 Flood hazard areas. Within flood hazard areas established in accordance with Section 1612.3, where the work proposed constitutes substantial improvement as defined in Section 1612.2, the building shall be brought into conformance with Section 1612.

Exception: Historic buildings that are:

a. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places; or
b. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or
c. Designated as historic. (see “Historic buildings,” Section 202.)

SECTION 3408
MOVED STRUCTURES

3408.1 Conformance. Structures moved shall be safe and sanitary, and any repair, alteration or change in occupancy shall comply with the provisions of this code for new structures. Field work; building location; foundations and foundation connections; wind loads; seismic loads; snow loads; and flood loads shall comply with the requirements of this code.

The building official shall be authorized to inspect, or require inspection at the expense of the owner, the various components of a relocated building to verify that they have not sustained damage. Building service equipment, mechanical, plumbing and fire protection systems shall be tested to ensure that they are in operating condition. Any repairs or alterations required as a result of such inspections shall be approved and completed prior to issuance of the certificate of occupancy.

SECTION 3409
ACCESSIBILITY FOR EXISTING BUILDINGS

3409.1 Scope. The provisions of Sections 3409.1 through 3409.8 apply to maintenance, change of occupancy, additions and alterations to existing buildings, including those identified as historic buildings.

Exception: Type B dwelling or sleeping units required by Section 1107 are not required to be provided in existing buildings and facilities.

3409.2 Maintenance of facilities. A building, facility or element that is constructed or altered to be accessible shall be maintained accessible during occupancy.

3409.3 Change of occupancy. Existing buildings, or portions thereof, that undergo a change of group or occupancy shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to primary function areas.
3. Signage complying with Section 1110.
4. Accessible parking, where parking is being provided.
5. At least one accessible passenger loading zone, when loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is technically infeasible to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible. Change of group or occupancy that incorporates any alterations or additions shall comply with this section and Sections 3409.4, 3409.5, 3409.6 and 3409.7.

3409.4 Additions. Provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of primary function, shall comply with the requirements in Section 3409.6 for accessible routes.

3409.5 Alterations. A building, facility or element that is altered shall comply with the applicable provisions in Chapter 11 and ADAAG, unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route, unless required by Section 3409.6.
2. Accessible means of egress required by Chapter 10 are not required to be provided in existing buildings and facilities.

3409.5.1 Extent of application. An alteration of an existing element, space or area of a building or facility shall not impose a requirement for greater accessibility than that which would be required for new construction.

Alterations shall not reduce or have the effect of reducing accessibility of a building, portion of a building or facility.

3409.6 Alterations affecting an area containing a primary function. Where an alteration affects the accessibility to, or contains an area of primary function, the route to the primary function area and the amenities serving the area shall be accessible. The accessible route to the primary function area shall include toilet facilities or drinking fountains serving the area of primary function.

Exceptions:

1. When the costs for complying with this section would be disproportionate to the overall cost of the alteration. The determination of disproportionality and the conditions for applying this exception shall be in accordance with Section 3409.6.1
2. Alterations limited solely to windows, hardware, operating controls, electrical outlets and signs.

3. Alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.

4. Alterations undertaken for the primary purpose of increasing the accessibility of an existing building, facility or element.

3409.6.1 Disproportionate costs and alternative compliance. Alterations required to be made to provide an accessible path of travel to the altered area will be deemed disproportionate to the overall alteration when the cost exceeds 20 percent of the cost of the alteration to the primary function area. The determination of disproportionate costs shall be made and applied in accordance with the following:

1. Costs that may be counted as expenditures required to provide an accessible path of travel may include:

   1.1. Costs associated with providing an accessible entrance and an accessible route to the altered area; for example, the cost of widening doorways or installing ramps;

   1.2. Costs associated with making restrooms accessible, such as installing grab bars, enlarging toilet stalls, installing pipes or installing accessible faucet controls;

   1.3. Costs associated with providing accessible telephones, such as relocating the telephone to an accessible height, installing amplification devices or installing a telecommunications device for deaf persons (TDD);

   1.4. Costs associated with relocating an inaccessible drinking fountain.

2. Required accessible features in the event of disproportionality.

   2.1. When the cost of alterations necessary to make the path travel to the altered area fully accessible is disproportionate to the cost of the overall alteration, the path of travel shall be made accessible to the extent that it can be made accessible without incurring disproportionate costs.

   2.2. In choosing which accessible elements to provide, priority should be given to those elements that will provide the greatest access, in the following order:

   2.2.1. An accessible route to the altered area.

   2.2.2. At least one accessible restroom for each sex or a single unisex restroom.

   2.2.3. Accessible telephones.

   2.2.4. Accessible drinking fountains.

   2.2.5. When possible, additional accessible elements such as parking, storage and alarms.

3. Series of smaller alterations. The obligation to provide an accessible path of travel may not be evaded by performing a series of small alterations to the area served by a single path of travel if those alterations could have been performed as a single undertaking.

   If an area containing a primary function has been altered without providing an accessible path of travel to that area, and subsequent alterations of that area, or a different area on the same path of travel, are undertaken within three years of the original alteration, the total cost of alterations to the primary function areas on that path of travel during the preceding three year period shall be considered in determining whether the cost of making that path of travel accessible is disproportionate.

