IBC - Egress

2024 GROUP A PROPOSED CHANGES TO THE I-CODES

Committee Action Hearings (CAH #2)
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E1-24 Part I

IBC: SECTION 202 (New), 703.5, 1004.7, 1011.5.5.3, 1011.7.1, 1015.2, 1607.9.1.1, 1704.2.2, 1807.2.5, 2111.3.1, 2113.9.2, 2405.3.3, 2406.4.3, 3008.9, F101.5.1, H110.1; IFC: [BE] 1004.7, [BE] 1011.5.5.3, [BE] 1011.7.1, [BE] 1015.2

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org); Andrew Bevis, Chair, Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Robert Marshall, FCAC, FCAC (fcac@iccsafe.org)

THIS IS A 5 PART CODE CHANGE.

PART I WILL BE HEARD BY THE IBC EGRESS CODE COMMITTEE.

PART II AND III WILL BE HEARD BY THE FIRE/WILDLAND-URBAN INTERFACE CODE COMMITTEE.

PART IV WILL BE HEARD BY THE MECHANICAL CODE COMMITTEE.

PART V WILL BE HEARD BY THE RESIDENTIAL CODE - PLUMBING & MECHANICAL CODE COMMITTEE.
SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new definition as follows:

ACCESS (TO). That which enables a device, an *appliance* or equipment to be reached by *ready access* or by a means that first requires the removal or movement of a panel or similar obstruction [see also “Ready access (to)”].

READY ACCESS (TO). That which enables a device, *appliance* or equipment to be directly reached, without requiring the removal or movement of any panel or similar obstruction [see also “Access (to)”].

Revise as follows:

703.5 Marking and identification. Where ~~there is an accessible~~ access is provided to a concealed space that is located under a floor, within a floor-ceiling or an *attic* space, *fire walls*, *fire barriers*, *fire partitions*, *smoke barriers* and *smoke partitions* or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in the concealed space. Such identification shall:

1. Be located within 15 feet (4572 mm) of the end of each wall and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition.
2. Include lettering not less than 3 inches (76 mm) in height with a minimum $^{3}/_{8}$-inch (9.5 mm) stroke in a contrasting color incorporating the suggested wording, “FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS,” or other wording.

1004.7 Outdoor areas. *Yards*, patios, *occupiable roofs* , *courts* and similar outdoor areas ~~accessible to and usable~~ intended for use by the *building* occupants shall be provided with *means of egress* as required by this chapter. The *occupant load* of such outdoor areas shall be assigned by the *building official* in accordance with the anticipated use. Where outdoor areas are to be used by *persons* in addition to the occupants of the *building*, and the path of egress travel from the outdoor areas passes through the *building*, *means of egress* requirements for the *building* shall be based on the sum of the *occupant loads* of the *building* plus the outdoor areas. **Exceptions:**

1. Outdoor areas used exclusively for service of the building need only have one *means of egress*.
2. Both outdoor areas associated with Group R-3 and individual *dwelling units* of Group R-2.

1011.5.5.3 Solid risers. Risers shall be solid. **Exceptions:**

1. Solid risers are not required for *stairways* that are not required to comply with Section 1009.3, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
2. Solid risers are not required for occupancies in Group I-3 or in Group F, H and S occupancies other than areas ~~accessible~~ open to the public. The size of the opening in the riser is not restricted.
3. Solid risers are not required for *spiral stairways* constructed in accordance with Section 1011.10.

1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached. **Exceptions:**

1. Openings in *stair* walking surfaces shall be a size that does not permit the passage of $^1/_2$-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking *structures* ~~accessible~~ open to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1^1/_8$ inches (29 mm) cannot pass through the opening.

1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, *equipment platforms*, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side and at the perimeter of *occupiable roofs* . *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9. **Exceptions:** *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of *stages* and raised *platforms*, including *stairs* leading up to the *stage* and raised *platforms*.
3. On raised *stage* and *platform* floor areas, such as runways, *ramps* and side *stages* used for entertainment or presentations.
4. At vertical openings in the performance area of *stages* and *platforms*.
5. At elevated walking surfaces appurtenant to *stages* and *platforms* for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not ~~accessible~~ open to the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.
8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.
9. Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where *approved guards* are present at the perimeter of the roof.
10. At portions of an *occupiable roof* where an *approved* barrier is provided.

1607.9.1.1 Uniform load. *Handrails* and *guards* shall be designed to resist a linear *load* of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1.1 of ASCE 7. This load need not be assumed to act concurrently with the concentrated load specified in Section 1607.9.1. **Exceptions:**

1. For one- and two-family *dwellings*, only the single concentrated *load* required by Section 1607.9.1 shall be applied.
2. In Group I-3, F, H and S occupancies, for areas that are not ~~accessible~~ open to the ~~general~~ public and that have an *occupant load* less than 50, the minimum *load* shall be 20 pounds per foot (0.29 kN/m).
3. For roofs not intended for occupancy, only the single concentrated load required by Section 1607.9.1 shall be applied.

1704.2.2 Access for special inspection. The construction or work for which *special inspection* or testing is required shall remain ~~accessible and~~ exposed and with access for *special inspection* or testing purposes until completion of the required *special inspections* or tests.

1807.2.5 Guards. *Guards* shall be provided at retaining walls in accordance with Sections 1807.2.5.1 through 1807.2.5.3. **Exception:** *Guards* are not required at retaining walls in areas not ~~accessible~~ open to the public.

2111.3.1 Ash dump cleanout. Cleanout openings, located within foundation walls below fireboxes, where provided, shall be equipped with ferrous metal or *masonry* doors and frames constructed to remain tightly closed, except when in use. Cleanouts shall be ~~accessible~~ provided with access and located so that ash removal will not create a hazard to combustible materials.

2113.9.2 Spark arrestors. Where a spark arrestor is installed on a *masonry* chimney, the spark arrestor shall meet all of the following requirements:

1. The net free area of the arrestor shall be not less than four times the net free area of the outlet of the chimney flue it serves.
2. The arrestor screen shall have heat and *corrosion resistance* equivalent to 19-gage galvanized steel or 24-gage stainless steel.
3. Openings shall not permit the passage of spheres having a diameter greater than $^1/_2$ inch (12.7 mm) nor block the passage of spheres having a diameter less than $^3/_8$ inch (9.5 mm).
4. The spark arrestor shall be ~~accessible~~ provided with access for cleaning and the screen or chimney cap shall be removable to allow for cleaning of the chimney flue.

2405.3.3 Screening not required in monolithic and multiple-layer sloped glazing systems. In monolithic and multiple-layer sloped glazing systems, retention screens are not required for any of the following:

1. Fully tempered glass where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane, and the highest point of the glass is 10 feet (3048 mm) or less above the walking surface.
2. Any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.
3. Any glazing material, including annealed glass, in the sloped glazing systems of commercial or detached noncombustible *greenhouses* used exclusively for growing plants and not open to the public, provided that the height of the *greenhouse* at the ridge does not exceed 30 feet (9144 mm) above grade.
4. Individual *dwelling units* in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and all of the following conditions are met:
   4.1. Each pane of the glass is 16 square feet (1.5 m^2) or less in area.
   4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface ~~or other accessible area~~.
   4.3. The glass thickness is $^3/_{16}$ inch (4.8 mm) or less.
5. Laminated glass with a 15-mil (0.38 mm) polyvinyl butyral or equivalent interlayer used in individual *dwelling units* in Groups R-2, R-3 and R-4 where both of the following conditions are met:
   5.1. Each pane of glass is 16 square feet (1.5 m^2) or less in area.
   5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface ~~or other accessible area~~.

2406.4.3 Glazing in windows. Glazing in an individual fixed or operable panel that meets all of the following conditions shall be considered to be a hazardous location:

1. The exposed area of an individual pane is greater than 9 square feet (0.84 m^2).
2. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor or adjacent walking surface.
3. The top edge of the glazing is greater than 36 inches (914 mm) above the floor or adjacent walking surface.
4. One or more walking surface(s) are within 36 inches (914 mm), measured horizontally and in a straight line, of the plane of the glazing.

Exceptions:

1. *Decorative glazing*.
2. Where a horizontal rail is installed on the ~~accessible~~ walking surfaces side ~~(s)~~ of the glazing at 34 to 38 inches (864 to 965 mm) above the walking surface, the ~~. The~~ rail shall be capable of withstanding a horizontal *load* of 50 pounds per linear foot (730 N/m) without contacting the glass and be not less than $1\,^{1}/_{2}$ inches (38 mm) in cross-sectional height.
3. Outboard panes in insulating glass units or multiple glazing where the bottom exposed edge of the glass is 8 feet (2438 mm) or more above any grade or walking surface adjacent to the glass exterior.

3008.9 Emergency voice/alarm communication system. The *building* shall be provided with an *emergency voice/alarm communication system*. ~~The *emergency voice/alarm communication system* shall be accessible to the fire department. The system shall be provided~~ in accordance with Section 907.5.2.2.

F101.5.1 Rodent ~~accessible~~ access to openings. Windows and other openings for the purpose of light and ventilation in the *exterior walls* not covered in this chapter, ~~accessible to~~ that are susceptible to entry by rodents by way of exposed pipes, wires, conduits and other appurtenances, shall be covered with wire cloth of at least 0.035-inch (0.89 mm) wire. In lieu of wire cloth covering, said pipes, wires, conduits and other appurtenances shall be blocked from rodent usage by installing solid sheet metal guards 0.024 inch (0.61 mm) thick or heavier. Guards shall be fitted around pipes, wires, conduits or other appurtenances. In addition, they shall be fastened securely to and shall extend perpendicularly from the *exterior wall* for not less than 12 inches (305 mm) beyond and on either side of pipes, wires, conduits or appurtenances.

H110.1 General. *Roof signs* shall be constructed entirely of metal or other *approved* noncombustible material except as provided for in Sections H106.1.1 and H107.1. Provisions shall be made for electric grounding of metallic parts. Where combustible materials are permitted in letters or other ornamental features, wiring and tubing shall be kept free and insulated therefrom. *Roof signs* shall be so constructed as to leave a clear space of not less than 6 feet (1829 mm) between the roof level and the lowest part of the *sign* and shall have not less than 5 feet (1524 mm) clearance between the vertical supports thereof. *Roof sign structures* shall not project beyond an *exterior wall*. **Exception:** *Signs* on flat roofs ~~with every part of the roof accessible~~ where there is access to the signs.

2024 International Fire Code

Revise as follows:

[BE] 1004.7 Outdoor areas. *Yards*, patios, *occupiable roofs* , *courts* and similar outdoor areas ~~accessible to and usable~~ intended for use by the *building* occupants shall be provided with *means of egress* as required by this chapter. The *occupant load* of such outdoor areas shall be assigned by the *building official* in accordance with the anticipated use. Where outdoor areas are to be used by *persons* in addition to the occupants of the *building*, and the path of egress travel from the outdoor areas passes through the *building*, *means of egress* requirements for the *building* shall be based on the sum of the *occupant loads* of the *building* plus the outdoor areas.

Exceptions:

1. Outdoor areas used exclusively for service of the building need only have one *means of egress*.
2. Both outdoor areas associated with Group R-3 and individual *dwelling units* of Group R-2.

[BE] 1011.5.5.3 Solid risers. Risers shall be solid. **Exceptions:**

1. Solid risers are not required for *stairways* that are not required to comply with Section 1009.3, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
2. Solid risers are not required for occupancies in Group I-3 or in Group F, H and S occupancies other than areas ~~accessible~~ open to the public. The size of the opening in the riser is not restricted.
3. Solid risers are not required for *spiral stairways* constructed in accordance with Section 1011.10.

[BE] 1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than 1 unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached. **Exceptions:**

1. Openings in *stair* walking surfaces shall be a size that does not permit the passage of $^{1}/_{2}$-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking *structures* ~~accessible~~ open to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1^{1}/_{8}$ inches (29 mm) cannot pass through the opening.

[BE] 1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, equipment platforms, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side and at the perimeter of *occupiable roofs* . *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9 of the International Building Code. **Exception:** *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of stages and raised platforms, including *stairs* leading up to the stage and raised platforms.
3. On raised stage and platform floor areas, such as runways, *ramps* and side stages used for entertainment or presentations.
4. At vertical openings in the performance area of stages and platforms.
5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not ~~accessible~~ open to the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.
8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.
9. Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where approved guards are present at the perimeter of the roof.
10. At portions of an *occupiable roof* where an *approved* barrier is provided.

Reason: Because the term ‘accessible’ is most commonly understood as requiring access for persons with disabilities we are making the changes to delete the word accessible from the remaining codes and replace it with other words, defined terms or phrases that are not attributed to requiring access for the physically disabled. Many of the codes use the defined term ‘access (to)’ or ‘ready access (to)’ for access by maintenance and service personnel or fire departments. This proposal provides clarity and consistency in the remaining codes where those coordination modifications missed or came in as part of new code changes.
This a correlation piece for proposals over the last couple of cycles. This effort was started by the CACs in 2015/16 code change cycle, and continued in 2018/19. This proposal is to provide coordination with the action taken with -P84-15, M2-15, RB2-16, F12-16, CE137-16 Part 1, CE29-19 Part 1 and 2 . G1-21 Part 1 was disapproved; however Part 2 through 7 were approved.
Correlative pieces will be entered in Group B for parts of IRC, IPMC, IZC and IECC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC), the ICC Fire Code Action Committee (FCAC) and ICC Plumbing Mechanical Gas Code Action Committee (PMGCAC)

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Insert FCAC paragraph

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned

International Codes or portions thereof. In 2023 PMGCAC has held 26 virtual meetings open to any interested party. In addition, there were several virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the PMGCAC website at PMGCAC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination of terms with no changes to construction requirements. See reason statement for additional information on coordination with previous proposals.

E1-24 Part I

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: While this is a good clarification for the defined term accessible, in several sections, there was concern about "open" being interpreted as open for business, and not unrestricted access. This would be consistent with comments on E1-24 Part III heard by the Fire Committee. (Vote: 8-4)

E1-24 Part I

Individual Consideration Agenda

Comment 1:

IBC: 1011.5.5.3, 1011.7.1, 1015.2, 1607.9.1.1, 1807.2.5, 2405.3.3; IFC: [BE] 1011.5.5.3, [BE] 1011.7.1, [BE] 1015.2

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Modified by Committee (AMC2)

Replace as follows:

2024 International Building Code

Revise as follows:

1011.5.5.3 Solid risers. Risers shall be solid. **Exceptions:**

1. Solid risers are not required for *stairways* that are not required to comply with Section 1009.3, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
2. Solid risers are not required for occupancies in Group I-3 or in Group F, H and S occupancies other than areas ~~open to~~ that can be accessed by the public. The size of the opening in the riser is not restricted.
3. Solid risers are not required for *spiral stairways* constructed in accordance with Section 1011.10.

1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached. **Exceptions:**

1. Openings in *stair* walking surfaces shall be a size that does not permit the passage of $^1/_2$-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking *structures* ~~open to~~ that can be accessed by the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1^1/_8$ inches (29 mm) cannot pass through the opening.

1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, *equipment platforms*, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side and at the perimeter of *occupiable roofs* . *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9. **Exceptions:** *Guards* are not required for the following locations:

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5. At elevated walking surfaces appurtenant to *stages* and *platforms* for access to and utilization of special lighting or equipment.
6. Along vehicle service pits ~~not open to~~ that cannot be accessed by the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.
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10. At portions of an *occupiable roof* where an *approved* barrier is provided.

1607.9.1.1 Uniform load. *Handrails* and *guards* shall be designed to resist a linear *load* of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1.1 of ASCE 7. This load need not be assumed to act concurrently with the concentrated load specified in Section 1607.9.1. **Exceptions:**

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2. In Group I-3, F, H and S occupancies, for areas that are ~~not open to~~ that cannot be accessed by the public and that have an *occupant load* less than 50, the minimum *load* shall be 20 pounds per foot (0.29 kN/m).
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1. Fully tempered glass where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane, and the highest point of the glass is 10 feet (3048 mm) or less above the walking surface.
2. Any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.
3. Any glazing material, including annealed glass, in the sloped glazing systems of commercial or detached noncombustible *greenhouses* used exclusively for growing plants and ~~not open to~~ that cannot be access by the public, provided that the height of the *greenhouse* at the ridge does not exceed 30 feet (9144 mm) above grade.

4. Individual *dwelling units* in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and all of the following conditions are met:

   4.1. Each pane of the glass is 16 square feet (1.5 m^2) or less in area.

   4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface .

   4.3. The glass thickness is $^3/_{16}$ inch (4.8 mm) or less.

5. Laminated glass with a 15-mil (0.38 mm) polyvinyl butyral or equivalent interlayer used in individual *dwelling units* in Groups R-2, R-3 and R-4 where both of the following conditions are met:

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   5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface .

2024 International Fire Code

Revise as follows:

[BE] 1011.5.5.3 Solid risers. Risers shall be solid. **Exceptions:**

1. Solid risers are not required for *stairways* that are not required to comply with Section 1009.3, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
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[BE] 1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, equipment platforms, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side and at the perimeter of *occupiable roofs* . *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9 of the International Building Code. **Exception:** *Guards* are not required for the following locations:

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3. On raised stage and platform floor areas, such as runways, *ramps* and side stages used for entertainment or presentations.
4. At vertical openings in the performance area of stages and platforms.
5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.
6. Along vehicle service pits ~~not open to~~ that cannot be accessed by the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.

8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.
9. Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where approved guards are present at the perimeter of the roof.
10. At portions of an *occupiable roof* where an *approved* barrier is provided.

Reason: The BCAC has split this comment into two parts. The proposed definitions, and the remainder of the proposal are in our 2nd comment with no revisions.

The MOE committee had a concern about 'open to the public' and how that would be understood. This modification provides an alternative. In addition, Section 2405.3.3 Item 3, where 'open to the public' is currently used, has been revised for consistency. This provides coordination across codes and remove the use of 'accessible' where it does not meet the same intent as the defined term. The BCAC has a proposal in for Part 3 for IWUIC for a similar issue. Part 2, 4 and 5 for IFC, IMC and IRC were approved.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination of terms with no changes to construction requirements. See original reason statement for additional information on coordination with previous proposals.

Comment (CAH2)# 121

Comment 2:

IBC: SECTION 202, 703.5, 1004.7, 1704.2.2, 2111.3.1, 2113.9.2, 2405.3.3, 2406.4.3, 3008.9, F101.5.1, H110.1; IFC: [BE] 1004.7

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Modified by Committee (AMC2)

Replace as follows:

2024 International Building Code

ACCESS (TO). That which enables a device, an *appliance* or equipment to be reached by *ready access* or by a means that first requires the removal or movement of a panel or similar obstruction [see also “Ready access (to)”].

READY ACCESS (TO). That which enables a device, *appliance* or equipment to be directly reached, without requiring the removal or movement of any panel or similar obstruction [see also “Access (to)”].

703.5 Marking and identification. Where ~~there is an accessible~~ access is provided to a concealed space that is located under a floor, within a floor-ceiling or an *attic* space, *fire walls*, *fire barriers*, *fire partitions*, *smoke barriers* and *smoke partitions* or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in the concealed space. Such identification shall:

1. Be located within 15 feet (4572 mm) of the end of each wall and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition.
2. Include lettering not less than 3 inches (76 mm) in height with a minimum $^{3}/_{8}$-inch (9.5 mm) stroke in a contrasting color incorporating the suggested wording, “FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS,” or other wording.

1004.7 Outdoor areas. *Yards*, patios, *occupiable roofs* , *courts* and similar outdoor areas ~~accessible to and usable~~ intended for use by the *building* occupants shall be provided with *means of egress* as required by this chapter. The *occupant load* of such outdoor areas shall be assigned by the *building official* in accordance with the anticipated use. Where outdoor areas are to be used by *persons* in addition to the occupants of the *building*, and the path of egress travel from the outdoor areas passes through the *building*, *means of*

egress requirements for the *building* shall be based on the sum of the *occupant loads* of the *building* plus the outdoor areas. **Exceptions:**

1. Outdoor areas used exclusively for service of the building need only have one *means of egress*.
2. Both outdoor areas associated with Group R-3 and individual *dwelling units* of Group R-2.

1704.2.2 Access for special inspection. The construction or work for which *special inspection* or testing is required shall remain ~~accessible and~~ exposed and with access for *special inspection* or testing purposes until completion of the required *special inspections* or tests.