3409.7 Scoping for alterations. The provisions of Sections 3409.7.1 through 3409.7.12 shall apply to alterations to existing buildings and facilities.

3409.7.1 Elevators. Altered elements of existing elevators shall comply with ASME A17.1 and ADAAG. Such elements shall also be altered in elevators programmed to respond to the same call control as the altered elevator.

3409.7.2 Platform lifts. Platform (wheelchair) lifts complying with ADAAG and installed in accordance with Chapter 30 of this code, shall be permitted as a component of an accessible route. In existing buildings, platform lifts shall not be limited to the conditions indicated in Section 1109.7.

3409.7.4 Stairs and escalators in existing buildings. In alterations where an escalator or stair is added where none existed previously, an accessible route shall be provided in accordance with Sections 1104.4 and 1104.5.

3409.7.5 Ramps. Where steeper slopes than allowed by Section 1010.2 are necessitated by space limitations, the slope of ramps in or providing access to existing buildings or facilities shall comply with Table 3409.7.5.

<table>
<thead>
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<th>TABLE 3409.7.5 RAMPS</th>
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<tr>
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</tr>
<tr>
<td>Steeper than 1:12 but not steeper than 1:10</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm.

3409.7.6 Performance areas. Where it is technically infeasible to alter performance areas to be on an accessible route, at least one of each type of performance area shall be made accessible.

3409.7.7 Dwelling or sleeping units. Where I-1, I-2, I-3, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered or added, the requirements of Section 1107 for accessible rooms and Chapter 9 for accessible alarms apply only to the quantity of spaces being altered or added.

3409.7.8 Jury boxes and witness stands. In alterations, accessible wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where the ramp or lift access restricts or projects into the means of egress.
3409.7.9 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing facilities to be accessible, an accessible unisex toilet or bathing facility is permitted. The unisex facility shall be located on the same floor and in the same area as the existing facilities.

3409.7.10 Dressing, fitting and locker rooms. Where it is technically infeasible to provide accessible dressing, fitting or locker rooms at the same location as similar types of rooms, one accessible room on the same level shall be provided. Where separate-sex facilities are provided, accessible rooms for each sex shall be provided. Separate-sex facilities are not required where only unisex rooms are provided.

3409.7.11 Check-out aisles. Where check-out aisles are altered, at least one of each check-out aisle serving each function shall be made accessible until the number of accessible check-out aisles complies with Section 1109.12.2.

3409.7.12 Thresholds. The maximum height of thresholds at doorways shall be 1/4 inch (19.1 mm). Such thresholds shall have beveled edges on each side.

3409.8 Historic buildings. These provisions shall apply to buildings and facilities designated as historic structures that undergo alterations or a change of occupancy, unless technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the authority having jurisdiction, the alternative requirements of Sections 3409.8.1 through 3409.8.5 for that element shall be permitted.

3409.8.1 Site arrival points. At least one accessible route from a site arrival point to an accessible entrance shall be provided.

3409.8.2 Multilevel buildings and facilities. An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

3409.8.3 Entrances. At least one main entrance shall be accessible.

Exceptions:

1. If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or
2. If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1110 shall be provided at the primary entrance and the accessible entrance.

3409.8.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one accessible toilet room complying with Section 1109.2.1 shall be provided.

3409.8.5 Ramps. The slope of a ramp run of 24 inches (610 mm) maximum shall not be steeper than one unit vertical in eight units horizontal (12-percent slope).

SECTION 3410
COMPLIANCE ALTERNATIVES

3410.1 Compliance. The provisions of this section are intended to maintain or increase the current degree of public safety, health and general welfare in existing buildings while permitting repair, alteration, addition and change of occupancy without requiring full compliance with Chapters 2 through 33, or Sections 3401.3, and 3403 through 3407, except where compliance with other provisions of this code is specifically required in this section.

3410.2 Applicability. Structures existing prior to July 1, 1979, in which there is work involving additions, alterations or changes of occupancy shall be made to conform to the requirements of this section or the provisions of Sections 3403 through 3407.

The provisions in Sections 3410.2.1 to 3410.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-1, M, R and S. These provisions shall not apply to buildings with occupancies in Group H or other I occupancies. In applying the provisions of this section for Group I-1 occupancies, use the values indicated for Group R occupancies where indicated.

3410.2.1 Change in occupancy. Where an existing building is changed to a new occupancy classification and this section is applicable, the provisions of this section for the new occupancy shall be used to determine compliance with this code.

3410.2.2 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, and that portion is separated from the remainder of the building with fire barrier wall assemblies having a fire-resistance rating as required by Table 302.3.2 for the separate occupancies, or with approved compliance alternatives, the portion changed shall be made to conform to the provisions of this section.

Where a portion of the building is changed to a new occupancy classification, and that portion is not separated from the remainder of the building with fire separation assemblies having a fire-resistance rating as required by Table 302.3.2 for the separate occupancies, or with approved compliance alternatives, the provisions of this section which apply to each occupancy shall apply to the entire building. Where there are conflicting provisions, those requirements which secure the greater public safety shall apply to the entire building or structure.

3410.2.3 Additions. Additions to existing buildings shall comply with Section 3403.

3410.2.4 Alterations and repairs. An existing building or portion thereof, which does not comply with the requirements of this code for new construction, shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently. If, in the alteration or repair, the current level of safety or sanitation is to be reduced, the portion altered or repaired shall conform to the requirements of Chapters 2 through 12 and Chapters 14 through 33.
### TABLE 3409.6.3 COMPARTMENTATION VALUES

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<th>OCCUPANCY</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
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<td>10</td>
<td>16</td>
<td>22</td>
</tr>
</tbody>
</table>

For SF: 1 square foot = 0.093 m².

a. For areas between categories, the compartmentation value shall be obtained by linear interpolation.

### 3410.2.5 Accessibility requirements

All portions of the buildings proposed for change of occupancy shall comply with Section 3409.3.

### 3410.3 Acceptance

For repairs, alterations, additions and changes of occupancy to existing buildings that are evaluated in accordance with this section, compliance with this section shall be accepted by the building official.

### 3410.3.1 Hazards

Where the building official determines that an unsafe condition exists, as provided for in Section 115, such unsafe condition shall be abated in accordance with Section 115.

### 3410.4 Investigation and evaluation

For proposed work covered by this section, the building owner shall cause the existing building to be investigated and evaluated in accordance with the provisions of this section.

### 3410.4.1 Structural analysis

The owner shall have a structural analysis of the existing building made to determine adequacy of structural systems for the proposed alteration, addition or change of occupancy. The existing building shall be capable of supporting the minimum load requirements of Chapter 16.

### 3410.4.2 Submittal

The results of the investigation and evaluation as required in Section 3410.4, along with proposed compliance alternatives, shall be submitted to the building official.

### 3410.4.3 Determination of compliance

The building official shall determine whether the existing building, with the proposed addition, alteration or change of occupancy, complies with the provisions of this section in accordance with the evaluation process in Sections 3410.5 through 3410.9.

### 3410.5 Evaluation

The evaluation shall be comprised of three categories: fire safety, means of egress and general safety, as defined in Sections 3410.5.1 through 3410.5.3.

#### 3410.5.1 Fire safety

Included within the fire safety category are the structural fire resistance, automatic fire detection, fire alarm and fire suppression system features of the facility.

### 3410.5.2 Means of egress

Included within the means of egress category are the configuration, characteristics and support features for means of egress in the facility.

### 3410.5.3 General safety

Included within the general safety category are the fire safety parameters and the means of egress parameters.

### 3410.6 Evaluation process

The evaluation process specified herein shall be followed in its entirety to evaluate existing buildings. Table 3410.7 shall be utilized for tabulating the results of the evaluation. References to other sections of this code indicate that compliance with those sections is required in order to gain credit in the evaluation herein outlined. In applying this section to a building with mixed occupancies, where the separation between the mixed occupancies does not qualify for any category indicated in Section 3410.6.16, the score for each occupancy shall be determined and the lower score determined for each section of the evaluation process shall apply to the entire building.

Where the separation between the mixed occupancies qualifies for any category indicated in Section 3410.6.16, the score for each occupancy shall apply to each portion of the building based on the occupancy of the space.

### 3410.6.1 Building height

The value for building height shall be the lesser value determined by the formula in Section 3410.6.1.1. Chapter 5 shall be used to determine the allowable height of the building, including allowable increases due to automatic sprinklers as provided for in Section 504.2. Subtract the actual building height from the allowable and divide by 12 ½ feet. Enter the height value and its sign (positive or negative) in Table 3410.7 under Safety Parameter 3410.6.1, Building Height, for fire safety, means of egress and general safety. The maximum score for a building shall be 10.

#### 3410.6.1.1 Height formula

The following formulas shall be used in computing the building height value.

\[ \text{Height value, feet} = \frac{(AH) - (EBH)}{12.5} \times CF \]

\[ \text{Height value, stories} = (AS - EBS) \times CF \]  
(Equation 34-1)

where:

\[ \text{AS} \, \text{EBS} \]
AH = Allowable height in feet from Table 503.
EBH = Existing building height in feet.
AS = Allowable height in stories from Table 503.
EBS = Existing building height in stories.
CF = 1 if (AH) - (EBH) is positive.
CF = Construction-type factor shown in Table 3409.6.6(2) if (AH) - (EBH) is negative.

Note. Where mixed occupancies are separated and individually evaluated as indicated in Section 3410.6, the values AH, AS, EBH and EBS shall be based on the height of the fire area of the occupancy being evaluated.

3410.6.2 Building area. The value for building area shall be determined by the formula in Section 3410.6.2.2. Section 503 and the formula in Section 3410.6.2.1 shall be used to determine the allowable area of the building. This shall include any allowable increases due to open perimeter and automatic sprinklers as provided for in Section 506. Subtract the actual building area from the allowable area and divide by 1,200 square feet (112 m²). Enter the area value and its sign (positive or negative) in Table 3410.7 under Safety Parameter 3410.6.2, Building Area, for fire safety, means of egress and general safety. In determining the area value, the maximum permitted positive value for area is 50 percent of the fire safety score as listed in Table 3410.8, Mandatory Safety Scores.

3410.6.2.1 Allowable area formula. The following formula shall be used in computing allowable area:

\[
AA = \frac{(SP + OP + 100) \times (\text{area, Table 503})}{100}
\]

(Equation 34-2)

where:

\(AA\) = Allowable area.
\(SP\) = Percent increase for sprinklers (Section 506.3).
\(OP\) = Percent increase for open perimeter (Section 506.2).