2111.3.1 Ash dump cleanout. Cleanout openings, located within foundation walls below fireboxes, where provided, shall be equipped with ferrous metal or *masonry* doors and frames constructed to remain tightly closed, except when in use. Cleanouts shall be ~~accessible~~ provided with access and located so that ash removal will not create a hazard to combustible materials.

2113.9.2 Spark arrestors. Where a spark arrestor is installed on a *masonry* chimney, the spark arrestor shall meet all of the following requirements:

1. The net free area of the arrestor shall be not less than four times the net free area of the outlet of the chimney flue it serves.
2. The arrestor screen shall have heat and *corrosion resistance* equivalent to 19-gage galvanized steel or 24-gage stainless steel.
3. Openings shall not permit the passage of spheres having a diameter greater than $^{1}/_{2}$ inch (12.7 mm) nor block the passage of spheres having a diameter less than $^{3}/_{8}$ inch (9.5 mm).
4. The spark arrestor shall be ~~accessible~~ provided with access for cleaning and the screen or chimney cap shall be removable to allow for cleaning of the chimney flue.

2405.3.3 Screening not required in monolithic and multiple-layer sloped glazing systems. In monolithic and multiple-layer sloped glazing systems, retention screens are not required for any of the following:

1. Fully tempered glass where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane, and the highest point of the glass is 10 feet (3048 mm) or less above the walking surface.
2. Any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.
3. Any glazing material, including annealed glass, in the sloped glazing systems of commercial or detached noncombustible *greenhouses* used exclusively for growing plants and not open to the public, provided that the height of the *greenhouse* at the ridge does not exceed 30 feet (9144 mm) above grade.
4. Individual *dwelling units* in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and all of the following conditions are met:
   4.1. Each pane of the glass is 16 square feet (1.5 m^2) or less in area.
   4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface ~~or other accessible area~~.
   4.3. The glass thickness is $^{3}/_{16}$ inch (4.8 mm) or less.
5. Laminated glass with a 15-mil (0.38 mm) polyvinyl butyral or equivalent interlayer used in individual *dwelling units* in Groups R-2, R-3 and R-4 where both of the following conditions are met:
   5.1. Each pane of glass is 16 square feet (1.5 m^2) or less in area.
   5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area
   .

2406.4.3 Glazing in windows. Glazing in an individual fixed or operable panel that meets all of the following conditions shall be

considered to be a hazardous location:

1. The exposed area of an individual pane is greater than 9 square feet (0.84 m^2).
2. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor or adjacent walking surface.
3. The top edge of the glazing is greater than 36 inches (914 mm) above the floor or adjacent walking surface.
4. One or more walking surface(s) are within 36 inches (914 mm), measured horizontally and in a straight line, of the plane of the glazing.

Exceptions:

1. *Decorative glazing*.
2. Where a horizontal rail is installed on the ~~accessible~~ walking surfaces side of the glazing at 34 to 38 inches (864 to 965 mm) above the walking surface, the . ~~The~~ rail shall be capable of withstanding a horizontal *load* of 50 pounds per linear foot (730 N/m) without contacting the glass and be not less than $1\,^1/_2$ inches (38 mm) in cross-sectional height.
3. Outboard panes in insulating glass units or multiple glazing where the bottom exposed edge of the glass is 8 feet (2438 mm) or more above any grade or walking surface adjacent to the glass exterior.

3008.9 Emergency voice/alarm communication system. The *building* shall be provided with an *emergency voice/alarm communication system* ~~The emergency voice/alarm communication system shall be accessible to the fire department. The system shall be provided~~ in accordance with Section 907.5.2.2.

Revise as follows:

F101.5.1 Rodent access to openings. Windows and other openings for the purpose of light and ventilation in the *exterior walls* not covered in this chapter, ~~accessible to~~ that are susceptible to entry by rodents by way of exposed pipes, wires, conduits and other appurtenances, shall be covered with wire cloth of at least 0.035-inch (0.89 mm) wire. In lieu of wire cloth covering, said pipes, wires, conduits and other appurtenances shall be blocked from rodent usage by installing solid sheet metal guards 0.024 inch (0.61 mm) thick or heavier. Guards shall be fitted around pipes, wires, conduits or other appurtenances. In addition, they shall be fastened securely to and shall extend perpendicularly from the *exterior wall* for not less than 12 inches (305 mm) beyond and on either side of pipes, wires, conduits or appurtenances.

H110.1 General. *Roof signs* shall be constructed entirely of metal or other *approved* noncombustible material except as provided for in Sections H106.1.1 and H107.1. Provisions shall be made for electric grounding of metallic parts. Where combustible materials are permitted in letters or other ornamental features, wiring and tubing shall be kept free and insulated therefrom. *Roof signs* shall be so constructed as to leave a clear space of not less than 6 feet (1829 mm) between the roof level and the lowest part of the *sign* and shall have not less than 5 feet (1524 mm) clearance between the vertical supports thereof. *Roof sign structures* shall not project beyond an *exterior wall*. **Exception:** *Signs* on flat roofs with every part of the roof accessible where there is access to the signs
.

2024 International Fire Code

[BE] 1004.7 Outdoor areas. *Yards*, patios, *occupiable roofs* , *courts* and similar outdoor areas ~~accessible to and usable~~ intended for use by the *building* occupants shall be provided with *means of egress* as required by this chapter. The *occupant load* of such outdoor areas shall be assigned by the *building official* in accordance with the anticipated use. Where outdoor areas are to be used by *persons* in addition to the occupants of the *building*, and the path of egress travel from the outdoor areas passes through the *building*, *means of egress* requirements for the *building* shall be based on the sum of the *occupant loads* of the *building* plus the outdoor areas.

Exceptions:

1. Outdoor areas used exclusively for service of the building need only have one *means of egress*.
2. Both outdoor areas associated with Group R-3 and individual *dwelling units* of Group R-2.

Reason: The BCAC committee has split this proposal into two part. The testimony at the spring hearings were all in regard to 'open to the public'. This is addressed in a separate comment.

These sections are for the removal of 'accessible' where it is not related to access for people with disabilities, and to add the appropriate definitions for access to equipment. The IFC already contains these definitions, as well as multiple other I-Codes. There are no proposed revision to these sections from the original proposal.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination of terms with no changes to construction requirements. See reason statement for additional information on coordination with previous proposals.

Comment (CAH2)# 223

NOTE: E1-24 PART II DID NOT RECEIVE A COMMENT (CAH2) AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

E1-24 Part II

IFC: SECTION 202, 907.8.2

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org); Andrew Bevis, Chair, Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Robert Marshall, FCAC, FCAC (fcac@iccsafe.org)

2024 International Fire Code

Revise as follows:

WILDFIRE RISK AREA. Land that is covered with grass, grain, brush or forest, whether privately or publicly owned, ~~which is so situated or is of such inaccessible location that~~ where a fire originating upon it would present an abnormally difficult job of suppression or would result in great or unusual damage through fire or such areas designated by the *fire code official*.

907.8.2 Testing. Testing shall be performed in accordance with the schedules in NFPA 72 or more frequently where required by the *fire code official*. Records of testing shall be maintained. **Exception:** Devices or equipment ~~that are inaccessible~~ located without access because of safety considerations shall be tested during scheduled shutdowns where *approved* by the *fire code official*, but not less than every 18 months.

Reason: Because the term 'accessible' is most commonly understood as requiring access for persons with disabilities we are making the changes to delete the word accessible from the remaining codes and replace it with other words, defined terms or phrases that are not attributed to requiring access for the physically disabled. Many of the codes use the defined term 'access (to)' or 'ready access (to)' for access by maintenance and service personnel or fire departments. This proposal provides clarity and consistency in the remaining codes where those coordination modifications missed or came in as part of new code changes.
This a correlation piece for proposals over the last couple of cycles. This effort was started by the CACs in 2015/16 code change cycle, and continued in 2018/19. This proposal is to provide coordination with the action taken with -P84-15, M2-15, RB2-16, F12-16, CE137-16 Part 1, CE29-19 Part 1 and 2 . G1-21 Part 1 was disapproved; however Part 2 through 7 were approved.
Correlative pieces will be entered in Group B for parts of IRC, IPMC, IZC and IECC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC), the ICC Fire Code Action Committee (FCAC) and ICC Plumbing Mechanical Gas Code Action Committee (PMGCAC)

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Insert FCAC paragraph

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 PMGCAC has held 26 virtual meetings open to any interested party. In addition, there were several virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the PMGCAC website at PMGCAC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination of terms with no changes to construction requirements. See reason statement for additional information on

coordination with previous proposals.

E1-24 Part II

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: The committee stated that the reason for the approval of the proposal was that it is a good clean up to coordinate the codes and eliminates any confusion by replacing words that can be misunderstood. (Vote: 13-0)

E1-24 Part II

E1-24 Part III

IWUIC: A103.2, TABLE C101.1, G101.3.2

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org); Andrew Bevis, Chair, Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Robert Marshall, FCAC, FCAC (fcac@iccsafe.org)

2024 International Wildland Urban Interface Code

Revise as follows:

A103.2 ~~Trespassing on posted private property~~ Restricted areas. Where the *code official* determines that a specific area within a *wildland-urban interface area* presents an exceptional and continuing fire danger because of the density of natural growth, difficulty of terrain, proximity to structures or ~~accessibility~~ open to the public, such areas shall be restricted or closed until changed conditions warrant termination of such restriction or closure. Such areas shall be posted in accordance with Section A103.2.1.

TABLE C101.1 FIRE HAZARD SEVERITY FORM

Portions of table not shown remain unchanged.

A. Subdivision Design Points	
3. ~~Accessibility~~ Vehicle access	
Road grade 5% or less	1___
Road grade more than 5%	3___

G101.3.2 Alternative water supply systems for exposure protection. Pools and spas are often offered as an alternative water source for fire departments. These water sources must be reliable and able to be accessed to be of any use by fire protection forces. ~~Accessibility~~ Access means that the fire department ~~must be~~ is able to withdraw the water without having to go through extraordinary measures such as knocking down fences or having to set up drafting situations. Designs have been created to put liquid- or gas-fueled pumps or gravity valves on pools and spas to allow fire departments to access these water systems. A key vulnerability to the use of these alternative water systems is loss of electrical power. When the reliability of a water system depends on external power sources, it cannot be relied upon by fire fighters to be available in a worst-case scenario.

Reason: Because the term ‘accessible’ is most commonly understood as requiring access for persons with disabilities we are making the changes to delete the word accessible from the remaining codes and replace it with other words, defined terms or phrases that are not attributed to requiring access for the physically disabled. Many of the codes use the defined term ‘access (to)’ or ‘ready access (to)’ for access by maintenance and service personnel or fire departments. This proposal provides clarity and consistency in the remaining codes where those coordination modifications missed or came in as part of new code changes.
This a correlation piece for proposals over the last couple of cycles. This effort was started by the CACs in 2015/16 code change cycle, and continued in 2018/19. This proposal is to provide coordination with the action taken with -P84-15, M2-15, RB2-16, F12-16, CE137-16 Part 1, CE29-19 Part 1 and 2 . G1-21 Part 1 was disapproved; however Part 2 through 7 were approved.

Correlative pieces will be entered in Group B for parts of IRC, IPMC, IZC and IECC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC), the ICC Fire Code Action Committee (FCAC) and ICC Plumbing Mechanical Gas Code Action Committee (PMGCAC)

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Insert FCAC paragraph

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 PMGCAC has held 26 virtual meetings open to any interested party. In addition, there were several virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the PMGCAC website at PMGCAC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination of terms with no changes to construction requirements. See reason statement for additional information on coordination with previous proposals.

E1-24 Part III

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The committee stated that the reasons for the disapproval of the proposal were: There was disagreement over the deletion and replacement of the existing word “accessibility” in Section A103.2 and that the word replacement needs to be determined outside of the hearings. (Vote: 12-1)

E1-24 Part III

Individual Consideration Agenda

Comment 1:

IWUIC: A103.2

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Wildland Urban Interface Code

Revise as follows:

A103.2 Restricted areas. Where the *code official* determines that a specific area within a *wildland-urban interface area* presents an exceptional and continuing fire danger because of the density of natural growth, difficulty of terrain, proximity to structures or that can be accessed by ~~open to~~ the public, such areas shall be restricted or closed until changed conditions warrant termination of such restriction or closure. Such areas shall be posted in accordance with Section A103.2.1.

Reason: The committee had a concern about 'open to the public' and how that would be understood. This modification provides an alternative. The remainder of the proposal has no revisions. This provides coordination across codes and remove the use of 'accessible' where it does not meet the same intent as the defined term. The BCAC has a proposal in for Part 1 for IBC for a similar issue. Part 2, 4 and 5 for IFC, IMC and IRC were approved.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination of terms with no changes to construction requirements. See original reason statement for additional information on coordination with previous proposals.

Comment (CAH2)# 124

NOTE: E1-24 PART IV DID NOT RECEIVE A COMMENT (CAH2) AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

E1-24 Part IV

IFC: SECTION 202; IFGC: SECTION 202; IMC®: SECTION 202, 506.3.8, 603.4.1; IPC: SECTION 202, 712.2, 1111.1

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org); Andrew Bevis, Chair, Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Robert Marshall, FCAC, FCAC (fcac@iccsafe.org)

2024 International Fire Code

[M] ACCESS (TO). That which enables a device, appliance or equipment to be reached by *ready access* or by a means that first requires the removal or movement of a panel or similar obstruction [see also "Ready access (to)"].

Revise as follows:

[M] READY ACCESS (TO). That which enables a device, appliance or equipment to be directly reached, without requiring the removal or movement of any panel or similar obstruction [see also "Access (to)"].

2024 International Fuel Gas Code

Revise as follows:

[M] ACCESS (TO). That which enables a device, *appliance* or *equipment* to be reached by *ready access* or by a means that first requires the removal or movement of a panel, ~~door~~ or similar obstruction (see also "Ready access (to)").

[M] READY ACCESS (TO). That which enables a device, *appliance* or *equipment* to be directly reached, without requiring the removal or movement of any panel~~, door~~ or similar obstruction (see also "*Access (to)*").

2024 International Mechanical Code

ACCESS (TO). That which enables a device, *appliance* or *equipment* to be reached by *ready access* or by a means that first requires the removal or movement of a panel or similar obstruction [see also "*Ready access (to)*"].

Revise as follows:

NET OCCUPIABLE FLOOR AREA. The floor area of an *occupiable space* defined by the inside surfaces of its walls but excluding shafts, column enclosures and other permanently enclosed, ~~inaccessible and~~ unoccupiable areas and not provided with access. Obstructions in the space such as furnishings, display or storage racks and other obstructions, whether temporary or permanent, shall not be deducted from the space area.

READY ACCESS (TO). That which enables a device, *appliance* or *equipment* to be directly reached, without requiring the removal or movement of any panel or similar obstruction [see also "*Access (to)*"].

506.3.8 Grease duct cleanouts and openings. Grease duct cleanouts and openings shall comply with all of the following:

1. Grease ducts shall not have openings except where required for the operation and maintenance of the system.
2. Sections of grease ducts ~~that are inaccessible~~ that cannot be accessed from the hood or discharge openings shall be provided with cleanout openings spaced not more than 20 feet (6096 mm) apart and not more than 10 feet (3048 mm) from changes in direction greater than 45 degrees (0.79 rad).
3. Cleanouts and openings shall be equipped with tight-fitting doors constructed of steel having a thickness not less than that required for the grease duct.

4. Cleanout doors shall be installed liquid tight.
5. Door assemblies including any frames and gaskets shall be *approved* for the application and shall not have fasteners that penetrate the grease duct.
6. Gasket and sealing materials shall be rated for not less than 1,500°F (816°C).
7. *Listed* door assemblies shall be installed in accordance with the manufacturer's instructions.

603.4.1 Minimum fasteners. Round metallic ducts shall be mechanically fastened by means of not less than three sheet metal screws or rivets spaced equally around the joint.

Exception: Where a duct connection is made that ~~is~~ partially ~~inaccessible~~ cannot be accessed, three screws or rivets shall be equally spaced on the exposed portion so as to prevent a hinge effect.

2024 International Plumbing Code

Revise as follows:

[M] ACCESS (TO). That which enables a fixture, appliance or equipment to be reached by *ready access* or by a means that first requires the removal or movement of a panel or similar obstruction (see also "Ready access (to)").

[M] READY ACCESS (TO). That which enables a fixture, appliance or equipment to be directly reached without requiring the removal or movement of any panel or similar obstruction ~~and without the use of a portable ladder, step stool or similar device~~ (see also "Access (to)").

712.2 Valves required. A check valve and a full-open valve located on the discharge side of the check valve shall be installed in the pump or ejector discharge piping between the pump or ejector and the gravity drainage system. *Access* shall be provided to such valves. Such valves shall be located above the sump cover required by Section 712.1 or, where the discharge pipe from the ejector is below grade, the valves shall be ~~accessibly~~ located outside the sump below grade in an access pit with a removable *access* cover.

1111.1 Subsoil drains. Subsoil drains shall be open-jointed, horizontally split or perforated pipe conforming to one of the standards listed in Table 1102.5. Such drains shall be not less than 4 inches (102 mm) in diameter. Where the building is subject to backwater, the subsoil drain shall be protected by ~~an accessibly located~~ a backwater valve that is provided with access. Subsoil drains shall discharge to a trapped area drain, sump, dry well or *approved* location above ground. The subsoil sump shall not be required to have either a gastight cover or a vent. The sump and pumping system shall comply with Section 1113.1.

Reason: Because the term 'accessible' is most commonly understood as requiring access for persons with disabilities we are making the changes to delete the word accessible from the remaining codes and replace it with other words, defined terms or phrases that are not attributed to requiring access for the physically disabled. Many of the codes use the defined term 'access (to)' or 'ready access (to)' for access by maintenance and service personnel or fire departments. This proposal provides clarity and consistency in the remaining codes where those coordination modifications missed or came in as part of new code changes.
This a correlation piece for proposals over the last couple of cycles. This effort was started by the CACs in 2015/16 code change cycle, and continued in 2018/19. This proposal is to provide coordination with the action taken with -P84-15, M2-15, RB2-16, F12-16, CE137-16 Part 1, CE29-19 Part 1 and 2 . G1-21 Part 1 was disapproved; however Part 2 through 7 were approved.
Correlative pieces will be entered in Group B for parts of IRC, IPMC, IZC and IECC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC), the ICC Fire Code Action Committee (FCAC) and ICC Plumbing Mechanical Gas Code Action Committee (PMGCAC)

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Insert FCAC paragraph

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 PMGCAC has held 26 virtual meetings open to any interested party. In addition, there were several virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the PMGCAC website at PMGCAC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination of terms with no changes to construction requirements. See reason statement for additional information on coordination with previous proposals.

E1-24 Part IV

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: The committee voted to approve the proposal as submitted by 12-2. Since the word "accessible" is most frequently associated with the need for access for people with disabilities, the committee has agreed with the proponent to change the remaining codes to remove the word "accessible" and replace it with other words, defined terms, or phrases that do not imply the need for access for people who are physically disabled. Where coordination changes were either overlooked or included in new code changes, this proposal brings clarity and consistency to the remaining codes. It aims to facilitate correlation with earlier proposal initiatives.

E1-24 Part IV

NOTE: E1-24 PART V DID NOT RECEIVE A COMMENT (CAH2) AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

E1-24 Part V

IRC: TABLE M1306.2, M1803.4.1, M2006.2, P2704.1, P2706.1, P2712.6, P2720.2, P2722.4, P2903.9.5, P2903.10.1, P2903.10.2, P2903.10.3, P2903.11, P2911.5, P2911.8.1, P2911.9, P2912.4, P2912.8, P2912.12, P3005.1.5, P3007.2, P3007.3.2, P3302.1, P3303.1.2, P3303.1.4

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org); Andrew Bevis, Chair, Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Robert Marshall, FCAC, FCAC (fcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

TABLE M1306.2 REDUCTION OF CLEARANCES WITH SPECIFIED FORMS OF PROTECTION [a, c, d, e, f, g, h, i, j, k, l]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 pound per cubic foot = 16.019 kg/m^3, °C = [(°F) – 32/1.8], 1 Btu/(h × ft^2 × °F/in.) = 0.001442299 (W/cm^2 × °C/cm).

a. Reduction of clearances from combustible materials shall not interfere with combustion air, draft hood clearance and relief, and ~~accessibility of~~ access for servicing.

b. Clearances shall be measured from the surface of the heat-producing appliance or equipment to the outer surface of the combustible material or combustible assembly.

c. Spacers and ties shall be of noncombustible material. Spacers and ties shall not be used directly opposite appliance or connector.

d. Where all clearance reduction systems use a ventilated airspace, adequate provision for air circulation shall be provided as described (see Figures M1306.1 and M1306.2).

e. There shall be not less than 1 inch between clearance reduction systems and combustible walls and ceilings for reduction systems using ventilated airspace.

f. If a wall protector is mounted on a single flat wall away from corners, adequate air circulation shall be permitted to be provided by leaving only the bottom and top edges or only the side and top edges open with not less than a 1-inch air gap.

g. Mineral wool and glass fiber batts (blanket or board) shall have a minimum density of 8 pounds per cubic foot and a minimum melting point of 1,500°F.

h. Insulation material used as part of a clearance reduction system shall have a thermal conductivity of 1.0 Btu inch per square foot per hour °F or less. Insulation board shall be formed of noncombustible material.

i. There shall be not less than 1 inch between the appliance and the protector. The clearance between the appliance and the combustible surface shall not be reduced below that allowed in this table.

j. All clearances and thicknesses are minimum; larger clearances and thicknesses are acceptable.

k. Listed single-wall connectors shall be permitted to be installed in accordance with the terms of their listing and the manufacturer's instructions.

l. For limitations on clearance reduction for solid-fuel-burning appliances, see Section M1306.2.3.

M1803.4.1 Closure and ~~accessibility~~ access. A noncombustible seal shall be provided below the point of connection to prevent entry of room air into the flue. Means shall be provided for *access to* the flue for inspection and cleaning.

M2006.2 Clearances. The clearances shall not interfere with *combustion air*, draft hood or flue terminal relief, or ~~accessibility~~ access for servicing.

P2704.1 Slip joints. Slip-joint connections shall be installed only for tubular waste piping and only between the waste outlet of a fixture and the connection to the drainage piping. Slip-joint connections shall be made with an *approved* elastomeric sealing gasket. Slip-joint connections shall ~~be accessible. Such access shall provide~~ be provided with access. Such access shall be provided by an opening that is not less than 12 inches (305 mm) in its smallest dimension.

P2706.1 General. For other than hub drains that receive only clear-water waste and standpipes, a removable strainer or basket shall cover the waste outlet of waste receptors. Waste receptors shall not be installed in concealed spaces. Waste receptors shall not be installed in plenums, attics, *crawl spaces* or interstitial spaces above ceilings and below floors. Ready access to waste ~~Waste~~ receptors shall be provided~~readily accessible~~.

P2712.6 Access. ~~Parts~~ Access to the parts in a flush tank shall be ~~accessible~~ provided for repair and replacement.

P2720.2 Piping drainage. The circulation pump shall be ~~accessibly~~ located above the crown weir of the trap. Access to the circulation pump shall be provided. The pump drain line shall be properly graded to ensure minimum water retention in the volute after fixture use. The circulation piping shall be installed to be self-draining.

P2722.4 Individual pressure-balancing in-line valves for individual fixture fittings. Individual pressure-balancing in-line valves for individual fixture fittings shall comply with ASSE 1066. Such valves ~~shall be installed in an accessible location and~~ shall not be used as a substitute for the balanced pressure, thermostatic or combination shower valves required in Section P2708.4. Access to such valves shall be provided.

P2903.9.5 Hose bibb bleed. ~~A *readily accessible*~~ An air bleed shall be installed in hose bibb supplies at the manifold or at the hose bibb exit point. Ready access to the air bleed shall be provided.

P2903.10.1 Service valve. Each *dwelling unit* shall be provided with a ~~an accessible~~ *main* shutoff valve near the entrance of the water service. The valve shall be of a full-open type having nominal restriction to flow, with provision for drainage such as a bleed orifice or installation of a separate drain valve. Additionally, the water service shall be valved at the curb or *lot line* in accordance with local requirements.

P2903.10.2 Water heater valve. A ~~readily accessible~~ full-open valve with ready access shall be installed in the cold-water supply pipe to each water heater at or near the water heater.

P2903.10.3 Fixture valves and access. Shutoff valves shall be required on each fixture supply pipe to each plumbing *appliance* and to each plumbing fixture other than bathtubs and showers. ~~Valves~~ Access shall be provided to valves serving individual plumbing fixtures, *plumbing appliances,* risers and branches ~~shall be accessible~~.

P2903.11 Hose bibb. Hose bibbs subject to freezing, including the "frostproof" type, shall be equipped with ~~an accessible~~ a stop-and-waste-type valve inside the *building* so that they can be controlled and drained during cold periods. **Exception:** Frostproof hose bibbs installed such that the stem extends through the building insulation into an open heated or *semiconditioned space* need not be separately valved (see Figure P2903.11).

P2911.5 Filtration. Untreated water collected for reuse shall be filtered as required for the intended end use. Access shall be provided to filters ~~Filters shall be accessible~~ for inspection and maintenance. Filters shall utilize a pressure gauge or other *approved* method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves immediately upstream and downstream to allow for isolation during maintenance.

P2911.8.1 Bypass valve. One three-way diverter valve certified to NSF 50 or other *approved* device shall be installed on collection piping upstream of each storage tank, or drainfield, as applicable, to divert untreated on-site reuse sources to the sanitary sewer to allow servicing and inspection of Bypass valves shall be *labeled* to indicate the direction of flow, connection and storage tank or drainfield connection. Access shall be provided to bypass ~~Bypass~~ valves ~~shall be installed in accessible locations~~. Two shutoff valves shall not be installed to serve as a bypass valve.

P2911.9 Pumping and control system. Access shall be provided to mechanical ~~Mechanical~~ equipment including pumps, valves and filters ~~shall be accessible~~ and shall be removable in order to perform *repair*, maintenance and cleaning. The minimum flow rate and *flow pressure* delivered by the pumping system shall be appropriate for the application and in accordance with Section P2903.

P2912.4 Roof washer. An amount of rainwater shall be diverted at the beginning of each rain event, and not allowed to enter the storage tank, to wash accumulated debris from the collection surface. The amount of rainfall to be diverted shall be field adjustable as necessary to minimize storage tank water contamination. The roof washer shall not rely on manually operated valves or devices and shall operate automatically. Diverted rainwater shall not be drained to the roof surface and shall be discharged in a manner consistent with the stormwater runoff requirements of the *jurisdiction*.Access shall be provided to roof ~~Roof~~ washers ~~shall be accessible~~ for maintenance and service.

P2912.8 Filtration. Collected rainwater shall be filtered as required for the intended end use. Access shall be provided to filters ~~Filters shall be accessible~~ for inspection and maintenance. Filters shall utilize a pressure gauge or other *approved* method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves installed immediately upstream and downstream to allow for isolation during maintenance.

P2912.12 Pumping and control system. Access shall be provided to mechanical ~~Mechanical~~ equipment, including pumps, valves and filters ~~shall be easily accessible~~ and shall be removable in order to perform repair, maintenance and cleaning. The minimum flow rate and *flow pressure* delivered by the pumping system shall be appropriate for the application and in accordance with Section P2903.

P3005.1.5 Provisions for future fixtures. Where drainage has been roughed-in for future fixtures, the drainage unit values of the future fixtures shall be considered in determining the required drain sizes. Such future installations shall be terminated with ~~an accessible~~ a permanent plug or cap fitting. Access to such plugs or caps shall be provided.

P3007.2 Valves required. A check valve and a *full open valve* located on the discharge side of the check valve shall be installed in the pump or ejector discharge piping between the pump or ejector and the gravity drainage system. Access shall be provided to such valves. Such valves shall be located above the sump cover required by Section P3007.3.2 or, where the discharge pipe from the ejector is below grade, the valves shall be ~~accessibly~~ located outside the sump below grade in an access pit with a removable access cover.

P3007.3.2 Sump. The sump shall be not less than 18 inches (457 mm) in diameter and 24 inches (610 mm) deep, unless otherwise *approved*. ~~The sump shall be accessible and~~ Access shall be provided to the sump. The sump shall be located so that drainage flows into the sump by gravity. The sump shall be constructed of tile, concrete, steel, plastic or other *approved* materials. The sump bottom shall be solid and provide permanent support for the pump. The sump shall be fitted with a gastight removable cover that is installed not more than 2 inches (51 mm) below grade or floor level. The cover shall be adequate to support anticipated loads in the area of use. The sump shall be vented in accordance with Chapter 31.

P3302.1 Subsoil drains. *Subsoil drains* shall be open-jointed, horizontally split or perforated pipe conforming to one of the standards indicated in Table P3302.1. Such drains shall be not less than 4 inches (102 mm) in diameter. Where the *building* is subject to backwater, the *subsoil drain* shall be protected by ~~an accessibly located~~ backwater valve. Access shall be provided to the backwater valve. *Subsoil drains* shall discharge to a trapped area drain, sump, dry well or *approved* location above ground. The subsoil sump shall not be required to have either a gastight cover or a vent. The sump and pumping system shall comply with Section P3303.

P3303.1.2 Sump pit. The sump shall be not less than 18 inches (457 mm) in diameter and 24 inches (610 mm) deep, unless otherwise *approved*. ~~The sump shall be *accessible* and The sump shall be accessible~~ Access shall be provided to the sump. The sump shall be located so that all drainage flows into the sump by gravity. The sump shall be constructed of tile, steel, plastic, cast iron, concrete or other *approved* material, with a removable cover adequate to support anticipated loads in the area of use. The sump floor shall be solid and provide permanent support for the pump.

P3303.1.4 Piping. Discharge piping shall meet the requirements of Sections P3002.1, P3002.2, P3002.3 and P3003. Discharge piping shall include ~~an *accessible*~~ afull-flow check valve that is provided with access. Pipe and fittings shall be the same size as, or larger than, the pump discharge tapping.

Reason: Because the term 'accessible' is most commonly understood as requiring access for persons with disabilities we are making the changes to delete the word accessible from the remaining codes and replace it with other words, defined terms or phrases that are not attributed to requiring access for the physically disabled. Many of the codes use the defined term 'access (to)' or 'ready access (to)' for access by maintenance and service personnel or fire departments. This proposal provides clarity and consistency in the remaining codes where those coordination modifications missed or came in as part of new code changes.
This a correlation piece for proposals over the last couple of cycles. This effort was started by the CACs in 2015/16 code change cycle, and continued in 2018/19. This proposal is to provide coordination with the action taken with -P84-15, M2-15, RB2-16, F12-16, CE137-16 Part 1, CE29-19 Part 1 and 2 . G1-21 Part 1 was disapproved; however Part 2 through 7 were approved.
Correlative pieces will be entered in Group B for parts of IRC, IPMC, IZC and IECC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC), the ICC Fire Code Action Committee (FCAC) and ICC Plumbing Mechanical Gas Code Action Committee (PMGCAC)

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Insert FCAC paragraph

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 PMGCAC has held 26 virtual meetings open to any interested party. In addition, there were several virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the PMGCAC website at PMGCAC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination of terms with no changes to construction requirements. See reason statement for additional information on coordination with previous proposals.

E1-24 Part V

Public Hearing Results (CAH1)

Committee Action: **As Modified by Committee**

Committee Modification:
2024 International Residential Code

P2903.10.1 Service valve. Each *dwelling unit* shall be provided with a *main* shutoff valve, provided with access and located near the

P2903.10.1 Service valve. Each *dwelling unit* shall be provided with a *main* shutoff valve, provided with access and located near the entrance of the water service. The valve shall be of a full-open type having nominal restriction to flow, with provision for drainage such as a bleed orifice or installation of a separate drain valve. Additionally, the water service shall be valved at the curb or *lot line* in accordance with local requirements.

P2903.11 Hose bibb. Hose bibbs subject to freezing, including the "frostproof" type, shall be equipped with a stop-and-waste-type valve located inside the *building* and provided with access so that they can be controlled and drained during cold periods.

Exception: Frostproof hose bibbs installed such that the stem extends through the building insulation into an open heated or *semiconditioned space* need not be separately valved (see Figure P2903.11).

Committee Reason: The committee voted 10-0 to approve Grove-MP1's modified proposal. The final vote is 10-0, as modified. The revised code language clarifies the original suggested code language to reduce any possibility of misunderstanding the intent of the code section.

E1-24 Part V

E3-24

IBC: 1003.3.1, 1003.4; IFC: [BE] 1003.3.1, [BE] 1003.4

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

1003.3.1 Headroom. Protruding objects are permitted to extend below the minimum ceiling height required by Section 1003.2 where a minimum headroom of 80 inches (2032 mm) is provided over any *circulation paths*, including walks, *corridors*, *aisles* and passageways. Not more than 50 percent of the ceiling area of a ~~*means of egress*~~ circulation path shall be reduced in height by protruding objects. **Exception:** Door closers, *overhead doorstops*, frame stops, power door operators and electromagnetic door locks shall be permitted to project into the door opening height not lower than 78 inches (1980 mm) above the floor.A barrier shall be provided where the vertical clearance above a *circulation path* is less than 80 inches (2032 mm) high above the finished floor. The leading edge of such a barrier shall be located 27 inches (686 mm) maximum above the finished floor.

1003.4 Slip-resistant surface. *Circulation paths* ~~of the *means of egress*~~ shall have a slip-resistant surface and be securely attached.

2024 International Fire Code

Revise as follows:

[BE] 1003.3.1 Headroom. Protruding objects are permitted to extend below the minimum ceiling height required by Section 1003.2 where a minimum headroom of 80 inches (2032 mm) is provided over any circulation paths, including walks, *corridors*, *aisles* and passageways. Not more than 50 percent of the ceiling area of a ~~*means of egress*~~ circulation path shall be reduced in height by protruding objects. **Exception:** Door closers, overhead doorstops, frame stops, power door operators and electromagnetic door locks shall be permitted to project into the door opening height not lower than 78 inches (1980 mm) above the floor.A barrier shall be provided where the vertical clearance above a circulation path is less than 80 inches (2032 mm) high above the finished floor. The leading edge of such a barrier shall be located 27 inches (686 mm) maximum above the finished floor.

[BE] 1003.4 Slip-resistant surface. Circulation paths ~~of the *means of egress*~~ shall have a slip-resistant surface and be securely attached.

Reason: Section 1003 applies to all parts of the *means of egress* system.

- In IBC/IFC 1003.3 “*circulation path*” is not followed by “of the *means of egress*”.
- In IBC/IFC 1003.4 “*circulation path*” is followed by “of the *means of egress*”.

The inclusion of “of the *means of egress*” in one, but not the other, gives the unintended mistaken interpretation that the provisions of section 1003.3 apply to all circulation paths and the provisions of section 1003.4 applies only circulations paths of the means of egress.

This proposal is primarily editorial and to remove the possibility of misinterpretation.

Please refer to the definition of 'circulation path'. The term is also used in Sections 1003.3 and 1003.3.3.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial clarification for circulation paths. There are not change to construction requirements.

E3-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved because the change in verbiage could be interpreted to broaden this requirement from means of egress to all parts of the building, such as catwalks and tunnel. (Vote: 8-6)

E3-24

Individual Consideration Agenda

Comment 1:

IBC: 1003.3, 1003.3.1, 1003.3.3, 1003.4; IFC: [BE] 1003.3, [BE] 1003.3.1, [BE] 1003.3.3, [BE] 1003.4

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Submitted

Reason: The committee had concerns that removing “of the means of egress” would change the scope of 1003.3 and 1003.4. IBC 1001.1 defines the scope of these two, so the deletion “of the means of egress” would not change the scope.

> **1001.1 General.** Buildings or portions thereof shall be provided with a means of egress system as required by this chapter. The provisions of this chapter shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof.

Consideration was given to adding “of the means of egress” where missing; however, that only pushes the proverbial can down the road. If someone submitted a code change and did not say “of the means of egress” immediately following circulation paths, the issue today would present. Catwalks and similar areas are considered part of the means of egress for occupants working in those areas (see Section 410.5.3.4 as an example). Tunnels are commonly used as means of egress in underground structures such as subways, parking garages, or underground shelters. In these cases, tunnels provide a designated route for individuals to safely evacuate the building or structure during an emergency.

This proposal is editorial, has no technical effects, and removes the possibility of misinterpretation, currently and in the future.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Comment (CAH2)# 126

E8-24

IBC: TABLE 1004.5, 1004.8 (New); IFC: [BE] TABLE 1004.5, 1004.9 (New)

Proposed Change as Submitted

Proponents: William Koffel, Koffel Associates, Inc., Semiconductor Industry Association (wkoffel@koffel.com)

2024 International Building Code

Revise as follows:

TABLE 1004.5 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats	
Concentrated (chairs only—not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	150 gross
Concentrated business use areas	See Section 1004.8
Courtrooms—other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
Group H-5 fabrication and manufacturing areas	200 gross
Automated fabricaion and manufacturing areas	See Section 1004.9
Industrial areas	100 gross
Information technology equipment facilities	300 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mall buildings—covered and open	See Section 402.8.2
Mercantile	60 gross
Storage, stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2.

a. Floor area in square feet per occupant.

Add new text as follows:

1004.9 Automated fabrication and manufacturing areas. The *occupant load* factor for Group H-5 automated fabrication and manufacturing areas with a lower density of occupants than would normally be expected in a typical Group H-5 occupancy environment shall be applied to such areas. Where *approved* by the *building official*, the *occupant load* for automated fabrication and manufacturing areas shall be the actual *occupant load*, but not less than one occupant per 300 square feet (27.87 m^2) of gross occupiable floor space.

2024 International Fire Code

Revise as follows:

[BE] TABLE 1004.5 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats	
Concentrated (chairs only—not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	150 gross
Concentrated business use areas	See Section 1004.8
Courtrooms—other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
Group H-5 fabrication and manufacturing areas	200 gross
Automated fabricaion and manufacturing areas	See Section 1004.9
Industrial areas	100 gross
Information technology equipment facilities	300 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mall buildings—covered and open	See Section 402.8.2 of the International Building Code
Mercantile	60 gross
Storage, stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

Add new text as follows:

1004.9 Automated fabrication and manufacturing areas. The *occupant load* factor for Group H-5 automated fabrication and manufacturing areas with a lower density of occupants than would normally be expected in a typical Group H-5occupancy environment shall be applied to such areas. Where *approved* by the *building official*, the *occupant load* for automated fabrication and manufacturing areas shall be the actual *occupant load*, but not less than one occupant per 300 square feet (27.87 m^2) of gross occupiable floor space.

Reason: As the manufacturing of semiconductors is becoming increasingly automated, there are few personnel in the fabrication and manufacturing areas. Similar to what is done for other occupancies, the proposed language provides the code official with the ability to approve an occupant load determination that uses a concentration of something less than 1 person per 200 sq. ft, with a limit that the concentration cannot be less than 1 person per 300 sq. ft.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

While reducing the occupant load itself does not reduce construction cost, the associated code requirements for egress capacity, plumbing fixtures, etc. could result in a decrease in the cost of construction.