3410.6.2.2 Area formula. The following formula shall be used in computing the area value. Determine the area value for each occupancy fire area on a floor-by-floor basis. For each occupancy, choose the minimum area value of the set of values obtained for the particular occupancy.

\[
\text{Area value } \ell = \frac{1}{1,200 \text{ square feet}} \left[ 1 - \left( \frac{\text{Actual area}_i}{\text{Allowable area}_i} + \frac{\text{Actual area}_j}{\text{Allowable area}_j} + \ldots + \frac{\text{Actual area}_n}{\text{Allowable area}_n} \right) \right]
\]

(Equation 34-3)

where:

\(i\) = Value for an individual separated occupancy on a floor.
\(n\) = Number of separated occupancies on a floor.

3410.6.3 Compartmentation. Evaluate the compartments created by fire barrier walls which comply with Sections 3410.6.3.1 and 3410.6.3.2 and which are exclusive of the wall elements considered under Sections 3410.6.4 and 3410.6.5. Conforming compartments shall be figured as the net area and do not include shafts, chases, stairways, walls or columns. Using Table 3410.6.3, determine the appropriate compartmentation value (CV) and enter that value into Table 3410.7 under Safety Parameter 3410.6.3, Compartmentation, for fire safety, means of egress and general safety.

3410.6.3.1 Wall construction. A wall used to create separate compartments shall be a fire barrier conforming to Section 706 with a fire-resistance rating of not less than 2 hours. Where the building is not divided into more than one compartment, the compartment size shall be taken as the total floor area on all floors. Where there is more than one compartment within a story, each compartmented area on such story shall be provided with a horizontal exit conforming to Section 1021. The fire door serving as the horizontal exit between compartments shall be so installed, fitted and gasketed that such fire door will provide a substantial barrier to the passage of smoke.

3410.6.3.2 Floor/ceiling construction. A floor/ceiling assembly used to create compartments shall conform to Section 711 and shall have a fire-resistance rating of not less than 2 hours.

3410.6.4 Tenant and dwelling unit separations. Evaluate the fire-resistance rating of floors and walls separating tenants, including dwelling units, and not evaluated under Sections 3410.6.3 and 3410.6.5. Under the categories and occupancies in Table 3410.6.4, determine the appropriate value and enter that value in Table 3410.7 under Safety Parameter 3410.6.4, Tenant and Dwelling Unit Separation, for fire safety, means of egress and general safety.

<table>
<thead>
<tr>
<th>TABLE 3410.6.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPARATION VALUES</td>
</tr>
<tr>
<td>OCCUPANCY</td>
</tr>
<tr>
<td>A-1</td>
</tr>
<tr>
<td>A-2</td>
</tr>
<tr>
<td>R</td>
</tr>
<tr>
<td>A-3, A-4, B, E, F, M, S-1</td>
</tr>
<tr>
<td>S-2</td>
</tr>
</tbody>
</table>

3410.6.4.1 Categories. The categories for tenant and dwelling unit separations are:

1. Category a — No fire partitions; incomplete fire partitions; no doors; doors not self-closing or automatic closing.
2. Category b — Fire partitions or floor assembly less than 1-hour fire-resistance rating or not constructed in accordance with Sections 708 or 711, respectively.
3. Category c — Fire partitions with 1 hour or greater fire-resistance rating constructed in accordance with Section 708 and floor assemblies with 1-hour...
but less than 2-hour fire-resistance rating constructed in accordance with Section 711, or with only one tenant within the fire area.

4. Category d — Fire barriers with 1-hour but less than 2-hour fire-resistance rating constructed in accordance with Section 706 and floor assemblies with 2-hour or greater fire-resistance rating constructed in accordance with Section 711.

5. Category e — Fire barriers and floor assemblies with 2-hour or greater fire-resistance rating and constructed in accordance with Sections 706 and 711, respectively.

3410.6.5 Corridor walls. Evaluate the fire-resistance rating and degree of completeness of walls which create corridors serving the floor, and constructed in accordance with Section 1016. This evaluation shall not include the wall elements considered under Sections 3410.6.3 and 3410.6.4. Under the categories and groups in Table 3410.6.5, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.5, Corridor Walls, for fire safety, means of egress and general safety.

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORIES</th>
<th>a</th>
<th>b</th>
<th>c^a</th>
<th>d^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>-10</td>
<td>-4</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>A-2</td>
<td>-30</td>
<td>-12</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>A-3, F, M, R, S-1</td>
<td>-7</td>
<td>-3</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
| A-4, B, E, S-2 | -5 | -2 | 0 | 5   | a. Corridors not providing at least one-half the travel distance for all occupants on a floor shall use Category b.

3410.6.5.1 Categories. The categories for corridor walls are:

1. Category a — No fire partitions; incomplete fire partitions; no doors; or doors not self-closing.
2. Category b — Less than 1-hour fire-resistance rating or not constructed in accordance with Section 708.4.
3. Category c — 1-hour to less than 2-hour fire-resistance rating, with doors conforming to Section 715 or without corridors as permitted by Section 1016.
4. Category d — 2-hour or greater fire-resistance rating, with doors conforming to Section 715.

3410.6.6 Vertical openings. Evaluate the fire-resistance rating of vertical exit enclosures, hoistways, elevator openings and other shaft enclosures within the building, and openings between two or more floors. Table 3410.6.6(1) contains the appropriate protection values. Multiply that value by the construction-type factor found in Table 3410.6.6(2). Enter the vertical opening value and its sign (positive or negative) in Table 3410.7 under Safety Parameter 3410.6.6, Vertical Openings, for fire safety, means of egress and general safety. If the structure is a one-story building, enter a value of 2. Unenclosed vertical openings that conform to the requirements of Section 707 shall not be considered in the evaluation of vertical openings.

3410.6.6.1 Vertical opening formula. The following formula shall be used in computing vertical opening value.

\[ VO = PV \times CF \] (Equation 34-4)

\[ VO = \text{Vertical opening value.} \]
\[ PV = \text{Protection value [Table 3409.6.6(1)]} \]
\[ CF = \text{Construction type factor [Table 3409.6.6(2)]} \]

<table>
<thead>
<tr>
<th>PROTECTION</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>None (unprotected opening)</td>
<td>-2 times number floors connected</td>
</tr>
<tr>
<td>Less than 1 hour</td>
<td>-1 times number floors connected</td>
</tr>
<tr>
<td>1 to less than 2 hours</td>
<td>1</td>
</tr>
<tr>
<td>2 hours or more</td>
<td>2</td>
</tr>
</tbody>
</table>

3410.6.7 HVAC systems. Evaluate the ability of the HVAC system to resist the movement of smoke and fire beyond the point of origin. Under the categories in Section 3409.6.7.1, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.7, HVAC Systems, for fire safety, means of egress and general safety.

3410.6.7.1 Categories. The categories for HVAC systems are:

1. Category a — Plenums not in accordance with Section 602 of the International Mechanical Code. -10 points.
2. Category b — Air movement in egress elements not in accordance with Section 1016.4. -5 points.
3. Category c — Both categories a and b are applicable. -15 points.
4. Category d — Compliance of the HVAC system with Section 1016.4 and Section 602 of the International Mechanical Code. 0 points.
5. Category e — Systems serving one story; or a central boiler/chiller system without ductwork connecting two or more stories. 5 points.

3410.6.8 Automatic fire detection. Evaluate the smoke detection capability based on the location and operation of automatic fire detectors in accordance with Section 907 and the International Mechanical Code. Under the categories and occupancies in Table 3410.6.8, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.8, Automatic Fire Detection, for fire safety, means of egress and general safety.
### TABLE 3410.6.8
AUTOMATIC FIRE DETECTION VALUES

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORIES</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1, A-3, F,</td>
<td>a</td>
<td>-10</td>
<td>-5</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>M, R, S-1</td>
<td>b</td>
<td>-25</td>
<td>-5</td>
<td>0</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>A-2</td>
<td>c</td>
<td>-2</td>
<td>-2</td>
<td>0</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

### 3410.6.8.1 Categories.
The categories for automatic fire detection are:

1. **Category a** — None.
2. **Category b** — Existing smoke detectors in HVAC systems and maintained in accordance with the *International Fire Code*.
3. **Category c** — Smoke detectors in HVAC systems. The detectors are installed in accordance with the requirements for new buildings in the *International Mechanical Code*.
4. **Category d** — Smoke detectors throughout all floor areas other than individual guestrooms, tenant spaces and dwelling units.
5. **Category e** — Smoke detectors installed throughout the fire area.

### 3410.6.9 Fire alarm systems.
Evaluate the capability of the fire alarm system in accordance with Section 907. Under the categories and occupancies in Table 3410.6.9, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.9, Fire Alarm, for fire safety, means of egress and general safety.

### TABLE 3410.6.9
FIRE ALARM SYSTEM VALUES

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORIES</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1, A-2, A-3, A-4, B, E, R</td>
<td>-10</td>
<td>-5</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>F, M, S</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

a. For buildings equipped throughout with an automatic sprinkler system, add 2 points for activation by a sprinkler water flow device.

### 3410.6.9.1 Categories.
The categories for fire alarm systems are:

1. **Category a** — None.
2. **Category b** — Fire alarm system with manual fire alarm boxes in accordance with Section 907.3 and alarm notification appliances in accordance with Section 907.9.
3. **Category c** — Fire alarm system in accordance with Section 907.
4. **Category d** — Category c plus a required emergency voice/alarm communications system and a fire command station that conforms to Section 403.8 and contains the emergency voice/alarm communications system controls, fire department communication system controls and any other controls specified in Section 911 where those systems are provided.

### 3410.6.10 Smoke control.
Evaluate the ability of a natural or mechanical venting, exhaust or pressurization system to control the movement of smoke from a fire. Under the categories and occupancies in Table 3410.6.10, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.10, Smoke Control, for means of egress and general safety.

### TABLE 3410.6.10
SMOKE CONTROL VALUES

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORIES</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1, A-2, A-3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>A-4, E</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>B, M, R</td>
<td>0</td>
<td>2a</td>
<td>3a</td>
<td>3a</td>
<td>3a</td>
<td>4a</td>
<td></td>
</tr>
<tr>
<td>F, S</td>
<td>0</td>
<td>2a</td>
<td>2a</td>
<td>3a</td>
<td>3a</td>
<td>3a</td>
<td></td>
</tr>
</tbody>
</table>

a. This value shall be 0 if compliance with Category d or e in Section 3410.6.8.1 has not been obtained.