E8-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved. What about automated facilities other than Group H-5? Is this not already permitted in the exception to Section 1004.4? 300 square feet per occupant might not be an accurate number for all facilities - this appears to take away options. Why can this not just be addressed in the occupant load table? The first sentence in the new section is unclear - it needs to be broken up. (Vote: 9-5)

E8-24

Individual Consideration Agenda

Comment 1:

Proponents: William Koffel, Koffel Associates, Inc., Semiconductor Industry Association (wkoffel@koffel.com) requests As Submitted

Reason: The Committee raised a few concerns when this item was Disapproved by a vote of 9-5.**What about automated facilities other than Group H-5?** This is a legitimate question to ask but we have not included other automated facilities because our data is unique to

semiconductor manufacturing facilities.**Is this not already permitted by Section 1004.4?** Yes, the Exception to Section 1004.5 does allow the code official to allow an occupant load lower than that calculated using the occupant load factor in Table 1004.5. However, that requires a determination made by the code official on a project specific basis. Our data indicates that the proposed occupant load is relevant to most newer projects with automated manufacturing. Note that should the occupant load be greater than calculated using 1 person per 300 sq. ft., Section 1004.5.1 addresses the increased occupant load. It should also be noted that the Exception to Section 1004.5 provides no recommended value to be used, which could be too open ended resulting in significant inconsistencies regarding enforcement.**Why not just put the occupant load in the table?** We chose a format similar to existing Section 1004.8. If the 1 person per 300 sq. ft. is inserted in the table, there is no analysis to indicate that the density is lower than commonly found in other fabs and there would be no review process by the code official. **The first sentence is unclear.** As noted above, we chose a format similar to existing Section 1004.8.In summary, we do not simply support a line in the table that provides an occupant load of 1 person per 300 sq. ft. for any semiconductor manufacturing facility that has one or more pieces of automatic equipment. While the exception to Section 1004.5 does using an occupant load factor lower than what is calculated, we believe that due to the frequency that this will occur, a separate occupant load factor is warranted. In other words, we are supporting language that is between an automatic allowance to use 1 person per 300 sq. ft. and the existing language that would allow it, but is silent on the conditions and what would be a reasonable occupant load factor.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Comment (CAH2)# 654

E10-24

IBC: TABLE 1004.5; IFC: [BE] TABLE 1004.5

Proposed Change as Submitted

Proponents: Eirene Knott, BRR Architecture, Metropolitan Kansas City Chapter of the ICC (eirene.knott@brrarch.com)

2024 International Building Code

Revise as follows:

TABLE 1004.5 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats	
Concentrated (chairs only—not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	150 gross
Concentrated business use areas	See Section 1004.8
Courtrooms—other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
Group H-5 fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Information technology equipment facilities	300 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mall buildings—covered and open	See Section 402.8.2
Mercantile	60 gross
Storage, stock, shipping areas	300 gross
Motor Vehicle Repair Garages	
Commercial Motor Vehicle (CMV)	500 gross
Non CMV	200 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2.

a. Floor area in square feet per occupant.

2024 International Fire Code

Revise as follows:

[BE] TABLE 1004.5 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
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Mall buildings—covered and open	See Section 402.8.2 of the International Building Code
Mercantile	60 gross
Motor Vehicle Repair Garages	
Commercial Motor Vehicle (CMV)	500 gross
Non CMV	200 gross
Storage, stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

Reason: Most motor vehicle repair garages will never have an occupant load as high as one would be calculated for by using the

industrial occupant load factor of 100 gross square feet per person. On average, most vehicle repair garages will average closer to 500 square feet per person in terms of actual employees on a given shift. Even if a change in shifts is occurring, the occupant load would still not be anywhere near the 100 square feet per person load factor. What I have tried to provide is two different load factors, as commercial vehicles will take up much more space in a repair garage than the typical passenger vehicles. The term "Commercial Motor Vehicle (CMV)" is a term recognized by the Department of Transportation and applies to vehicles whose weight is more than 10,000 pounds. All other vehicles would then be non-CMV, which would include passenger vehicles. The smaller proposed occupant load factor would apply to these facilities. This would recognize there is more space available for smaller vehicles and thus the potential for an increased occupant load. While this proposed occupant load factor for the CMV is the same as a warehouse, I did not want to add this to the warehouse classification as that should stand on its own.

To give an example, we have a client that builds truck repair garages for CMV's across the country. On average, one of their facilities will be 14,000 square feet. At any given point during the day, the most workers they will have in the building is ten, which would yield an occupant load factor of 1,400, which is not reasonable. By the time one takes into account the space the equipment occupies, the 500 square feet per person is a reasonable occupant load factor for this specific application.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

If anything this would reduce costs as the number of occupants would reduce the number of plumbing fixtures required.

E10-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: A definition for commercial motor vehicles should be added into the code so that this can be uniformly enforced across jurisdictions. There was not justification provided for the occupant load factor for non-CMV areas. What would non-CMV areas include? If aircraft hangers have occupant load factors of 300 sq.ft., the 500 sq.ft. occupant load factor seems high. (Vote: 9-5)

E10-24

Individual Consideration Agenda

Comment 1:

IBC: SECTION 202 (New); IFC: SECTION 202 (New)

Proponents: Eirene Knott, BRR Architecture, BRR Architecture (eirene.knott@brrarch.com) requests As Modified by Committee (AMC2)

Further modify as follows:

2024 International Building Code

Add new definition as follows:

COMMERCIAL MOTOR VEHICLE. Any motor vehicle used on a highway in interstate commerce to transport property or passengers when the vehicle has a gross vehicle weight rating of 10,001 pounds or more.

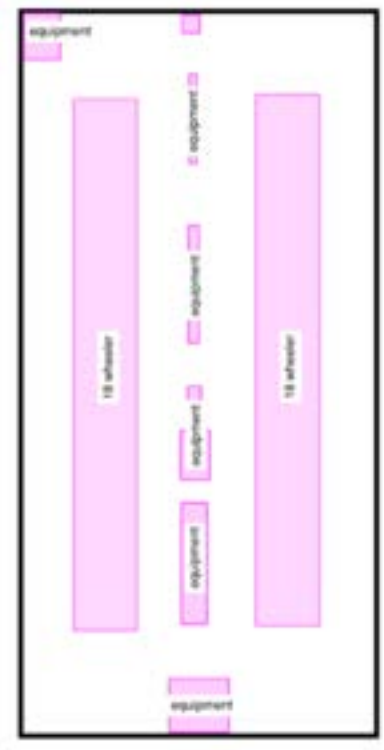
2024 International Fire Code

Add new definition as follows:

COMMERCIAL MOTOR VEHICLE. Any motor vehicle used on a highway in interstate commerce to transport property or passengers when the vehicle has a gross vehicle weight rating of 10,001 pounds or more.

Reason: The committee asked for a definition of commercial motor vehicle, which I have included. This comes from the USDOT. I stand by my original proposal request of 500 square feet per person for a commercial motor vehicle repair garage. In my original reason statement I indicated that we have a client that builds commercial vehicle repair garages. In the attached illustration, I have provided a two bay repair garage which is approximately 4800 square feet. The items in color represent either the trucks themselves being repaired or equipment within the garage utilized for servicing the trucks. After subtracting these areas, which occupy approximately 1500 square feet, we're left with approximately 3,300 square feet. Using the current provisions of 100 square feet per person, this will yield an occupant load of 33 people. I'm not sure where 33 people would fit unless they're on top of each other. Using the proposed load of 500 square feet per person, we get an occupant load of 7, which based on client information is about how many people will actually be in this space. If we take this one step further and use the proposed load by the committee of 300 square feet per person, we get an occupant load of 11.

There needs to be a distinction between a commercial vehicle garage and a non-commercial vehicle garage in terms of occupant loads as the commercial garage will have much larger equipment and the vehicles themselves take up more space. An average 18 wheeler truck is 72 feet in length, 8.5 feet in width and 13.5 feet in height, which yields about 612 square feet. If we assume an average pickup truck is 20 feet in length and 7 feet in width, that's only 140 square feet so approximately one-fourth the size of the commercial truck. Even with some of the equipment used on passenger vehicles, the 100 square foot per person is not realistic, which is why I proposed the 200 for the passenger vehicles and 500 for the commercial.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

If anything this would reduce costs as the number of occupants would reduce the number of plumbing fixtures required. (same notation as original proposal)

Comment (CAH2)# 42

E15-24

IBC: 1005.3, 1030.6; IFC: [BE] 1005.3, [BE] 1030.6

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

1005.3 Required capacity based on occupant load. The required capacity, in inches (mm), of the *means of egress* for any room, area, space or *story* shall be not less than that determined in accordance with Sections 1005.3.1 and 1005.3.2.
The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of both of the following:

1. The occupant load served by the stairway from the story or mezzanine in accordance with Sections 1005.3.1.
2. The occupant load of the tiered platforms used for seating determined in accordance with Section 1030.6.

1030.6 Capacity of aisle for assembly. The required capacity of aisles shall be not less than that determined in accordance with Section 1030.6.1 where *smoke-protected assembly seating* is not provided, Section 1030.6.2 where *smoke-protected assembly seating* is provided and Section 1030.6.3 where *open-air assembly seating* is provided.
The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of both of the following:

1. The occupant load served by the stairway from the story or mezzanine in accordance with Sections 1005.3.1.
2. The occupant load of the tiered platforms used for seating determined in accordance with Section 1030.6.

2024 International Fire Code

Revise as follows:

[BE] 1005.3 Required capacity based on occupant load. The required capacity, in inches (mm), of the *means of egress* for any room, area, space or story shall be not less than that determined in accordance with Sections 1005.3.1 and 1005.3.2.
The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of both of the following:

1. The occupant load served by the stairway from the story or mezzanine in accordance with Sections 1005.3.1.
2. The occupant load of the tiered platforms used for seating determined in accordance with Section 1030.6.

[BE] 1030.6 Capacity of aisle for assembly. The required capacity of *aisles* shall be not less than that determined in accordance with Section 1030.6.1 where *smoke-protected assembly seating* is not provided, with Section 1030.6.2 where *smoke-protected assembly seating* is provided, and with Section 1030.6.3 where open-air assembly seating is provided.
The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of both of the following:

1. The occupant load served by the stairway from the story or mezzanine in accordance with Sections 1005.3.1.
2. The occupant load of the tiered platforms used for seating determined in accordance with Section 1030.6.

Reason: E106-18 added criteria to 1030.16 to address social stairways.

“Where stepped aisles have seating on one side and the aisle width is 74 inches (1880 mm) or greater, two handrails are required.

Where two handrails are required, one of the handrails shall be within 30 inches (762 mm) horizontally of the stepped aisle."

The question at this point is where there is this type assembly seating immediately adjacent to the egress from the upper floor – how should the capacity of the combined stairway/stepped aisle be calculated? We feel that the proposed language would clarify this issue.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of requirements to calculate width for the stairway/stepped aisle. There are no change to construction requirements.

E15-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The intent is good, but there are some additional clean ups needed. This might be better located in a subsection. The terminology mixes 'required capacity' and occupant load - this needs to be separated. There should be a pointer in one of the sections to reduce duplication. (Vote: 13-1)

E15-24

Individual Consideration Agenda

Comment 1:

IBC: 1005.3, 1005.3.1, 1005.3.1.1 (New), 1005.3.2, 1030.6, 1003.6.4 (New); IFC: [BE] 1005.3, [BE] 1005.3.1, [BE]1005.3.1.1 (New), [BE] 1005.3.2, [BE] 1030.6, [BE] 1003.6.4 (New)

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1005.3 Required capacity based on occupant load. The required capacity, in inches (mm), of the *means of egress* for any room, area, space or *story* shall be not less than that determined in accordance with Sections 1005.3.1 and 1005.3.2. Stepped aisles adjacent to tiered platforms used as seating shall comply with Section 1005.3.3. ~~The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of both of the following:~~

~~1. The occupant load served by the stairway from the story or mezzanine in accordance with Sections 1005.3.1.~~

~~2. The occupant load of the tiered platforms used for seating determined in accordance with Section 1030.6.~~

1005.3.1 Stairways. The capacity, in inches, of means of egress *stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a *means of egress* capacity factor of 0.3 inch (7.6 mm) per occupant. Where *stairways* serve more than one *story*, only the *occupant load* of each *story* considered individually shall be used in calculating the required capacity of the *stairways* serving that *story*. **Exceptions:**

1. For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress *stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant in *buildings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communication system* in accordance with Section 907.5.2.2.
2. *Facilities* with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1030.6.2 indicated for stepped *aisles* for *exit access* or exit *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
3. *Facilities* with *open-air assembly seating* shall be permitted to the capacity factors in Section 1030.6.3 indicated for stepped *aisles* for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

Add new text as follows:

1005.3.1.1 Stepped aisles for tiered platforms used as seating. The capacity, in inches, of the means of egress stairways between

stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall comply with Section 1030.6.1.

1005.3.2 Other egress components. The capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant.

Exceptions:

1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a means of egress capacity factor of 0.15 inch (3.8 mm) per occupant in *buildings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
2. *Facilities* with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1030.6.2 indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
3. *Facilities* with *open-air assembly seating* shall be permitted to the capacity factors in Section 1030.6.3 indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

1030.6 Capacity of aisle for assembly. The required capacity of aisles shall be not less than that determined in accordance with Section 1030.6.1 where *smoke-protected assembly seating* is not provided, Section 1030.6.2 where *smoke-protected assembly seating* is provided, ~~and~~ Section 1030.6.3 where *open-air assembly seating* is provided and Section 1030.6.4 where tiered platforms used as seating is provided.

~~The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of both of the following:~~

1. ~~The occupant load served by the stairway from the story or mezzanine in accordance with Sections 1005.3.1.~~
2. ~~The occupant load of the tiered platforms used for seating determined in accordance with Section 1030.6.~~

Add new text as follows:

1003.6.4 Stepped aisles for tiered platforms used as seating. The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of the following:

1. The capacity, in inches, of the means of egress stairway from the story or mezzanine in accordance with Sections 1005.3.1.
2. The capacity, in inches, as determined by the occupant load of the tiered platforms used for seating in accordance with Section 1030.6.1, 1030.6.2, or 1030.6.3, as applicable.

2024 International Fire Code

[BE] 1005.3 Required capacity based on occupant load. The required capacity, in inches (mm), of the *means of egress* for any room, area, space or story shall be not less than that determined in accordance with Sections 1005.3.1 and 1005.3.2. Stepped aisles adjacent to tiered platforms used as seating shall comply with Section 1005.3.3.

~~The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of both of the following:~~

1. ~~The occupant load served by the stairway from the story or mezzanine in accordance with Sections 1005.3.1.~~
2. ~~The occupant load of the tiered platforms used for seating determined in accordance with Section 1030.6.~~

[BE] 1005.3.1 Stairways. The capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.3 inch (7.6 mm) per occupant. Where *stairways* serve more than one

story, only the *occupant load* of each story considered individually shall be used in calculating the required capacity of the *stairways* serving that story. **Exceptions:**

1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a *means of egress* capacity factor of 0.2 inch (5.1 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
2. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1030.6.2 indicated for stepped *aisles* for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
3. Facilities with *open-air assembly seating* shall be permitted to the capacity factors in Section 1030.6.3 indicated for stepped *aisles* for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

Add new text as follows:

[BE]1005.3.1.1 Stepped aisles for tiered platforms used as seating. The capacity, in inches, of the means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall comply with Section 1030.6.1.

[BE] 1005.3.2 Other egress components. The capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a *means of egress* capacity factor of 0.2 inch (5.1 mm) per occupant. **Exceptions:**

1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a *means of egress* capacity factor of 0.15 inch (3.8 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
2. Facilities with *smoke-protected assembly* seating shall be permitted to use the capacity factors in Table 1030.6.2indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
3. Facilities with *open-air assembly seating* shall be permitted to the capacity factors in Section 1030.6.3 indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

[BE] 1030.6 Capacity of aisle for assembly. The required capacity of *aisles* shall be not less than that determined in accordance with Section 1030.6.1 where *smoke-protected assembly seating* is not provided, with Section 1030.6.2 where *smoke-protected assembly seating* is provided, ~~and~~ Section 1030.6.3 where *open-air assembly seating* is provided and Section 1030.6.4 where tiered platforms used as seating is provided.

~~The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of both of the following:~~

1. ~~The occupant load served by the stairway from the story or mezzanine in accordance with Sections 1005.3.1.~~
2. ~~The occupant load of the tiered platforms used for seating determined in accordance with Section 1030.6.~~

Add new text as follows:

[BE] 1003.6.4 Stepped aisles for tiered platforms used as seating. The capacity, in inches, of means of egress stairways between stories or mezzanines that also serve as a stepped aisle for tiered platforms used for seating shall be the aggregate of the following:

1. The capacity, in inches, of the means of egress stairway from the story or mezzanine in accordance with Sections 1005.3.1.

2. The capacity, in inches, as determined by the occupant load of the tiered platforms used for seating in accordance with Section 1030.6.1, 1030.6.2, or 1030.6.3, as applicable..

Reason: The intent of this proposal remains the same (see original reason). The modifications were made to address the committee comments.

In response to the Committee's comment that this would be better in its own subsection, subsection 1030.6.4 was created, with a pointer being added in a new subsection 1005.3.1.1. While either location would be acceptable, 1030.6 was chosen on the belief that a user may start in Section 1030 when designing a social stairway.

To address the committee's concerns about the mixing of terminology, Section 1030.6.4, Items 1 and 2 were re-written slightly to better address that the minimum width of the stairway is the aggregate of widths as determined by the two conditions.

Throughout the means of egress sections, the minimum size of egress components is stated with the phrase "capacity, in inches". It was used in this proposal to keep the text consistent with the remainder of the established means of egress sections. See Section 1005.3, 1005.3.1, 1005.3.2, 1030.6.1, 1030.6.2 and 1030.6.3 for examples of this phrase in current text. If it was the committees desire for that phrasing to be addressed in some way throughout the code, BCAC would happily consider it in a proposal for next cycle, but changing here it is beyond the intent and scope of this proposal.

Example:

200 occupants egressing on the stairway from the 2nd floor and 150 occupants on the tiered platforms in a college student union.

(200 occupants x 0.3") + (150 occupants x 0.3") = 60" + 45" = a minimum stairway width of 105"

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of requirements to calculate width for the stairway/stepped aisle. There are no change to construction requirements.

Comment (CAH2)# 127

E18-24

IBC: 1006.2.2.5; IFC: [BE] 1006.2.2.5

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

1006.2.2.5 Vehicular ramps. Vehicular ramps intended only for vehicle traffic shall not be considered as an *exit access ramp* ~~unless pedestrian *facilities* are~~ except where a walkway used exclusively as a pedestrian trafficway is provided.

2024 International Fire Code

Revise as follows:

[BE] 1006.2.2.5 Vehicular ramps. Vehicular ramps intended only for vehicle traffic shall not be considered as an *exit access ramp* ~~unless pedestrian *facilities* are~~ except where a walkway used exclusively as a pedestrian trafficway is provided.

Reason: Are vehicular ramps the driveways and crossovers for cars only with no parking on either side; or are they wherever a car drives in a parking garage. Pedestrian walkways are used for bridges between buildings in Chapter 31, so we did not want to use the defined term, but the words in the defined term would add clarity to this requirement. The term “pedestrian facilities” is not defined and is not clear.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of requirements for pedestrians on vehicular ramps. There are no changes to construction requirements.

E18-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The change adds confusion. Does a pedestrian trafficway require a sidewalk or barriers along the vehicle ramp? If you have a pedestrian route, this is not longer a "vehicular ramp only for vehicle traffic." (Vote: 14-0)

E18-24

Individual Consideration Agenda

Comment 1:

IBC: 1006.2.2.5; IFC: [BE] 1006.2.2.5

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1006.2.2.5 Vehicular ramps. Vehicular ramps intended only for vehicle traffic shall not be considered as an *exit access ramp* except where a demarcated walkway used exclusively ~~as a~~ for pedestrian traffic ~~way~~ is provided.

2024 International Fire Code

[BE] 1006.2.2.5 Vehicular ramps. Vehicular ramps intended only for vehicle traffic shall not be considered as an *exit access ramp* except where a demarcated walkway used exclusively ~~as a~~ for pedestrian traffic ~~way~~ is provided.

Reason: The modifications are intended to address the committee's concerns.

Vehicular ramps are driveways and crossovers for cars only with no parking on either side; they are not sloped surfaces between parking where vehicles enter or exit spaces. Typically pedestrians are not using these entrance ramps. The allowance is for emergency egress if needed.

The requirement for the walkway to be **demarcated** is added to clarify the need for separation but leaves the method of such separation open (barriers, marking, sidewalks, curbs, etc.). The term demarcated is already used in 1016.2 (item 6, exception 2).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of requirements for pedestrians on vehicular ramps. There are no changes to construction requirements.

Comment (CAH2)# 128

E19-24

IBC: 1006.2.2, 1006.2.2.7 (New); IFC: [BE] 1006.2.2, 1006.2.2.7 (New)

Proposed Change as Submitted

Proponents: Adam Henson, U.S. Chemical Safety and Hazard Investigation Board (adam.henson@csb.gov)

2024 International Building Code

Revise as follows:

1006.2.2 Egress based on use. The numbers, configuration and types of components of *exits* or access to *exits* shall be provided in the uses described in Sections 1006.2.2.1 through ~~1006.2.2.6~~ 1006.2.2.7.

Add new text as follows:

1006.2.2.7 Equipment Platforms. Equipment platforms in Group H-1, H-2, H-3 and H-4 occupancies, and equipment platforms located outside servicing industrial processes, storing or using hazardous materials in excess of the maximum allowable quantity per control area specified in Tables 5003.1.1 (3) or 5003.1.1(4) of the *International Fire Code*, shall have at least two exits or exit access doorways.