### 3410.6.10.1 Categories.
The categories for smoke control are:

1. **Category a** — None.
2. **Category b** — The building is equipped throughout with an automatic sprinkler system. Openings are provided in exterior walls at the rate of 20 square feet (1.86 m²) per 50 linear feet (15 240 mm) of exterior wall in each story and distributed around the building perimeter at intervals not exceeding 50 feet (15 240 mm). Such openings shall be readily openable from the inside without a key or separate tool and shall be provided with ready access thereto. In lieu of operable openings, clearly and permanently marked tempered glass panels shall be used.
3. **Category c** — One enclosed exit stairway, with ready access thereto, from each occupied floor of the building. The stairway has operable exterior windows and the building has openings in accordance with Category b.
4. **Category d** — One smokeproof enclosure and the building has openings in accordance with Category b.
5. **Category e** — The building is equipped throughout with an automatic sprinkler system. Each fire area is provided with a mechanical air-handling system designed to accomplish smoke containment. Return and exhaust air shall be moved directly to the outside without recirculation to other fire areas of the building under fire conditions. The system shall exhaust not less than six air changes per hour from the fire area. Supply air by mechanical means to the fire area is not required. Containment of smoke shall be considered as confining smoke to the fire area involved without migration to other fire areas. Any other tested and approved design which will adequately accomplish smoke containment is permitted.
6. Category f — Each stairway shall be one of the following: a smokeproof enclosure in accordance with Section 1019.1.8; pressurized in accordance with Section 909.20.5; or shall have operable exterior windows.

3410.6.11 Means of egress capacity and number. Evaluate the means of egress capacity and the number of exits available to the building occupants. In applying this section, the means of egress are required to conform to Sections 1003 through 1014 and 1016 through 1023 (except that the minimum width required by this section shall be determined solely by the width for the required capacity in accordance with Table 1005.1). The number of exits credited is the number that are available to each occupant of the area being evaluated. Existing fire escapes shall be accepted as a component in the means of egress when conforming to Section 3404. Under the categories and occupancies in Table 3410.6.11, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.11, Means of Egress Capacity, for means of egress and general safety.

**TABLE 3410.6.11 MEANS OF EGRESS VALUES**

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORIES</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1, A-2, A-3, A-4, E</td>
<td>-10</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>-3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>B, F, S</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>-3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

a. The values indicated are for buildings six stories or less in height. For buildings over six stories in height, add an additional -10 points.

3410.6.11.1 Categories. The categories for means of egress capacity and number of exits are:

1. Category a — Compliance with the minimum required means of egress capacity or number of exits is achieved through the use of a fire escape in accordance with Section 3404.

2. Category b — Capacity of the means of egress complies with Section 1004 and the number of exits complies with the minimum number required by Section 1018.

3. Category c — Capacity of the means of egress is equal to or exceeds 125 percent of the required means of egress capacity, the means of egress complies with the minimum required width dimensions specified in the code and the number of exits complies with the minimum number required by Section 1018.

4. Category d — The number of exits provided exceeds the number of exits required by Section 1018. Exits shall be located a distance apart from each other equal to not less than that specified in Section 1014.2.

5. Category e — The area being evaluated meets both Categories c and d.

3410.6.12 Dead ends. In spaces required to be served by more than one means of egress, evaluate the length of the exit access travel path in which the building occupants are confined to a single path of travel. Under the categories and occupancies in Table 3410.6.12, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.12, Dead Ends, for means of egress and general safety.

**TABLE 3410.6.12 DEAD-END VALUES**

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORIES</th>
<th>a</th>
<th>b</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1, A-3, A-4, B, E, F, M, R, S</td>
<td>-2</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>A-2, E</td>
<td>-2</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

a. For dead-end distances between categories, the dead-end value shall be obtained by linear interpolation.

3410.6.12.1 Categories. The categories for dead ends are:

1. Category a — Dead end of 35 feet (10 670 mm) in nonsprinklered buildings or 70 feet (21 340 mm) in sprinklered buildings.

2. Category b — Dead end of 20 feet (6096 mm); or 50 feet (15 240 mm) in Group B in accordance with Section 1016.3 exception 2.

3. Category c — No dead ends; or ratio of length to width (l/w) is less than 2.5:1.

3410.6.13 Maximum exit access travel distance. Evaluate the length of exit access travel to an approved exit. Determine the appropriate points in accordance with the following equation and enter that value into Table 3410.7 under Safety Parameter 3410.6.12, Maximum Exit Access Travel Distance, for means of egress and general safety. The maximum allowable exit access travel distance shall be determined in accordance with Section 1015.1.

\[
\text{Maximum allowable } = \frac{\text{Maximum actual travel distance}}{\text{Max. allowable travel distance}}
\]

3410.6.14 Elevator control. Evaluate the passenger elevator equipment and controls that are available to the fire department to reach all occupied floors. Elevator recall controls shall be provided in accordance with the *International Fire Code*. Under the categories and occupancies in Table 3410.6.14, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.14, Elevator Control, for fire safety, means of egress and general safety. The values shall be zero for a single-story building.
TABLE 3410.6.14
ELEVATOR CONTROL VALUES

<table>
<thead>
<tr>
<th>ELEVATOR TRAVEL</th>
<th>CATEGORIES</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25 feet of travel above or below the primary level of elevator access for emergency fire-fighting or rescue personnel</td>
<td>-2</td>
<td>0</td>
<td>0</td>
<td>+2</td>
<td></td>
</tr>
<tr>
<td>Travel of 25 feet or more above or below the primary level of elevator access for emergency fire-fighting or rescue personnel</td>
<td>-4</td>
<td>NP</td>
<td>0</td>
<td>+4</td>
<td></td>
</tr>
</tbody>
</table>

For SI: 1 foot = 304.8 mm.