Exception: Equipment platforms with less than 4 occupants and with an exit access travel distance less than 200 feet (61 m) shall be permitted to have a single exit or exit access doorway.

2024 International Fire Code

Revise as follows:

[BE] 1006.2.2 Egress based on use. The numbers, configurations, and types of components of exits or access to exits shall be provided in the uses described in Sections 1006.2.2.1 through ~~1006.2.2.6~~ 1006.2.2.7

Add new text as follows:

1006.2.2.7 Equipment Platforms. Equipment platforms in Group H-1, H-2, H-3 and H-4 occupancies, and equipment platforms located outside servicing industrial processes, storing or using hazardous materials in excess of the maximum allowable quantity per control area specified in Tables 5003.1.1 (3) or 5003.1.1(4), shall have at least two exits or exit access doorways.

Exception: Equipment platforms with less than 4 occupants and with an exit access travel distance less than 200 feet (61 m) shall be permitted to have a single exit or exit access doorway.

Reason: On November 13, 2020, hydrogen chloride gas, which is corrosive and toxic, was released from an industrial chemical process at the Wacker Polysilicon North America (Wacker) facility in Charleston, TN. The release occurred when excessive torque was applied to the bolts of the graphite heat exchanger in the unit. The release occurred on the fifth floor of an equipment platform located outdoors. At the time of the release, there were seven workers on the fifth floor of the equipment platform some in chemical resistant suits and others not.

Four of the workers remained in place during the release. Three of the workers who were not wearing chemical resistant suits attempted to escape by climbing over the edge of the equipment platform approximately 70 feet above the ground and climbing down piping on the side of the structure. During the climb down all three workers fell fatally injuring one and seriously injuring the other two. One of the employees who remained in place suffered chemical burns when their chemical resistant suit ripped. In addition to the human toll of this incident damages of $214,000 were reported by the facility.

Access to/egress from the fourth and fifth floors of the equipment platform was provided by a single staircase. The release cut off the employees from the staircase. In the months immediately preceding the incident Wacker identified this area having a single means of egress as a hazard during a process hazard analysis. At the time of the incident, Wacker had not followed up on this PHA recommendation. In response to concerns brought by employees Wacker cited IBC/IFC as justification for the arrangement of the

platform's means of egress.

During its investigation the CSB concluded that had an additional means of egress been installed that the workers affected by the release would not have had to climb over the edge of the platform to escape the release and the fatality and serious injuries associated with the falls could have been prevented. The CSB also concludes that current egress requirements, including those found in the IBC/IFC, are insufficient for equipment platforms used for accessing equipment containing hazardous materials.

As part of its investigation into this incident, the CSB reviewed the requirements of the International Building Code (IBC) and the International Fire Code (IFC) and determined that there are no requirements for means of egress from equipment platforms even those serving equipment with hazardous materials under any circumstances.

As the result of the investigation, the CSB issued the following recommendation to the International Code Council:

CSB Recommendation No. 2021-01-I-TN-R9

Amend the International Building Code (IBC) to address conditions that may require multiple means of egress from elevated equipment platforms used for accessing equipment containing materials that pose physical and health hazards, such as the one used at Wacker in this incident. Specify the minimum number of egress points to increase the likelihood of worker escape in the event of a hazardous material release.

The language proposed is intended to satisfactorily implement this recommendation.

Bibliography: U.S. Chemical Safety and Hazard Investigation Board (CSB), "Equipment Fracture and Fatal Hydrogen Chloride Release at Wacker Polysilicon North America," 15 June 2023. [Online]. Available: https://www.csb.gov/file.aspx?DocumentId=6226. [Accessed 30 November 2023].

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

Between $17,000 and $362,000

Estimated Immediate Cost Impact Justification (methodology and variables):

Recent projects to increase the number of means of egress on elevated equipment platforms were completed, or are underway, at a chemical plant in Tennessee. Addressing the following scenarios resulted in the following final and estimated costs.

Scenario 1: A piece of equipment is kept on the third floor, near the edge of the platform.

Solution:

Ladders were added on each side of the building from the third floor to an adjacent building. Modifications were also made to the rood access door.

Final Cost: $17,000

Scenario 2: The existing finger rack dead-ends.

Solution:

A ladder and platform were installed to connect the finger rack to the adjacent pipe rack.

Final Cost: $24,000

Scenario 3: The existing finger rack dead-end on either side of a process vessel.

Solution:

Ladders and platforms were added on each of the finger racks.

Final Cost: $147,000

Scenario 4: Material from a third-floor skid is piped through upper floors and is located in various vessels on the upper floors. Maintenance and operations personnel frequently access these areas and there is a single means of egress.

Solution:

Ladders are being added from the 6^{th} to 5^{th} floors, 5^{th} to 4^{th} floors, and 4^{th} floor to the roof of the adjacent building.

Estimated Cost: $175,000

Scenario 5: Chemical process equipment is located on the fifth floor of an elevated equipment platform with a single means of egress.

Solution:

A stair tower serving each floor of the elevated equipment platform was constructed.

Final Cost: $362,000

Cost Source:

This information was provided by the chemical company previously mentioned based on their efforts to install secondary means of egress on the existing elevated equipment platforms located throughout their facility. The cost of these items for new construction will likely be less expensive if secondary means of egress for these structures is considered in their original design.

E19-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: There were several questions about the proposal. Does this apply to equipment platforms inside and outside a building? How would you determine the occupant load of an equipment platform when this space is defined as non-occupied. How would a code official determine and occupant load where there is no occupant load in the table? Would ladders be permitted as a exit - they are permitted in Section 505.3? What is the justification for the size limits? Should there be separation requirements for the two exits? (Vote: 14-0)

E19-24

Individual Consideration Agenda

Comment 1:

IBC: 1006.2.2.7; IFC: 1006.2.2.7

Proponents: Adam Henson, U.S. Chemical Safety and Hazard Investigation Board (adam.henson@csb.gov) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Revise as follows:

1006.2.2.7 Equipment Platforms. Equipment platforms in Group H-1, H-2, H-3 and H-4 occupancies, and equipment platforms located outside servicing industrial processes, storing or using hazardous materials in excess of the maximum allowable quantity per control area specified in Tables 5003.1.1 (3) or 5003.1.1(4) of the *International Fire Code,* shall have ~~at least~~ not less than two exits, ~~or~~ exit access doorways, or exit access stairways. The requirements of this section are permitted to be met by the installation of one or more fixed ladders or alternating tread devices.

Exception: Equipment platforms less than 20 feet (6.1 m) above the lower level ~~with less than 4 occupants and with an exit access travel distance less than 200 feet (61 m)~~ shall be permitted to have a single exit, ~~or~~ exit access doorway, or exit access stairway.

2024 International Fire Code

Revise as follows:

[BE] 1006.2.2.7 Equipment Platforms. Equipment platforms in Group H-1, H-2, H-3 and H-4 occupancies, and equipment platforms located outside servicing industrial processes, storing or using hazardous materials in excess of the maximum allowable quantity per control area specified in Tables 5003.1.1 (3) or 5003.1.1(4), shall have ~~at least~~ not less than two exits, ~~or~~ exit access doorways, or exit access stairways. The requirements of this section are permitted to be met by the installation of one or more fixed ladders or alternating tread devices.

Exception: Equipment platforms less than 20 feet (6.1 m) above the lower level ~~with less than 4 occupants and with an exit access travel distance less than 200 feet (61 m)~~ shall be permitted to have a single exit, ~~or~~ exit access doorway, or exit access stairway.

Reason: This proposal has been updated in an attempt to address the concerns shared by the committee at CAH #1. The proposal does apply to platforms inside and outside of buildings as addressed by the first sentence of 1006.2.2.7 of updated the proposal. The reference in the exception necessitating the calculation of the occupant load of the platforms has been replaced with an exception based on the height of the equipment platform. The height chosen is based on a research paper titled: *Falls from Great Heights: Risk to Sustain Severe Thoracic and Pelvic Injuries Increases with Height of Fall*. This paper was published June 10, 2021 and is available through the U.S. National Library of Medicine. According to this paper researchers have described a fall from a height of at least 20 feet (6.1 M) as the threshold for suffering major trauma. NIOSH published a paper in 1975 calling for every elevated work surface servicing a hazardous process to have two means of egress, but the exception as proposed seems necessary and appropriate. This information is located in Section 3 of the document. Yes, ladders would be acceptable to meet these requirements. Alternating tread devices would also suffice. There is nothing in the proposal seeking to limit the size of equipment platforms. The reference to travel distance in the original proposal was not intended to limit the size of the platform, but rather to denote equipment platforms that would be excepted from the proposal's requirements because of their small size. The distance was from NFPA 101 Section 11.2 Open Structures. A requirement for separation similar to the one found for Refrigeration Machinery Rooms (1006.2.2.2). The entire proposal is meant to mirror the existing egress requirements for boiler rooms, refrigeration machinery rooms, and others in the Egress Based on Use Section of the IBC/IFC (1006.2.2) because of the similarity between these spaces and how they are used. The definition of equipment platforms identifies them as unoccupied. The definition of floor area, net identifies mechanical rooms, such as boiler rooms and refrigeration mechanical rooms, as unoccupied accessory areas. They should be treated the same.

Bibliography:

1. Nau C, Leiblein M, Verboket RD, Hörauf JA, Sturm R, Marzi I, Störmann P. Falls from Great Heights: Risk to Sustain Severe Thoracic and Pelvic Injuries Increases with Height of the Fall. J Clin Med. 2021 May 25;10(11):2307. doi: 10.3390/jcm10112307. PMID: 34070640; PMCID: PMC8199183. Viewed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8199183/
2. National Insttitue of Occupational Safety and Health. (1975). *Criteria for a Recommended Standard.... Emergency Egress From Elevated Workstations*. Retrieved from https://www.cdc.gov/niosh/docs/76-128/default.html

Cost Impact: Increase

Estimated Immediate Cost Impact:

Between $17,000 and $362,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

Recent projects to increase the number of means of egress on elevated equipment platforms were completed, or are underway, at a chemical plant in Tennessee. Addressing the following scenarios resulted in the following final and estimated costs.

Scenario 1: A piece of equipment is kept on the third floor, near the edge of the platform.
Solution:
Ladders were added on each side of the building from the third floor to an adjacent building. Modifications were also made to the rood access door.
Final Cost: $17,000

Scenario 2: The existing finger rack dead-ends.
Solution:
A ladder and platform were installed to connect the finger rack to the adjacent pipe rack.
Final Cost: $24,000

Scenario 3: The existing finger rack dead-end on either side of a process vessel.
Solution:
Ladders and platforms were added on each of the finger racks.
Final Cost: $147,000

Scenario 4: Material from a third-floor skid is piped through upper floors and is located in various vessels on the upper floors. Maintenance and operations personnel frequently access these areas and there is a single means of egress.
Solution:
Ladders are being added from the 6 to 5 floors, 5 to 4 floors, and 4 floor to the roof of the adjacent building.
Estimated Cost: $175,000

Scenario 5: Chemical process equipment is located on the fifth floor of an elevated equipment platform with a single means of egress.
Solution:
A stair tower serving each floor of the elevated equipment platform was constructed.
Final Cost: $362,000

Cost Source:
This information was provided by the chemical company previously mentioned based on their efforts to install secondary means of egress on the existing elevated equipment platforms located throughout their facility. The cost of these items for new construction will likely be less expensive if secondary means of egress for these structures is considered in their original design.

Comment (CAH2)# 523

E22-24

IBC: TABLE 1006.3.4(1), TABLE 1006.3.4(2); IFC: [BE] TABLE 1006.3.4(1), [BE] TABLE 1006.3.4(2)

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any *story* or *occupiable roof* where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.
4. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.
5. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:
   5.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.
   5.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

Revise as follows:

TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2[a, b, c]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, ~~or~~ 903.3.1.2 or 903.3.1.3, and provided with emergency escape and rescue openings in accordance with Section 1031.

b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).

c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use Table 1006.3.4(2).

TABLE 1006.3.4(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane and occupiable roofs over the first story above grade plane	A, B[b], E, F[b], M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a, c]	10	75
	S[b, d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, ~~or~~ 903.3.1.2 or 903.3.1.3, and provided with emergency escape and rescue openings in accordance with Section 1031.

b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an occupiable roof of such buildings shall have a maximum exit access travel distance of 100 feet.

c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).

d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

2024 International Fire Code

[BE] 1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any story or *occupiable roof*, where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and *exit access* travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.
4. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.
5. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:
   5.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one means of egress.
   5.2. Either the *exit* from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit* access outside the *dwelling unit*'s entrance door provides access to not less than two *approved* independent *exits*.

Revise as follows:

[BE] TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2[a, b, c]	4 dwelling units	125 feet

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, or 903.3.1.2 or 903.3.1.3 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).

c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use Table 1006.3.4(2).

[BE] TABLE 1006.3.4(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane and occupiable roofs over the first story above grade plane	A, B[b], E, F[b], M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a, c]	10	75
	S[b, d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, ~~or~~ 903.3.1.2 or 903.3.1.3 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an occupiable roof of such buildings shall have a maximum exit access travel distance of 100 feet.

c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).

d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

Reason: A townhouse can be a Group R-2 and be permitted to use an NFPA13D sprinkler system. Footnote a of Table 1006.3.4(1) and 1006.3.4(2) should include a requirement for townhouses with a single exit to have emergency escape and rescue openings consistent with Group R-2 with an NFPA 13 or NFPA 13R systems.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned

International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of requirements for Group R where an NFPA13D system is permitted. There are no changes to construction requirements.

E22-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: Is a NFPA13D permitted in a townhouse? It needs to be clarified that a NFPA13D system is limited to three story units so it will not be interpreted to be allowed in taller Group R-2 dwelling units. Is a NFPA13D system permitted in a Group R-2 with sleeping units? (Vote: 12-2)

E22-24

Individual Consideration Agenda

Comment 1:

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Submitted

Reason: BCAC had 5 different proposals dealing with requirements for buildings where an NFPA13D sprinkler system is permitted. Proposal FS94-24, E16-24 and E95-24 were approved. We are asking for approval of code changes E22-24 and E93-24 for consistency within the code.

In these tables, by not listing and NFPA13D system, it could be interpreted that emergency escape windows are not required. Since emergency escape windows would be required for a building with an NFPA13 or NFPA13R system, this is not consistent and is a safety issue.

Much of the discussion with the committee was about where an NFPA13D system can be used. That is outside the scope of these proposals. However, Code change F100-24 was approved as modified to clarify where an NFPA13D system can be use. This is the approved text.

2024 International Fire/Building Code
Revise as follows:
903.2.8 Group R. An automatic sprinkler system installed in accordance with Section 903.3.1 shall be provided throughout all buildings with a Group R fire area.
Delete without substitution:
~~903.2.8.1 Group R-3. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in Group R-3 occupancies.~~
~~903.2.8.2 Group R-4, Condition 1. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in Group R-4, Condition 1 occupancies.~~
~~903.2.8.3 Care facilities. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in care facilities~~

~~with five or fewer individuals in a single-family dwelling.~~

Revise as follows:

903.3.1.3 NFPA 13D sprinkler systems. Automatic sprinkler systems installed in one- and two-family dwellings and townhouses; Group R-3; and Group R-4~~, Condition 1; and townhouses~~ shall be permitted to be installed throughout in accordance with NFPA13D.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Comment (CAH2)# 140

E23-24

IBC: TABLE 1006.3.4(1), TABLE 1006.3.4(2), 1006.3.4.1, 1031.2; IFC: [BE] TABLE 1006.3.4(1), [BE] TABLE 1006.3.4(2), [BE] 1006.3.4.1, [BE] 1031.2

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any *story* or *occupiable roof* where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.
4. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.
5. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:
   5.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.
   5.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

Revise as follows:

TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES [a,b]

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM NUMBER ~~OF DWELLING UNITS~~	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2~~[a, b, c]~~ consisting of dwelling units	4 dwelling units	125 feet
	R-2 consisting of sleeping units	20 occupants	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

~~b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).~~

~~c.~~ b. This table is for occupiable roofs accessed through and serving individual dwelling units or sleeping units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual dwelling units or sleeping units, use Table 1006.3.4(2).

TABLE 1006.3.4(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane and occupiable roofs over the first story above grade plane	A, B~~[a][b]~~, E, F~~[a]~~, M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1~~, R-2[a, c]~~	10	75
	S~~[a][b, d]~~	29	75
Second story above grade plane	B, F, M, S~~[b][d]~~	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

~~a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.~~

~~b.~~ a. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an occupiable roof of such buildings shall have a maximum exit access travel distance of 100 feet.

~~c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).~~

~~d.~~ b. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

1006.3.4.1 Mixed occupancies. Where one *exit*, or *exit access stairway* or *ramp* providing access to exits at other *stories*, is permitted to serve individual *stories*, mixed occupancies shall be permitted to be served by single *exits* provided that each individual occupancy complies with the applicable requirements of Table 1006.3.4(1) or 1006.3.4(2) for that occupancy. Where applicable, cumulative *occupant loads* from adjacent occupancies shall be considered to be in accordance with the provisions of Section 1004.1. In each *story* of a mixed occupancy *building*, the maximum number of occupants served by a single exit shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants indicated in Table 1006.3.4(1) for Group R-2 sleeping units or Table 1006.3.4(2) for each occupancy does not exceed one. Where Group R-2 *dwelling units* are located on a story with other occupancies, the actual number of *dwelling units* divided by four plus the ratio from the other occupancy does not exceed one.

1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by ~~Tables~~ Table 1006.3.4(1) ~~and 1006.3.4(2)~~.
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way, or to an egress balcony that leads to a public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.

3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, *sleeping rooms* in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:
   5.1. One *means of egress* and one *emergency escape and rescue opening*.
   5.2. Two *means of egress*.

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[BE] 1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any story or *occupiable roof*, where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and *exit access* travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.
4. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.
5. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:
   5.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one means of egress.
   5.2. Either the *exit* from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit* access outside the *dwelling unit*'s entrance door provides access to not less than two *approved* independent *exits*.

Revise as follows:

[BE] TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES a,b

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM NUMBER ~~OF DWELLING UNITS~~	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2~~a, b, c~~ consisting of dwellint units	4 dwelling units	125 feet
	R-2 consisting of sleeping units	20 occupants	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

~~b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).~~

~~c.~~ b. This table is for occupiable roofs accessed through and serving individual dwelling units or sleeping units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual dwelling or sleeping units, use Table 1006.3.4(2).

[BE] TABLE 1006.3.4(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane and occupiable roofs over the first story above grade plane	A, B~~[a,b]~~, E, F~~[a,b]~~, M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, ~~R-1, R-2[a, c]~~	10	75
	S~~[a, b, d]~~	29	75
Second story above grade plane	B, F, M, S~~[b,d]~~	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

~~a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.~~

~~b.~~ a. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an occupiable roof of such buildings shall have a maximum exit access travel distance of 100 feet.

~~c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).~~

~~d.~~ b. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

[BE] 1006.3.4.1 Mixed occupancies. Where one *exit*, or *exit access stairway* or *ramp* providing access to *exits* at other stories, is permitted to serve individual stories, mixed occupancies shall be permitted to be served by single *exits* provided that each individual occupancy complies with the applicable requirements of Table 1006.3.4(1) or 1006.3.4(2) for that occupancy. Where applicable, cumulative *occupant loads* from adjacent occupancies shall be considered to be in accordance with the provisions of Section 1004.1. In each story of a mixed occupancy building, the maximum number of occupants served by a single *exit* shall be such that the sum of the ratios of the calculated number of occupants ~~of the~~ indicated in Table 1006.3.4(1) for Group R-2 sleeping units or Table 1006.3.4(2) for each occupancy does not exceed one. Where *dwelling units* are located on a story with other occupancies, the actual number of Group R-2 *dwelling units* divided by four plus the ratio from the other occupancy does not exceed one.

[BE] 1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in stories with only one *exit* or access to only one *exit* as permitted by ~~Tables~~ Table 1006.3.4(1) ~~and 1006.3.4(2)~~.
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue*

opening in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way* , or to an egress balcony that leads to a *public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:

   5.1. One *means of egress* and one *emergency escape and rescue opening*.

   5.2. Two *means of egress*.

Reason: The purpose of this code change is to coordinate and consolidate requirements for R-2 units in Tables 1006.2.1 (single exit space), 1006.3.4(1) and 1006.3.4(2) (singe exit buildings).

Proposal E17-15 increased the maximum occupant load for R-2 Occupancies from 10 to 20 occupants for single exit spaces stating that it's appropriate since Group R-2 occupancies require sprinkler protection per Section 903.3.1.1 or 903.3.1.2. and that the exit access travel distance is 125' in both Table 1006.2.1 and 1006.3.4(1). There is no logic for a unit on the 1st floor of single exit building to have a lower occupant load or a shorter travel distance. In addition, if 4 single exit dwelling units are permitted on the 2nd and 3rd floor of a Group R-2 building, why is a single exit dwelling not permitted at the 2nd floor of a mixed-use building? Please note that emergency escape and rescue openings would be required in the single exit building.The change to Sections 1006.3.4.1 and 1031.2 are editorial to recognize that R-2 is only in one table.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) .

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

$0 - This will eliminate the need for a 2nd exterior door, and will allow for more efficient floor plan design. The options in floor plans is so wide ranging, it is not possible to determine costs.

Estimated Immediate Cost Impact Justification (methodology and variables):

This will only affect dwelling units on the basement, 1st or 2nd floor of a mixed-use building. This will most likely be no change in units less than 2,000 sq. ft. This will allow for a single exit in some apartments between 2,000 and 4,000 sq. ft., provided they can meet the exit access travel distance and provide EEROs.

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: Combining the two tables appears to increase the number of sleeping units permitted to have a single exit. The revised table could be read to allow each of the sleeping units to have 20 occupants - there should be a unit count. The title on the third column of 'maximum number' is not clear. (Vote: 8-5)

E23-24

Individual Consideration Agenda

Comment 1:

IBC: TABLE 1006.3.4(1); IFC: [BE] TABLE 1006.3.4(1)

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Modified by Committee (AMC2)

Modify as follows:

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Revise as follows:

TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES [a,b]

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM NUMBER	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2consisting of dwelling units	4 dwelling units per story	125 feet
	R-2 consisting of sleeping units	20 occupants per story	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. This table is for occupiable roofs accessed through and serving individual dwelling units or sleeping units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual dwelling units or sleeping units, use Table 1006.3.4(2).

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Revise as follows:

[BE] TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES a,b

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM NUMBER	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2consisting of dwellint units	4 dwelling units per story	125 feet
	R-2 consisting of sleeping units	20 occupants per story	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. This table is for occupiable roofs accessed through and serving individual dwelling units or sleeping units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual dwelling or sleeping units, use Table 1006.3.4(2).

Reason: From the report of committee actions- "Committee Reason: Combining the two tables appears to increase the number of sleeping units permitted to have a single exit. The revised table could be read to allow each of the sleeping units to have 20 occupants - there should be a unit count. The title on the third column of 'maximum number' is not clear. (Vote: 8-5)"

The purpose of this code change is to coordinate and consolidate requirements for R-2 units in Tables 1006.2.1 (single exit space), 1006.3.4(1) and 1006.3.4(2) (singe exit buildings).

Proposal E17-15 increased the maximum occupant load for R-2 Occupancies from 10 to 20 occupants for single exit spaces stating that it's appropriate since Group R-2 occupancies require sprinkler protection per Section 903.3.1.1 or 903.3.1.2. and that the exit access travel distance is 125' in both Table 1006.2.1 and 1006.3.4(1). There is no logic for a unit on the 1st floor of single exit building to have a lower occupant load or a shorter travel distance. Whether or not the spaces are dwelling or sleeping units shouldn't impact the allowable travel distance, because in both cases the residents are non-transient and equally familiar with their surroundings. The difference between the two is whether the spaces have both cooking and sanitation facilities, or only one of them. In addition, if 4 single exit dwelling units are permitted on the 2nd and 3rd floor of a Group R-2 building, why is a single exit dwelling not permitted at the 2nd floor of a mixed-use building? Please note that emergency escape and rescue openings would be required in the single exit building. The change to Sections 1006.3.4.1 and 1031.2 are editorial to recognize that R-2 is only in one table.

Regarding the committee's concern that the number of sleeping units should be limited to a certain number, rather than limiting only by number of occupants. Keep in mind that there are other factors that will also limit the overall story size. First, the occupant load calculation from Table 1004.5, where a residential occupancy is calculated at 200 sf per occupant, gross states to reach 20 occupants per story the building would be 4,000 sf in area, which could be 40'x100'; and maximum travel distance still needs to be met to a single exit. Table 1006.2.1 Spaces with One Exit or Exit Access Doorway uses 125-feet for the maximum R-2 travel distance, and that is the value used in the combined table.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0 - This will eliminate the need for a 2nd exterior door, and will allow for more efficient floor plan design. The options in floor plans is so wide ranging, it is not possible to determine costs.

Estimated Immediate Cost Impact Justification (methodology and variables):

This will only affect dwelling units on the basement, 1st or 2nd floor of a mixed-use building. This will most likely be no change in units less than 2,000 sq. ft. This will allow for a single exit in some apartments between 2,000 and 4,000 sq. ft., provided they can meet the exit access travel distance and provide EEROs.

Comment (CAH2)# 139

E24-24

IBC: 1006.3.4, 1006.3.5 (New), 1006.3.5.1 (New), 1006.3.5.2 (New), 1006.3.5.3 (New), 1006.3.5.4 (New), 1006.3.5.5 (New), 1006.3.5.6 (New), 1023.12, 1031.2; IFC: [BE] 1006.3.4, 1006.3.5 (New), 1006.3.5.1 (New), 1006.3.5.2 (New), 1006.3.5.3 (New), 1006.3.5.4 (New), 1006.3.5.5 (New), 1006.3.5.6 (New), [BE] 1023.12, [BE] 1031.2

Proposed Change as Submitted

Proponents: Stephen Smith, Center for Building in North America, Center for Building in North America (stephen@centerforbuilding.org); Scott Brody, Self (sbrody96@gmail.com); Trevor Acorn, PE SE, Myself (tjacorn@gmail.com)

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Revise as follows:

1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any *story* or *occupiable roof* where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).

2. Group R-2 occupancies complying with Section 1006.3.5.

~~2~~ 3. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.

~~3~~ 4. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.

~~4~~ 5. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.

~~5~~ 6. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:

~~5.1~~ 6.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.

~~5.2~~ 6.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2[a, b, c]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).

c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use Table 1006.3.4(2).

TABLE 1006.3.4(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane and occupiable roofs over the first story above grade plane	A, B[b], E, F[b], M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a, c]	10	75
	S[b, d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an occupiable roof of such buildings shall have a maximum exit access travel distance of 100 feet.

c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).

d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

1006.3.4.1 Mixed occupancies. Where one *exit*, or *exit access stairway* or *ramp* providing access to exits at other *stories*, is permitted to serve individual *stories*, mixed occupancies shall be permitted to be served by single *exits* provided that each individual occupancy complies with the applicable requirements of Table 1006.3.4(1) or 1006.3.4(2) for that occupancy. Where applicable, cumulative *occupant loads* from adjacent occupancies shall be considered to be in accordance with the provisions of Section 1004.1. In each *story* of a mixed occupancy *building*, the maximum number of occupants served by a single exit shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants indicated in Table 1006.3.4(2) for each occupancy does not exceed one. Where *dwelling units* are located on a story with other occupancies, the actual number of *dwelling units* divided by four plus the ratio from the other occupancy does not exceed one.

Add new text as follows:

1006.3.5 Group R-2 occupancies. In Group R-2 occupancies, a single exit shall be permitted from any story or occupiable roof where the number of dwelling units served per exit at each story comply with one of the following:

1. The basement and first through sixth story above grade plane with a maximum of 4 dwelling units served per exit on each story.
2. The basement and first through third story above grade plane with a maximum of 6 dwelling units served per exit on each story.

Such building shall comply with Sections 1006.3.5.1 through 1006.3.5.6.

1006.3.5.1 Construction type. The building is Type IA, IB, IIA, or IV construction.

1006.3.5.2 Corridors. Dwelling units that do not open directly into an exterior exit stairway shall exit directly to a corridor complying with Section 1020.

1006.3.5.3 Travel distance. Maximum exit access travel distance shall be not more than 125 feet (38.1 m). Travel distance from the exit access door of the unit to the exit door for the stairway shall be not more than 25 feet (7.62 m).

1006.3.5.4 Exit stairways. Means of egress shall be provided from each story above the level of exit discharge by an interior exit stairway or exterior exit stairway. Exit stairways shall be protected with 2-hour fire barriers in accordance with Section 707 or a 2-hour horizontal assemblies in accordance with Section 711. An interior exit stairway shall be a smokeproof enclosure in accordance with with Section 909.20.

1006.3.5.5 Emergency escape and rescue openings. Emergency escape and rescue openings shall be provided in accordance with Section 1031.

1006.3.5.6 Mixed occupancies. Mixed occupancies shall be permitted at and below the level of exit discharge. Other occupancies shall not have direct access to the Group R-2 occupancy portion of the building or to the exit stairway serving the Group R-2 occupancy.
Exception: Parking garages and occupied roofs that serve the Group R-2 occupancy shall be permitted to have direct access to the exit stairway.

Revise as follows:

1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2, ~~or~~ 412.2.2.1 or 1006.3.5.4, interior exit *stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2) and Section 1006.3.5.5.
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way, or to an egress balcony that leads to a public way*.

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, *sleeping rooms* in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:
   5.1. One *means of egress* and one *emergency escape and rescue opening*.
   5.2. Two *means of egress*.

2024 International Fire Code

Revise as follows:

[BE] 1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any story or *occupiable roof*, where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).

2. Group R-2 occupancies complying with Section 1006.3.5.

~~2~~ 3. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.

~~3~~ 4. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.

~~4~~ 5. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.

~~5~~ 6. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:

~~5.1~~ 6.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.

~~5.2~~ 6.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

[BE] TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2[a, b, c]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).

c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use Table 1006.3.4(2).

[BE] TABLE 1006.3.4(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane and occupiable roofs over the first story above grade plane	A, B[b], E, F[b], M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a, c]	10	75
	S[b, d]	29	75

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an occupiable roof of such buildings shall have a maximum exit access travel distance of 100 feet.

c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).

d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

[BE] 1006.3.4.1 Mixed occupancies. Where one *exit*, or *exit access stairway* or *ramp* providing access to *exits* at other stories, is permitted to serve individual stories, mixed occupancies shall be permitted to be served by single *exits* provided that each individual occupancy complies with the applicable requirements of Table 1006.3.4(1) or 1006.3.4(2) for that occupancy. Where applicable, cumulative *occupant loads* from adjacent occupancies shall be considered to be in accordance with the provisions of Section 1004.1. In each story of a mixed occupancy building, the maximum number of occupants served by a single *exit* shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants indicated in Table 1006.3.4(2) for each occupancy does not exceed one. Where *dwelling units* are located on a story with other occupancies, the actual number of *dwelling units* divided by four plus the ratio from the other occupancy does not exceed one.

Add new text as follows:

1006.3.5 Group R-2 occupancies. In Group R-2 occupancies, a single exit shall be permitted from any story or occupiable roof where the number of dwelling units served per exit at each story comply with one of the following:

1. The basement and first through sixth story above grade plane with a maximum of 4 dwelling units served per exit on each story.
2. The basement and first through third story above grade plane with a maximum of 6 dwelling units served per exit on each story.

Such building shall comply with Sections 1006.3.5.1 through 1006.3.5.6.

1006.3.5.1 Construction type. The building is Type IA, IB, IIA, or IV construction.

1006.3.5.2 Corridors. Dwelling units that do not open directly into an exterior exit stairway shall exit directly to a corridor complying with Section 1020.

1006.3.5.3 Travel distance. Maximum exit access travel distance shall be not more than 125 feet (38.1 m). Travel distance from the exit access door of the unit to the exit door for the stairway shall be not more than 25 feet (7.62 m).

1006.3.5.4 Exit stairways. Means of egress shall be provided from each story above the level of exit discharge by an interior exit stairway or exterior exit stairway. Exit stairways shall be protected with 2-hour fire barriers in accordance with Section 707 or a 2-hour horizontal assemblies in accordance with Section 711. An interior exit stairway shall be a smokeproof enclosure in accordance with with Section 909.20.

1006.3.5.5 Emergency escape and rescue openings. Emergency escape and rescue openings shall be provided in accordance with Section 1031.

1006.3.5.6 Mixed occupancies. Mixed occupancies shall be permitted in the building provided there are no exit access doors into the dwelling units or dwelling unit corridors directly from the other occupancies. Other occupancies shall not communicate with the Group R-2 occupancy portion of the building or with a single-exit stairway.**Exception:** Parking garages and occupied roofs that serve the Group R-2 occupancy shall be permitted to communicate with the exit stairway.

Revise as follows:

[BE] 1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2, ~~or~~ 412.2.2.1 or 1006.3.5.4, interior exit *stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

[BE] 1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2) and Section 1006.3.5.5.
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way* , or to an egress balcony that leads to a *public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:
   5.1. One *means of egress* and one *emergency escape and rescue opening*.
   5.2. Two *means of egress*.

Reason: Please refer to our attachment for an in-depth discussion of life safety and other issues.

The 2024 International Building Code allows buildings up to three stories of R-2 occupancy to have up to four dwelling units at each story served by a single exit. Our proposal acknowledges the rising demand for infill multifamily development and a growing movement across the United States to modify local building codes for this purpose. We recommend enabling a single exit to serve up to six stories of R-2 occupancy above the grade plane, or up to six units per floor in cases of at most three stories.

In return for the increased height or dwelling unit allowance, buildings would adhere to more stringent conditions than a traditional building. The building would be of Type IA, IB, IIA, or IV 1-hour fire resistant construction, dwelling units could not directly access the exit, active or passive smoke control systems would be required in the single exit, and there would be strict limits on travel distances and the

number of dwelling units per floor. The whole suite of ordinary fire safety measures contained in the IBC – access to the building by fire apparatus, fire sprinklers, etc. – would also still apply.

Our language is adapted from codes in Seattle, Honolulu, New York City, and Western European countries, collectively forming the most rigorous set of conditions for six-story buildings in the developed world. The limitations and requirements in our proposal match or exceed those in cities, suburbs, and rural areas around the developed world, where fire death rates are at or below the United States median. Within the U.S., Seattle, Honolulu, and New York City have allowed buildings with generally fewer restrictions, to no ill effect or local controversy, and no major fires that we are aware of.

Our proposal is intentionally cautious and may be subject to adjustment in future code cycles based on additional research and experience, expanding possibilities for such construction.

Bibliography: See attached.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

We believe the cost of constructing multifamily buildings on small lots will decrease by roughly 7 percent, in line with the reduction in circulation area required.

Estimated Immediate Cost Impact Justification (methodology and variables):

See attachment for details.

Attached Files

- **Single-stair proposal attachment.pdf**
  https://www.cdpaccess.com/proposal/10412/30836/files/download/4800/

E24-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The cost to build the single exit building with all the added requirements would negate the savings for the area with the single stairway. There seems to be a disregard for the fire service operations and basic code concepts. How would the emergency escape and rescue openings work in this taller building. This needs to be coordinated with Table 504.4 for types of construction and height limitations. Many jurisdictions are not dealing with infill lots, so this is not justified for new construction with larger lot sizes. Egress stairways are also used for other purposes other than egress from fire, such as police or emergency service responses. This might be better as an appendix for adoption by jurisdictions that have have a need. There should also be a height limit since stories can have different heights and mezzanines in the space - so a six story building could very widely in height. There should be more industry reports showing how the 2nd stairway is actually the limiting factor - what is provided seems to be antidotal. The loss of the 2nd stairway greatly increases the risk for the occupants. (Vote: 14-0)

E24-24

Individual Consideration Agenda

Comment 1:

IBC: 1006.3.4, 1006.3.5, 1006.3.5.1, 1006.3.5.2, 1006.3.5.3, 1006.3.5.4, 1006.3.5.5, 1006.3.5.6, 1006.3.5.7 (New), 1006.3.5.8 (New), 1006.3.5.8.1 (New), 1006.3.5.8.2 (New), 1006.3.5.8.3 (New), 1006.3.5.9 (New), 1023.12, 1031.2, 909.20; IFC: [BE] 1006.3.4, 1006.3.5, 1006.3.5.1, 1006.3.5.2, 1006.3.5.3, 1006.3.5.4, 1006.3.5.5 , 1006.3.5.6, 1006.3.5.7 (New), 1006.3.5.8 (New), 1006.3.5.8.1 (New), 1006.3.5.8.2 (New), 1006.3.5.8.3 (New), 1006.3.5.9 (New), [BE] 1023.12, [BE] 1031.2, [BF] 909.20

Proponents: Robert Marshall, San Mateo Consolidated Fire Department, Self (rmarshall@smcfire.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any *story* or *occupiable roof* where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).
2. Group R-2 occupancies complying with Section 1006.3.5.
3. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
4. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.
5. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.
6. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:
   6.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.
   6.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

Revise as follows:

1006.3.5 Group R-2 occupancies. In Group R-2 occupancies, a single exit shall be permitted from any story or occupiable roof where the number of dwelling units served per exit at each story comply with one of the following:

1. The basement and first through sixth story above grade plane with a maximum of 4 dwelling units served per exit on each story.
2. The basement and first through third story above grade plane with a maximum of 6 dwelling units served per exit on each story.

Such building shall comply with Sections 1006.3.5.1 through ~~1006.3.5.6~~ 1006.3.5.9.

1006.3.5.1 Construction type. The building is Type IA, IB, or IIA~~, or IV~~ construction.

1006.3.5.2 Corridors. Dwelling units that do not open directly into an exterior exit stairway shall exit directly to a corridor complying with Section 1020.

1006.3.5.3 Travel distance. The maximum ~~Maximum~~ exit access travel distance shall be not more than 125 feet (38.1 m). Travel distance from the exit access door of the unit to the exit door for the stairway shall be not more than ~~25~~50 feet (~~7.62~~ 15.24 m).

1006.3.5.4 Exit stairways. Means of egress shall be provided from each story above the level of exit discharge by an interior ~~exit stairway or exterior~~ exit stairway enclosed in ~~Exit stairways shall be protected with 2-hour fire barriers in accordance with Section 707 or a 2-hour horizontal assemblies in accordance with Section 711. An interior exit stairway shall be a~~ a smokeproof enclosure in accordance with with Section 909.20.

Revise as follows:

1006.3.5.5 Emergency escape and rescue openings. Emergency escape and rescue openings shall be provided in accordance with Section 1031. Ladder pads shall be provided for each rescue opening. Ladder pads shall consist of a sidewalk running beneath all emergency escape or rescue openings, or an individual pad 24 inches by 24 inches (609 mm by 609 mm) minimum and shall be made of a material that allows a fire department ground ladder to be securely anchored to the pad without slipping. Pads shall be placed a distance from the building that allows for the ground ladder to be placed at a safe ladder angle appropriate for the ladders used by the responding fire department.

1006.3.5.6 Mixed occupancies. ~~Mixed occupancies shall be permitted at and below the level of exit discharge. Other occupancies shall not have direct access to the Group R-2 occupancy portion of the building or to the exit stairway serving the Group R-2 occupancy.~~ The single means of egress stair for a Group R-2 occupancy shall not be shared with other occupancies located in mixed use occupancy buildings.

Exception: Parking garages and occupied roofs that only serve the Group R-2 occupancy shall be permitted to have direct access to the exit stairway.

Add new text as follows:

1006.3.5.7 Elevators. Buildings four or more stories above grade plane shall be equipped with an elevator. The elevator shall comply with Sections 3002.4 and also Sections 3008.2 through 3008.5.

1006.3.5.8 Fire protection systems. Fire protection systems shall comply with Sections 1006.3.5.8.1 through 1006.3.5.8.3.

1006.3.5.8.1 Standpipes. In buildings 3 or more stories in height an automatic wet, Class I standpipe shall be installed in accordance with Section 905. Standpipe outlets shall be configured in such a way as to minimize conflicts with egress from doors to individual units. Outlets shall not be placed on intermediate landings.

1006.3.5.8.2 Fire alarm system. In buildings 3 or more stories in height shall install an automatic fire alarm system in accordance with Section 907 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

1006.3.5.8.3 Automatic sprinkler system. An automatic sprinkler system, shall be installed in accordance with Section 903.3.1.1.

1006.3.5.9 Fire apparatus access. Where required by the fire code official, aerial fire apparatus access roads shall be provided in accordance with Appendix D, Section D105 of the International Fire Code.