**3410.6.14.1 Categories.** The categories for elevator controls are:

1. Category a — No elevator.
2. Category b — Any elevator without Phase I and II recall.
3. Category c — All elevators with Phase I and II recall as required by the International Fire Code.
4. Category d — All meet Category c; or Category b where permitted to be without recall; and at least one elevator that complies with new construction requirements serves all occupied floors.

**3410.6.15 Means of egress emergency lighting.** Evaluate the presence of and reliability of means of egress emergency lighting. Under the categories and occupancies in Table 3410.6.15, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.15, Means of Egress Emergency Lighting, for means of egress and general safety.

**3410.6.15.1 Categories.** The categories for means of egress emergency lighting are:

1. Category a — Means of egress lighting and exit signs not provided with emergency power in accordance with Section 2702.
2. Category b — Means of egress lighting and exit signs provided with emergency power in accordance with Section 2702.
3. Category c — Emergency power provided to means of egress lighting and exit signs which provides protection in the event of power failure to the site or building.

**3410.6.16 Mixed occupancies.** Where a building has two or more occupancies that are not in the same occupancy classification, the separation between the mixed occupancies shall be evaluated in accordance with this section. Where there is no separation between the mixed occupancies or the separation between mixed occupancies does not qualify for any of the categories indicated in Section 3410.6.16.1, the building shall be evaluated as indicated in Section 3410.6 and the value for mixed occupancies shall be zero. Under the categories and occupancies in Table 3410.6.16, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.16, Mixed Occupancies, for fire safety and general safety. For buildings without mixed occupancies, the value shall be zero.

**TABLE 3410.6.16**
MIXED OCCUPANCY VALUES

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORIES</th>
<th>a</th>
<th>b</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1, A-2, R</td>
<td>-10</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>A-3, A-4, B, E, F, M, S</td>
<td>-5</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

a. For fire-resistance ratings between categories, the value shall be obtained by linear interpolation.

**3410.6.16.1 Categories.** The categories for mixed occupancies are:

1. Category a — Minimum 1-hour fire barriers between occupancies.
2. Category b — Fire barriers between occupancies in accordance with Section 302.3.2.
3. Category c — Fire barriers between occupancies having a fire-resistance rating of not less than twice that required by Section 302.3.2.

**3410.6.17 Automatic sprinklers.** Evaluate the ability to suppress a fire based on the installation of an automatic sprinkler system in accordance with Section 903.3.1.1. "Required sprinklers" shall be based on the requirements of this code. Under the categories and occupancies in Table 3410.6.17, determine the appropriate value and enter that value into Table 3410.7 under Safety Parameter 3410.6.17, Automatic Sprinklers, for fire safety, means of egress divided by 2 and general safety.

**TABLE 3410.6.17**
SPRINKLER SYSTEM VALUES

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORIES</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1, A-3, F, M, R, S-1</td>
<td>-6</td>
<td>-3</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>A-2</td>
<td>-4</td>
<td>-2</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>A-4, B, E, S-2</td>
<td>-12</td>
<td>-6</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

**3410.6.17.1 Categories.** The categories for automatic sprinkler system protection are:

1. Category a — Sprinklers are required throughout; sprinkler protection is not provided or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903.
2. Category b — Sprinklers are required in a portion of the building; sprinkler protection is not provided or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903.
3. Category c — Sprinklers are not required; none are provided.

4. Category d — Sprinklers are required in a portion of the building; sprinklers are provided in such portion; the system is one which complied with the code at the time of installation and is maintained and supervised in accordance with Section 903.

5. Category e — Sprinklers are required throughout; sprinklers are provided throughout in accordance with Chapter 9.

6. Category f — Sprinklers are not required throughout; sprinklers are provided throughout in accordance with Chapter 9.

3410.6.18 Incidental use. Evaluate the protection of incidental use areas in accordance with Section 302.1.1. Do not include those where this code requires suppression throughout the building including covered mall buildings, high-rise buildings, public garages and unlimited area buildings. Assign the lowest score from Table 3409.6.18 for the building or fire area being evaluated. If there are no specific occupancy areas in the building or fire area being evaluated, the value shall be zero.