1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2,412.2.2.1 or 1006.3.5.4, interior exit *stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2) ~~and~~ or Section 1006.3.5.5.
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue*

opening shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way, or to an egress balcony that leads to a public way*.

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, *sleeping rooms* in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:
   5.1. One *means of egress* and one *emergency escape and rescue opening*.
   5.2. Two *means of egress*.

909.20 Smokeproof enclosures. Where required by ~~Section~~ Sections 1006.3.5.4 and 1023.12, a *smokeproof enclosure* shall be constructed in accordance with this section. A *smokeproof enclosure* shall consist of an *interior exit stairway* or *ramp* that is enclosed in accordance with the applicable provisions of Section 1023 and an open exterior balcony or pressurized *stair* and pressurized entrance vestibule meeting the requirements of this section. Where access to the roof is required by the *International Fire Code* , such access shall be from the *smokeproof enclosure* where a *smokeproof enclosure* is required.

2024 International Fire Code

[BE] 1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any story or *occupiable roof*, where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).
2. Group R-2 occupancies complying with Section 1006.3.5.
3. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
4. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.
5. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.
6. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:
   6.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.
   6.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

Revise as follows:

1006.3.5 Group R-2 occupancies. In Group R-2 occupancies, a single exit shall be permitted from any story or occupiable roof where the number of dwelling units served per exit at each story comply with one of the following:

1. The basement and first through sixth story above grade plane with a maximum of 4 dwelling units served per exit on each story.

2. The basement and first through third story above grade plane with a maximum of 6 dwelling units served per exit on each story.

Such building shall comply with Sections 1006.3.5.1 through ~~1006.3.5.6~~ 1006.3.5.9.

1006.3.5.1 Construction type. The building is Type IA, IB, or IIA~~, or IV~~ construction.

1006.3.5.2 Corridors. Dwelling units that do not open directly into an exterior exit stairway shall exit directly to a corridor complying with Section 1020.

1006.3.5.3 Travel distance. The maximum ~~Maximum~~ exit access travel distance shall be not more than 125 feet (38.1 m). Travel distance from the exit access door of the unit to the exit door for the stairway shall be not more than ~~25~~50 feet (~~7.62~~15.24 m).

Revise as follows:

1006.3.5.4 Exit stairways. Means of egress shall be provided from each story above the level of exit discharge by an interior ~~exit stairway or exterior~~ exit stairway enclosed in ~~Exit stairways shall be protected with 2-hour fire barriers in accordance with Section 707 or a 2-hour horizontal assemblies in accordance with Section 711. An interior exit stairway shall be~~ a smokeproof enclosure in accordance with with Section 909.20.

1006.3.5.5 Emergency escape and rescue openings. Emergency escape and rescue openings shall be provided in accordance with Section 1031. Ladder pads shall be provided for each rescue opening. Ladder pads shall consist of a sidewalk running beneath all emergency escape or rescue openings, or an individual pad 24 inches by 24 inches (609 mm by 609 mm) minimum and shall be made of a material that allows a fire department ground ladder to be securely anchored to the pad without slipping. Pads shall be placed a distance from the building that allows for the ground ladder to be placed at a safe ladder angle appropriate for the ladders used by the responding fire department.

1006.3.5.6 Mixed occupancies. ~~Mixed occupancies shall be permitted at and below the level of exit discharge. Other occupancies shall not have direct access to the Group R-2 occupancy portion of the building or to the exit stairway serving the Group R-2 occupancy.~~The single means of egress stair for a Group R-2 occupancy shall not be shared with other occupancies located in mixed use occupancy buildings.

Exception: Parking garages and occupied roofs that only serve the Group R-2 occupancy shall be permitted to communicate with the exit stairway.

Add new text as follows:

1006.3.5.7 Elevators. Buildings four or more stories above grade plane shall be equipped with an elevator. The elevator shall comply with Sections 3002.4 and also Sections 3008.2 through 3008.5.

1006.3.5.8 Fire protection systems. Fire protection systems shall comply with Sections 1006.3.5.8.1 through 1006.3.5.8.3.

1006.3.5.8.1 Standpipes. In buildings 3 or more stories in height an automatic wet, Class I standpipe shall be installed in accordance with section 905. Standpipe outlets shall be configured in such a way as to minimize conflicts with egress from doors to individual units. Outlets shall not be placed on intermediate landings.

1006.3.5.8.2 Fire alarm. In buildings 3 or more stories in height shall install an automatic fire alarm system in accordance with Section 907 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

1006.3.5.8.3 Automatic sprinkler system. An automatic sprinkler system, shall be installed in accordance with Section 903.3.1.1.

1006.3.5.9 Fire apparatus access. Where required by the fire code official, aerial fire apparatus access roads shall be provided in

accordance with Appendix D, Section D105.

[BE] 1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2,412.2.2.1 or 1006.3.5.4, interior exit *stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

Revise as follows:

[BE] 1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2) ~~and~~ or Section 1006.3.5.5.
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way* , or to an egress balcony that leads to a *public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:
   5.1. One *means of egress* and one *emergency escape and rescue opening*.
   5.2. Two *means of egress*.

[BF] 909.20 Smokeproof enclosures. Where required by ~~Section~~ Sections 1006.3.5.4 and1023.12, a *smokeproof enclosure* shall be constructed in accordance with this section. A smokeproof enclosure shall consist of an *interior exit stairway* or *ramp* that is enclosed in accordance with the applicable provisions of Section 1023 and an open exterior balcony meeting the requirements of this section. Where access to the roof is required, such access shall be from the smokeproof enclosure where a *smokeproof enclosure* is required.

Reason: The original proponent of E24-24 submitted a proposal for allowance of a single egress stair in an R-2 occupancy, and as part of that submittal, it was mentioned that code professionals needed to work with proponents to make this kind of thing possible. The committee voted it down 14-0. The original proposal was severely lacking in appropriate safety, and this proposal aims to add in measures to make such a proposal safer for both occupants and all responders, not just fire departments. The changes detailed in this proposal are as follows (In both the Building and Fire Codes, both are identical):

1. If a single stair is proposed for a project, then NFPA 13R sprinkler systems are not appropriate. The system should be a full sprinkler NFPA 13 system in accordance with 903.3.1.1, and this change was made in 1006.3.5.8.3. Cities that allow single stairs like Seattle and New York have a robust response ability. These departments have higher staffing levels, better water supplies, more fire apparatus, better training and better apparatus access than many places in the US. To counter this disparity in order to make this appropriate in all places in the country, the fire sprinkler system should be as robust as it can be.

2. A change was made to the construction types in the original proposal. The original proposal allowed for all type IV construction to have a single stair. Since most type IV construction allows for exposed wood, it isn't appropriate to allow that because of additional smoke generated.

3. The travel distance was increased to 50 feet from 25 in the original proposal. This was done for two reasons. First is the inclusion of elevators later in this proposal. Second is to allow for more room to stage hoselines.

4. The original proposal had an awkwardly worded section on the use of smokeproof enclosures, and addition of 2 hour fire barriers. The section was reworded to just require that the single egress stair comply with section 909.20 which includes all the fire barriers and stairway smoke protection of the original proposal.

5. A provision was added by the original proponent to require emergency egress and rescue windows into all buildings with a single stair. This proposal adds the requirement for ladder pads from which to anchor ladder rescue operations for the use of ground ladders. This is not something usually needed in buildings of Type I or Type II construction, so it is included here so it doesn't get overlooked. Guidance is given as to how the pads should be configured.

6. A provision was reworded from the original proposal allowing for only the occupants of the R-2 occupancy to use the sole egress stair in a mixed use building.

7. A provision was added to require elevators in buildings 4 stories or more in height. There is also a requirement that makes that elevator comply with gurney requirements, as well as a requirement to comply with some Chapter 30 sections for occupant egress elevators, specifically with regards to elimination of shunt trips and hoistway enclosure protection. This requirement was placed in the proposal so that fire and EMS crews did not need to risk their personal safety on an elevator during a medical call by carrying patients down 4 or more flights of stairs.

8. Better provisions for fire protection systems were added as well. The original proposal only added the passive fire protection and smoke control elements, and did nothing for Standpipes or fire alarm notification. This proposal adds a requirement for a class one standpipe, and a fire alarm system that adds voice evacuation.

9. The proposal also adds a pointer to fire access in accordance with Appendix D of the Fire Code for ladder truck access if required by the Fire Code Official.

10. Language was cleaned up from the original proposal that would have required all buildings to potentially comply with the two tables and 1006.3.5 when it should be an "Or" for emergency escape and recue openings in 1031.

All of these changes are designed to try and work with the proponents of the original proposal to allow what they'd like while still providing a greater level of safety for all responders as well as the occupants. The proponents of the original change took great pains to paint this as a housing affordability issue. While we agree that affordability is a concern, housing affordability should never include a disservice to those who can least afford a lesser degree of safety.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The addition of a fire alarm system, the elevators, and standpipes would increase the cost of construction over the increased cost impacts of the original proposal which also would have increased costs.
The rest of the requirements are generally editorial in nature over the cost impacts of the original proposal.

The cost would increase through maintenance of the required systems installed as a result of this proposal.

Estimated Immediate Cost Impact Justification (methodology and variables):

A Fire Alarm will increase the cost by a several thousand dollars if the system was not already required. (Depending on the size of the building a fire alarm may already be required, this would only add the differential of the voice evacuation piece.)

A Standpipe system would also increase the cost of construction by several thousand dollars if the building was not already required to have one.

Elevators would invrease the cost of the building by tens of thousands of dollars if the builder was not already planning on adding one. The provisions allowing for the reduction of fire sprinkler requirements and the elimination of the shunt trip would offset some of this cost by several thousand dollars.

Comment (CAH2)# 639

Comment 2:

IBC: APPENDIX Q (New), SECTION Q101 (New), Q101.1 (New), SECTION Q102 (New), Q102.1 (New), Q102.2 (New), Q102.3 (New), 1006.3.5, 1006.3.5.1, Q102.5 (New), Q102.5.1 (New), Q102.5.2 (New), Q102.5.3 (New), 1006.3.5.2, Q102.6.1 (New), 1006.3.5.3, 1006.3.5.4, 1006.3.5.6, Q102.10 (New), 1006.3.5.5, 1006.3.4, 1023.12, 1031.2

Proponents: Stephen Smith, Center for Building in North America (stephen@centerforbuilding.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Add new text as follows:

APPENDIX Q
SINGLE EXIT APARTMENT BUILDINGS

SECTION Q101
GENERAL

Q101.1 Scope. The scope of this appendix shall apply exclusively to Group R-2 apartment houses with access to a single exit. Such building shall be constructed in accordance with this appendix. **Exception:** Occupancies, other than Group H or I occupancies, are permitted only at the level of exit discharge and one story below the level of exit discharge.

SECTION Q102
APPLICATION

Q102.1 General. Stories within Group R-2 apartment houses served by a single exit shall comply with Sections Q102.2 through Q102.11.

Q102.2 Height. The height of the building shall comply with all of the following:

1. The building shall be six stories or less in height.
2. The building shall not be a high-rise building.

Exception: Occupiable roof areas shall be permitted where the area serves and is accessed through individual dwelling units.

Q102.3 Story size. The size of the stories shall comply with the following:

1. Each story shall have a maximum of four dwelling units.

2. The occupant load per story shall be 30 occupants maximum.

~~**1006.3.5 Group R-2 occupancies.** In Group R-2 occupancies, a single exit shall be permitted from any story or occupiable roof where the number of dwelling units served per exit at each story comply with one of the following:~~

~~1. The basement and first through sixth story above grade plane with a maximum of 4 dwelling units served per exit on each story.~~

~~2. The basement and first through third story above grade plane with a maximum of 6 dwelling units served per exit on each story.~~

~~Such building shall comply with Sections 1006.3.5.1 through 1006.3.5.6.~~

~~**1006.3.5.1**~~ **Q102.4 Construction type.** The building is Type IA, IB, IIA, IIIA, ~~or~~ IV or VA construction.

Add new text as follows:

Q102.5 Fire protection systems. Fire protection systems shall comply with Q102.5.1 through Q102.5.3.

Q102.5.1 Automatic sprinkler system. The building shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Residential-type sprinklers shall be used in all habitable spaces in each dwelling unit.

Q102.5.2 Standpipes. Class I standpipe shall be provided in accordance with Section 905. Standpipe outlets shall be configured in such a way as to minimize the hose conflicting with egress from doors to individual dwelling units.

Q102.5.3 Fire Alarm System. A fire alarm system and smoke alarms shall be installed in accordance with Section 907.2.9.

~~**1006.3.5.2**~~ **Q102.6 Corridors.** Dwelling units that do not open directly into an exterior exit stairway shall exit directly to a corridor complying with Section 1020.

Add new text as follows:

Q102.6.1 Elevators. Elevator hoistway doors shall be protected in accordance with Section 3006.3.

~~**1006.3.5.3**~~ **Q102.7 Travel distance.** Maximum exit access travel distance shall be not more than 125 feet (38.1 m). Travel distance from the exit access door of the unit to the exit door for the stairway shall be not more than 25 feet (7.62 m).

~~**1006.3.5.4**~~ **Q102.8 Exit stairways.** Means of egress shall be provided from each story above the level of exit discharge by an interior exit stairway or exterior exit stairway. Exit stairways shall be protected with 2-hour fire barriers in accordance with Section 707 or a 2-hour horizontal assemblies in accordance with Section 711. An interior exit stairway shall be a smokeproof enclosure in accordance with with Section 909.20.

~~**1006.3.5.6**~~ **Q102.9 Mixed occupancies.** Mixed occupancies shall be permitted at and below the level of exit discharge. Other occupancies shall not have direct access to the Group R-2 occupancy portion of the building or to the exit stairway serving the Group R-2 occupancy.

~~**Exception:** Parking garages and occupied roofs that serve the Group R-2 occupancy shall be permitted to have direct access to the exit stairway.~~

Add new text as follows:

Q102.10 Egress courts. The single exit shall not terminate in an egress court where the court depth exceeds the court width unless

direct and unobstructed access to the public way through two or more independent paths is provided.

~~1006.3.5.5~~ Q102.11 **Emergency escape and rescue openings.** Emergency escape and rescue openings shall be provided in every sleeping room in accordance with ~~Section 1031~~ Sections 1031.2.1 through 1031.6.

1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any *story* or *occupiable roof* where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).
2. ~~Group R-1 and R-2 occupancies complying with Section 1006.3.5.~~
3. ~~3.~~ 2. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
4. ~~4.~~ 3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.
5. ~~5.~~ 4. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.
6. ~~6.~~ 5. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:
   1. ~~6.1.~~ 5.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.
   2. ~~6.2.~~ 5.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2, or 412.2.2.1 ~~or 1006.3.5.5~~, interior exit *stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2) ~~and Section 1006.3.5.5~~.
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way, or to an egress balcony that leads to a public way*.

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.

5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, *sleeping rooms* in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:

   5.1. One *means of egress* and one *emergency escape and rescue opening*.

   5.2. Two *means of egress*.

Reason: Updated E24-24 single-exit proposal

Based on feedback from egress committee members and other code and fire officials and professionals, we have chosen to rewrite our single-exit apartment building proposal, using Seattle's current code section as a base but placing the entire section in an optional appendix.

In this new reason statement, we present extensive research from the Netherlands on fires in different types of multifamily buildings, supported by modeling and field experiments over the years. We also present preliminary findings on New York City's experience with its own single-exit buildings, supported by a novel fire loss history data set. We also summarize events in jurisdictions throughout the country that speak to the need for guidance from a model code. Finally, we address some frequently asked questions.

Code updates

The most consequential change to our proposal is the location: we have moved it out of Chapter 10, and into a newly created Appendix Q, which jurisdictions are free to adopt or ignore as they see fit. This is in response to the many commenters who have said that they feel the issue is best left to state and local jurisdictions (see the "Need" section of this statement for our explanation for why we still believe there is an ICC role here).

Beyond that, we have aligned our proposal more closely with Seattle's existing single-stair building code section. We have added a number of new requirements (mostly guardrail-type requirements), and removed one as well (some limitations on construction type).

Substantively, we have matched Seattle's existing requirement for NFPA 13 sprinklers regardless of height. In practice, this will add an NFPA 13 sprinkler requirement in four-story buildings that are otherwise allowed by the International Building Code to have NFPA 13R systems. This makes our sprinkler requirement more stringent than that of New York City's code (which allows NFPA 13R systems up to six stories, including in single-stair buildings), and more stringent than that of the main body of the IBC (which allows NFPA 13R systems in residential occupancies up to and including four stories). We have added restrictions on roof decks, added language that gives AHJs greater flexibility to determine standpipe locations, and have added a reminder that fire and smoke alarms must still be installed.

We have responded to concerns that developers may try to find loopholes around the six-story limit and travel distance and unit limits by placing additional limits on height and floor area. For height, we do not allow single-exit buildings to be classified as high-rises, limiting the distance from the level of firefighter vehicle access to the uppermost floor or occupied roof to 75 ft. For floor area, we have added a hard limit of 30 occupants – or 6,000 sq. ft. – per floor. While we do not anticipate this being achievable in normal circumstances given the travel distance limitations, we want to preempt unforeseen loopholes and make it clear to committee and voting members that these would be very small buildings, with individual floors that are a small fraction of the size of ordinary multifamily buildings meeting the requirements of the main body of the International Building Code, often having dozens of units arrayed off of an non-compartmentalized corridor, sharing just two stairs.

In this updated proposal we defer to Seattle's current requirements for one-hour construction, and, based on feedback from the spring, expand the construction types allowed to all that require a fire resistance rating of at least one hour for the primary structural frame, interior and exterior bearing walls, and roof and floor construction. This applies a more consistent standard than our original proposal, and also improves constructibility by allowing the use of the more common and affordable III-A and V-A construction types, while still disallowing the less protected II-B, III-B, and V-B types.

Research

Dutch research

The Netherlands has one of the lowest rates of fire death in the developed world, with a per-capita fatality rate that is just one-fifth of that

of the United States.[1] It has also the strictest rules on single-stair buildings in Europe.[2] The Nederlands Instituut Publieke Veiligheid (NIPV, or the Dutch Institute for Public Safety), the Instituut Fysieke Veiligheid at the Brandweeracademie (Institute for Physical Safety at the Fire Academy), and Nieman Raadgevende Ingenieurs (Nieman Consulting Engineers) have released a series of reports about safety in common Dutch multifamily typologies. These findings – which include statistical analyses of fire safety outcomes, smoke spread modeling, and field experiments, among other methodologies – speak to the improved safety of small, single-exit apartment buildings compared to larger, double-loaded corridor designs.