### TABLE 3410.6.18
**INCIDENTAL USE AREA VALUES**

<table>
<thead>
<tr>
<th>PROTECTION REQUIRED BY TABLE 302.1.1</th>
<th>None</th>
<th>1 Hour</th>
<th>AFSS</th>
<th>AFSS with SP</th>
<th>1 Hour and AFSS</th>
<th>2 Hours and AFSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Hours and AFSS</td>
<td>-4</td>
<td>-3</td>
<td>-2</td>
<td>-2</td>
<td>-1</td>
<td>-2</td>
</tr>
<tr>
<td>2 Hours, or 1 Hour and AFSS</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
<td>-1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1 Hour and AFSS</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
<td>-2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1 Hour</td>
<td>-1</td>
<td>0</td>
<td>-1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1 Hour, or AFSS with SP</td>
<td>-1</td>
<td>0</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AFSS with SP</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>-1</td>
</tr>
<tr>
<td>1 Hour or AFSS</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### TABLE 3410.8
**MANDATORY SAFETY SCORES**

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>FIRE SAFETY (MFS)</th>
<th>MEANS OF EGRESS (MME)</th>
<th>GENERAL SAFETY (MGS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>16</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>A-2</td>
<td>19</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>A-3</td>
<td>18</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>A-4, E</td>
<td>23</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>B</td>
<td>24</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>F</td>
<td>20</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>M</td>
<td>19</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>R</td>
<td>17</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>S-1</td>
<td>15</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>S-2</td>
<td>23</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

a. MFS = Mandatory Fire Safety; MME = Mandatory Means of Egress; MGS = Mandatory General Safety.

3410.9 Evaluation of building safety. The mandatory safety score in Table 3410.8 shall be subtracted from the building score in Table 3410.7 for each category. Where the final score for any category equals zero or more, the building is in compliance with the requirements of this section for that category. Where the final score for any category is less than zero, the building is not in compliance with the requirements of this section.

3410.9.1 Mixed occupancies. For mixed occupancies, the following provisions shall apply:

1. Where the separation between mixed occupancies does not qualify for any category indicated in Section 3410.6.16, the mandatory safety scores for the occupancy with the lowest general safety score in Table 3410.8 shall be utilized (see Section 3410.6.)

2. Where the separation between mixed occupancies qualifies for any category indicated in Section 3410.6.16, the mandatory safety scores for each occupancy shall be placed against the evaluation scores for the appropriate occupancy.

3410.7 Building score. After determining the appropriate data from Section 3410.6, enter those data in Table 3410.7 and total the building score.

3410.8 Safety scores. The values in Table 3410.8 are the required mandatory safety scores for the evaluation process listed in Section 3410.6.
### TABLE 3410.7
SUMMARY SHEET — BUILDING CODE

<table>
<thead>
<tr>
<th>Existing occupancy</th>
<th>Proposed occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year building was constructed</td>
<td>Number of stories Height in feet</td>
</tr>
<tr>
<td>Type of construction</td>
<td>Area per floor</td>
</tr>
<tr>
<td>Percentage of open perimeter</td>
<td>Percentage of height reduction %</td>
</tr>
<tr>
<td>Completely suppressed:</td>
<td>Corridor wall rating</td>
</tr>
<tr>
<td>Yes No</td>
<td>Required door closers: Yes No</td>
</tr>
<tr>
<td>Compartmentation:</td>
<td></td>
</tr>
<tr>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Fire-resistance rating of vertical opening enclosures</td>
<td></td>
</tr>
<tr>
<td>Type of HVAC system:</td>
<td>serving number of floors</td>
</tr>
<tr>
<td>Automatic fire detection:</td>
<td>type and location</td>
</tr>
<tr>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Fire alarm system:</td>
<td>type</td>
</tr>
<tr>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Smoke control:</td>
<td>type</td>
</tr>
<tr>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Adequate exit routes:</td>
<td>Dead ends: Yes No</td>
</tr>
<tr>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Maximum exit access travel distance</td>
<td>Elevator controls: Yes No</td>
</tr>
<tr>
<td>Means of egress emergency lighting: Yes No</td>
<td>Mixed occupancies: Yes No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAFETY PARAMETERS</th>
<th>FIRE SAFETY (FS)</th>
<th>MEANS OF EGRESS (ME)</th>
<th>GENERAL SAFETY (GS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3410.6.1 Building Height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3410.6.2 Building Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3410.6.3 Compartmentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3410.6.4 Tenant and Dwelling Unit Separations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3410.6.5 Corridor Walls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3410.6.6 Vertical Openings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3410.6.7 HVAC Systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3410.6.8 Automatic Fire Detection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3410.6.9 Fire Alarm System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3410.6.10 Smoke control</td>
<td></td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>3410.6.11 Means of Egress</td>
<td></td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>3410.6.12 Dead ends</td>
<td></td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>3410.6.13 Maximum Exit Access Travel Distance</td>
<td></td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>3410.6.14 Elevator Control</td>
<td></td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>3410.6.15 Means of Egress Emergency Lighting</td>
<td></td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>3410.6.16 Mixed Occupancies</td>
<td></td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>3410.6.17 Automatic Sprinklers</td>
<td></td>
<td>+2 =</td>
<td></td>
</tr>
<tr>
<td>3410.6.18 Incidental Use</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Building score — total value**

***No applicable value to be inserted.**

---

### TABLE 3410.9
EVALUATION FORMULAS

<table>
<thead>
<tr>
<th>FORMULA</th>
<th>T.3409.7</th>
<th>T.3409.8</th>
<th>SCORE</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS-MFS ≥ 0</td>
<td>(FS)</td>
<td>(MFS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME-MME ≥ 0</td>
<td>(ME)</td>
<td>(MME)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GS-MGS ≥ 0</td>
<td>(GS)</td>
<td>(MGS)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. FS = Fire Safety
    ME = Means of Egress
    GS = General Safety
    MFS = Mandatory Fire Safety
    MME = Mandatory Means of Egress
    MGS = Mandatory General Safety