All reports are cited in the original Dutch, with a link to a version fully machine-translated into English in the bibliography. These documents are long, and the depth and rigor of the research far exceeds that of anything produced to justify basic, prescriptive multifamily codes in the United States, either by government agencies, standards development organizations, or academia. We highly recommend that the committee members read them.
The typical single stair building in the Netherlands, known as a portiekwoning, is made of non-combustible construction, and has a balcony where one can await rescue assistance. Portiekwoningen do not have fire sprinklers or active smoke control systems. Apartments usually open directly onto stairwells, and historically no self-closers were required on apartment doors. Rules have changed over the years, but fire apparatus access has not generally been required on all sides.[3]

Researchers at Nieman found that, according to government statistics from 2001 through 2008, fire fatalities in portiekwoningen occurred at roughly the same rate as the average dwelling in the country.[4] More recent data from NIPV again suggests the rate of fire fatalities in portiekwoningen is not notably different from that of the average Dutch dwelling. In the latest report, updated estimates of the number of single-stair buildings were not produced. However, based on the Netherlands' extremely low rate of fire fatality, it is safe to conclude that these buildings performed far better than the average US home. This report also found that a slightly lower share of fatal fire victims died in circulation areas (like stairs and corridors) in single-stair portiekwoningen than in larger two-stair buildings with interior corridors.[5]

While single-exit portiekwoningen are much safer than the average U.S. dwelling, data showed elevated rates of rescue compared to other building types in the Netherlands. Unlike other European governments, the Dutch government was uncomfortable with the dependence on fire service rescue. Because they did not want to ban the construction of these single-exit buildings for reasons of housing affordability, they commissioned another report by Nieman to determine what rules could be added to bring these buildings up to a higher level of self-reliant safety (that is, allowing more people to self-evacuate). The report applied NIST's Consolidated Fire and Smoke Transport (CFAST) zone model to determine the effects of a fire breaking out in a ground floor apartment in a five-story, 10-unit apartment building where units open directly into the exit. It concluded that the most cost-effective risk reduction can be achieved by requiring self-closers on apartment doors (which had not been previously required), cutting risk by up to 76 percent.[6]

Dutch researchers have also looked into the safety of buildings that more closely resemble standard IBC-compliant double-loaded corridor multifamily buildings. Researchers at the Instituut Fysieke Veiligheid conducted 19 field experiments in a double-loaded corridor multifamily building, to examine smoke propagation within the building. The building contained a segment of a corridor 19 meters (62 feet) in length with five apartments on either side (for a total of 10 units), with a synthetic couch containing flexible polyurethane foam set on fire inside of one of the apartments (and of course, no fire sprinklers). The report concluded that smoke propagates horizontally more than vertically, and that "almost immediately" after opening the door from the room of origin to the common corridor, "the possibility of escape for people in other residences [opening onto the corridor] is seriously impaired, since the corridor will fill up with smoke in a matter of seconds."[7] Subsequent computer modeling also showed that in cases where a sprinkler is not provided or effective, the double-loaded corridor building does not deliver a level of safety for vulnerable occupants that is acceptable by Dutch standards.[8]

Because the I-Codes do not establish an absolute level of life safety that must be achieved, proposals must be judged relative to currently allowed conditions, and therefore the safety of double-loaded corridor buildings is relevant to our proposal. While our proposal strictly limits the size of floors and corridors, the main body of the IBC allows much longer corridors – up to 500 occupants can share a floor with just two stairs, with exit access travel distances of up to 250 feet per Table 1017.2 for R-2 occupancies. Common paths of travel can be up to 125 feet in length. Compared to the main body of the current IBC, our proposal significantly limits the number of occupants that could be exposed to the hazardous exit access conditions described by Dutch researchers if, in the event of a fire sprinkler system failure, an apartment door is held open and smoke compromises a common corridor, either because of hose operations or the failure of a self-closing door.

New York City findings

This section is adapted from a forthcoming but as-of-yet unpublished report by the Pew Research Center, on single-exit apartment buildings.

New York City has a large stock of modern, sprinklered single-exit buildings of four to six stories in height, and the Pew Research Center is in the process of compiling and analyzing the fire loss history in these buildings. This research is based first on two fire fatality data sets: one pulled from the National Fire Incident Reporting System, and another one compiled manually through a search of news accounts, with the U.S. Fire Administration's "Home Fire Fatalities in the News" dataset serving as the base, and a smaller number of other fires reported in the media added as they were found.[9] We then joined the fire fatality data to the city's PLUTO data set, which has enough physical and regulatory variables that we can identify, with a high degree of certainty, which apartment buildings have a single exit.

The research is still ongoing, but as of now, we have manually identified 462 civilian fatalities associated with fires in residential structures (single- and multifamily) in New York City dating back to 2012, with better coverage of more recent years. We have also analyzed NFIRS data from 2012 (before this year, the data is heavily corrupted) through 2022 (the most recent year that has been published), identifying 240 fire fatalities over the period that match with a still-extant building (a significant number of buildings that experienced a fatal fire are later demolished and therefore no longer match to a current building, but these tend to be older, smaller, light wood-frame dwellings). (Reporting to NFIRS by FDNY has always been incomplete, as it is in many jurisdictions, but since the pandemic FDNY reporting has dropped off dramatically, creating the need for the manual collection method to supplement the NFIRS data.)

New York City has long allowed single-exit multifamily buildings up to six stories in height with at most 2,000 sq. ft. per floor – first in its 1968 building code, with the allowance copied over without substantial modification into the 2008, 2014, and 2022 codes.[10] New York City has long had other items within the same code section that allow single-stair multifamily buildings under different criteria, but item 7 under Section 1006.3.2, allowing six stories and 2,000 sq. ft. per floor, is by far the most commonly used item for new construction, and is therefore the focus of our study. The city began requiring fire sprinklers in all new multifamily buildings in 1999.[11] New York City allows NFPA 13R sprinklers into all residential buildings up to six stories in height, including in all new single-stair multifamily buildings (which, when sprinklered, we will refer to as "modern single-stair buildings").[12]

We have identified over 4,000 modern single-stair buildings above the IBC's three-story height limit across the city built since the sprinkler requirement was put into place. Taking into account when each unit was built and the number of residential units within it, New York City has over 300,000 apartment-years of experience with these four- through six-story modern single-stair buildings. New York City has an average of 2.43 residents per unit, suggesting around 750,000 resident-years of experience with such buildings.[13]We have identified two fatal fires in modern single-stair buildings, claiming the lives of three civilians and no firefighters. We have not identified any fire deaths in single-stair buildings (that is, those built since 1968, but excluding tenement-style and other multifamily buildings before this time with one interior stair and one or more fire escapes) built before the sprinkler requirement was imposed, although for reasons of difficult zoning and weak demand, there are not many single-stair buildings from this period.

Over the 10-year period from 2014 through 2023, New York City has averaged 0.85 fatalities per year per 100,000 residents, or more than twice the rate as we have identified in modern single-stair buildings.[14] None of the three modern single-stair deaths appear to have occurred outside of the unit of origin, and from the information we have available, neither incident involved smoke or fire penetrating the single exit. The facts suggest that a second stair would not have saved any lives in either of these two buildings, and that New York City's experience with taller single-stair buildings has been good. For the sake of completeness and to convey to committee members the depth of our research, the details of the two fatal fires are summarized below.

Fatal fire at 351 East 54th St., Manhattan (March 3, 2021)

In 2021, a private developer completed construction of a six-story, 12-unit multifamily building at 351 East 54th St., in the Midtown East section of Manhattan. The building contains two studio apartments on every floor, one facing the front of the building and the other facing the rear (with no fire department access to these rear units, as is allowed by New York City's building code). Each floor is served by a single stair in an enclosed shaft, and an elevator opening onto the common corridor (with no hoistway opening protection aside from the landing doors). The building is fully sprinklered, likely in accordance with NFPA 13R standards (New York City modifies the IBC to allow NFPA 13R sprinkler systems for multifamily buildings up to and including six stories in height).

Shortly after completion, the developer sold the building to a non-profit landlord called the Metropolitan Council on Jewish Poverty (known as the "Met Council"). The Met Council's website describes the building as serving "moderate-income senior citizens with incomes less than 80% of the area median income," with applicants required to be at least 62 years old.[15]

Police told reporters at at least two outlets that a 73-year-old woman was killed in a fire in a first-floor apartment that broke out around 4:30 p.m. on March 3, 2021, and was under control by 5:15 p.m. There is no mention of any other deaths or injuries in the building, or spread of the fire or smoke to other floors of the building (one outlet reported flames only on the first floor).[16] The incident was not recorded in NFIRS, and FDNY has not yet responded to our request for a redacted fire marshal report.

Fatal fire at 71-02 162nd St., Queens (December 15, 2021)A developer completed a four-story, three-unit apartment building at 71-02 162nd St. in 2007, in the Flushing section of Queens. As permitted, the building was sprinklered and contained a recreation space in the cellar, a garage and single two-room apartment on the ground floor, a single four-room apartment on the second floor, and a single bilevel apartment spanning the third and fourth floors, with a private terrace on the fourth floor.[17] The neighborhood is one of the major centers of New York City's Chinese immigrant community, and has a very wide range of incomes, with residents including many very low-income residents, ranging from new arrivals to the country to retirees, and many illegally converted dwelling units of all types.

According to four news accounts, a fire broke out on the fourth floor of the building in the early morning of December 15, 2021, killing a 75-year-old woman and her 81-year-old husband and injuring one other adult. Firefighters told the New York Post that they found the building in "an advanced fire condition," with a "heavy clutter condition."[18]

The full fire marshal report paints a picture of a deeply troubled building. The ostensibly three-unit building had been divided into five different apartments, with one illegal unit carved out of the cellar, and the top floor unit subdivided into two apartments, with one per floor. Neither of the illegal units had a smoke detector, and the building had problems with heating. One surviving witness who lived in the fourth-floor unit stated that the heat had been recently malfunctioning, and that somebody (whose name is redacted, but who appears to be one of the victims) had a space heater plugged into an extension cord near their bed, and had been sleeping with a lit tea candle next to it. A 20-lb. tank of propane was found in the fourth-floor stairwell.[19]

The fire marshal report states that the fire consumed multiple rooms of the apartment – the bedroom of origin, the living room, the kitchen, and the other bedroom. A surviving occupant said somebody ran downstairs to get a fire extinguisher and then back up to the apartment on fire, but could not stay because of the smoke and flames. Despite the high-risk conditions, the attempted reentry of one of the residents, and the advanced state of the fire by the time firefighters arrived, the NFIRS record shows that the fire did not damage any floor except the top one, and images from the scene back that up by showing intact windows on the third floor.

Need

Urban areas in the United States have experienced a worsening housing shortage over the past few decades, as demand has returned to American cities after years of decay and abandonment, while housing production has remained low. Starting around a decade ago, advocates and policymakers have looked to reform land use regulations to remove impediments to housing construction in U.S. cities and suburbs. But with construction costs for denser forms of housing remaining very high, there is concern that zoning reform alone will not be enough to make housing in American cities affordable again.
North America may be unique in the world in having construction costs that rise substantially as buildings grow denser. RSMeans Data, the most comprehensive database of construction costs
in the United States, shows that per-square-foot construction costs steadily rise as housing typologies grow in density – from $148 per square foot for a two-story single-family house to $190 per square foot for a three-story garden apartment complex to $227 (open shop) to $257 per square foot (union) for a six-story, reinforced concrete apartment building.[20] A cost guide for Canada, which has similar building codes to the United States, shows the same upward-sloping cost-density gradient, with freestanding single-family houses costing $210 (in Canadian dollars) per square foot to build in the Greater Toronto Area, wood-framed condos up to six stories costing $245 per square foot, and high-rises costing $285 to $365 per square foot, depending on height.[21]

Outside of North America, on the other hand, construction costs remain roughly the same across building types, sometimes even falling as construction grows from single- to multifamily. The German BKI Kostenplaner 2024, for example, shows that a one- or two-family house built to a mid-market standard costs on average €1,945 per square meter ($197 per square foot), a low-rise apartment building with up six units costs €1,770 per square meter ($179 per square foot), and a larger mid-rise apartment building costs around €1,700 per square meter ($172 per square foot).[22] Construction cost guides from Italy and Mexico show similar flat or even downward-sloping cost-density gradients.[23]

In the 1990s and 2000s, the United States real estate market overwhelmingly delivered new housing in the form of single-family houses. Since the 2007-2008 financial crisis, however, development has shifted to something closer to an even split between single- and multifamily homes. As should be expected as apartment construction grows, policymakers are becoming concerned about the hard costs

– not just zoning-driven land costs – of multifamily housing, with construction costs in coastal California markets, for example, rising to an average of around $500 for even subsidized "affordable" multifamily development.[24] Given the large amount of space occupied by exits on small lots, where cities and states with housing crises are trying to encourage infill development through zoning reform, the IBC's second exit requirement starting at a height that is unusually low for the developed world has emerged as a major area of concern.[25]Even prior to our single-exit proposal, New York, Seattle, and Honolulu already felt that the IBC's three-story single-exit multifamily height limit was overly restrictive, and developed code sections allowing single-exit multifamily buildings up to six stories. Vermont and Georgia allow single-exit apartment buildings to rise to four stories through adoption of NFPA 101's egress provisions in lieu of IBC Chapter 10, and anecdotal evidence suggests that a significant number of four-story, single-exit buildings have been built in and around Atlanta.[26]

More recently, legislation has been advanced (and in many cases passed) in California, Colorado, Connecticut, Minnesota, Nashville, New York City, New York State, Oregon, Pennsylvania, Tennessee, Virginia, and Washington State to study, adopt, or enable local adoption of amendments to the IBC to allow taller single-exit buildings.[27] We are aware of multiple other efforts that are not yet public. In some states, the debate over taller single-stair buildings has opened up wider discussion about buildings codes. In California, Gov. Gavin Newsom issued an executive order in August 2024 directing state agencies to "identify and explore opportunities to update the state Building Standards Code to lower the cost of, while increasing flexibility for, infill development" – a move that one publication characterized as the governor "tak[ing] aim" at the state's IBC-based building code.[28]

In the absence of guidance from the ICC on how to safely allow taller single-exit apartment buildings, jurisdictions will continue to move forward with their own amendments. A lack of any movement in the 2027 IBC on single-exit apartment buildings will inevitably raise questions in the minds of policymakers about the I-Codes' ability to adapt to new information, new technologies, and new economic circumstances, as it already has in California. This is not likely to stop at amendments to Section 10 of the IBC.

Frequently asked questions

Q: With all of these requirements (especially for stairway pressurization), are these buildings even economically viable?

A: Our proposal is based on language that has been refined over two generations in Seattle. Many four-, five-, and six-story single-exit apartment buildings – ranging from affordable walk-up rentals to luxury condos with elevators – have been built over a number of real estate cycles under the current language. Developers can – and often do – avoid the expense of mechanical pressurization systems by using an exterior stairway, which uses natural ventilation to keep the exit free of life-threatening amounts of smoke at lower cost. In any case, our appendix adds an additional compliance path to the main body of the code without removing any existing options, so it cannot harm the viability of any project.

Q: Some jurisdictions either have required or are considering requiring wider stairways.29 Why is that not part of your proposal? (Alternatively: How will firefighters adapt to not having the use of a dedicated attack stair?)

A: Many in the fire service have stated that multifamily buildings need two stairways because in a fire, responding firefighters designate one stairway to be used for firefighter attack and the other for egress, and therefore, a single stair, if allowed, should be wider to accommodate bidirectional flows. These statements ignore the fact that current fire service training does not fully rely on perfectly segregated attack and egress stairs, and that any such strategy would likely be deadly in a fire given current code limitations.

Regarding existing practice, in our original Group A CAH #1 reason statement we shared published excerpts from books written by firefighters that state that it is often not possible in practice to designate separate exits for occupant egress and firefighter attack in two-stair buildings. These back up statements made in private interviews by fire service officials: firefighters do not bar occupants trying to escape smoke-filled floors from using the nearest exit because they are using it to attack a fire, and segregating egress and attack is in practice, in the words of one fire service official, "a mess."

Beyond claims of impracticality from the fire service itself, the logic of the existing code does not support the idea of well segregated flows. Not only is there no requirement that stairs be positioned close to each other to allow firefighters to easily segregate flows, but Section 1007.1.1 ("Two exits or exit access doorways") now effectively forbids the practice. Table 1017.2 ("Exit access travel distance") sets 250 feet as the maximum travel distance within the exit access portion of the means of egress for residential occupancies. In a

typical two-stair, double-loaded corridor building, this means that while the nearest stair can be at most 250 feet away, the second-nearest stair can be even more distant from any apartment door. If firefighters tried to prevent occupants from using the nearest exit, occupants would have to potentially traverse distances in excess of 750 feet to reach an exit – up to 250 feet to the nearest stair (since there is no public address system required to tell them which stair to use), plus another 250 feet to return to their unit, plus over 250 feet to reach the second-nearest exit, in a likely unfamiliar location. This is clearly not a tenable practice, and therefore we must assume that occupants will often evacuate using the nearest exit even in apartment buildings with multiple exits.Given the impracticality of perfectly segregating flows, we must evaluate the numbers of occupants that may be trying to egress through a stair that firefighters would like to use for attack operations. Table 1006.3.3 (“Minimum number of exits or access to exits per story or occupiable roofs”) currently allows up to 500 occupants per floor with only two stairs, or up to around 250 occupants nearest to each exit. Our proposal limits each floor to just 30 occupants in total, or 150 for the upper levels of the entire building.

Q: Why is there a requirement for emergency escape and rescue openings (EEROs) if there is no additional requirement for fire service access to openings?

A: The EERO requirement is to give firefighters the certainty that if they see a window in a sleeping room (that is, a bedroom or living room) and believe they can reach it with a ladder or aerial apparatus, it will be sized and located in such a way that a rescue will be possible.

1 Sokolov, Wagner, and Messerschmidt, “Center of Fire Statistics: World Fire Statistics"
2 Speckert, “Jurisdictions - The Second Egress: Building a Code Change.”
3 van der Graaf, Huijzer, and Eggink-Eilander, “Brandveiligheid portiekwoningen,” 16–25.

4 van der Graaf, Huijzer, and Eggink-Eilander, 29.
5 Kobes et al., “Wat als er brand uitbreekt? Een onderzoek naar fatale woningbranden en reddingen door de brandweer,” 37.

6 de Witte and van Herpen, “Onderzoek Rookbeheersing Portiekoplossingen.”
7 Ebus et al., “Rookverspreiding in woongebouwen: Hoofdrapport van de praktijkexperimenten in een woongebouw met inpandige gangen.”

8 van Liempd et al., “Rookverspreiding en persoonlijke veiligheid: Voorzieningen voor vluchtveiligheid en stay-in-place.”9“Home Fire Fatalities in the News.”
10 “1968 Building Code of the City of New York,” 27–366, item 1(b); “2008 New York City Building Code,” 1018.2, item 5; “2014 New York City Building Code,” 1021.2, item 5; “2022 New York City Building Code,” 1006.3.2, item 7.
11 Goodnough, “Bill Is Passed Requiring Sprinklers in Most New Residences.”

12 “2022 New York City Building Code,” Sec. 903.3.1.2.

13 Smith, “Sprinklered Single-Stair Building Unit Counts.”

14 “Fire Commissioner Nigro Announces 5% Decrease in Fire Deaths For 2020”; Balsamini, “Number of Fatalities from NYC Fires Jumped 16 Percent in 2021, Data Shows”; Kelly, “Lithium Batteries Drive Fire Death Toll to 106 Across City in ‘23, Highest in 20 Years.”
15 “Elderly Housing Through the Inclusionary Housing Program.”

16 Dole, “Woman, 73, Dies in Apartment Fire in Manhattan,” 73; Elizade, “73-Year-Old Woman Killed in NYC Apartment Building Fire.”

17 “New Building Application, Job No. 402186148.”

18 Sundstrom and Solomon, “2 Dead after Fire Rips through Queens Apartment: FDNY”; Woods and Marino, “Elderly Couple among Three Killed in Queens, Brooklyn Fires”; “2 Dead, 1 Injured After Fire At Queens Apartment Building”; Kriegstein, McShane, and Tracy, “Apartment Fires in Brooklyn, Queens Kills Elderly Couple, 27-Year-Old Man in Deadly 45-Minute Span.”

19 “Bureau of Fire Investigation Report, Job Number 41137 2021.”
20 Gordian, “RSMeans Data.”

21 Altus Group, “2024 Canadian Cost Guide.”
22 BKI Baukosten Gebäude Neubau 2024.

23 Prezzi Tipologie Edilizie 2024; González Meléndez, Costos Paramétricos.
24 California Tax Credit Allocation Committee, “9% Applications Requesting Federal and State Credits.”

25 Rodriguez, “One Small Step for Apartment-Kind.”
26Georgia State Amendments to the International Building Code (2018 Edition).”
27 Smith, “Single-Stair Tracker.”

28 Newsom, “Executive Order N-2-24”; “Newsom Takes Aim at California’s Building Codes.”

29 City of Austin Development Services Department, “Proposed IBC 2024 Code v1, Draft Subject to Additional Changes”; 2023 Revised Ordinances of Honolulu, § 16-1.1.

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Cost Impact: Decrease

Estimated Immediate Cost Impact:

We believe the cost of constructing multifamily buildings on small lots will decrease by roughly 7 percent, in line with the reduction in circulation area required.

Estimated Immediate Cost Impact Justification (methodology and variables):

See attachment to original proposal for details.

Comment (CAH2)# 395

E25-24

IBC: 1006.3.4, 1006.3.5 (New), 1006.3.5.1 (New), 1006.3.5.2 (New), 1006.3.5.3 (New), 1006.5.3.4 (New), 1006.3.5.5 (New), 1006.3.5.6 (New), 1006.3.5.7 (New), 1023.12, 1031.2; IFC: [BE] 1006.3.4, 1006.3.5 (New), 1006.3.5.1 (New), 1006.3.5.2 (New), 1006.3.5.3 (New), 1006.5.3.4 (New), 1006.3.5.5 (New), 1006.3.5.6 (New), 1006.3.5.7 (New), [BE] 1023.12, [BE] 1031.2

Proposed Change as Submitted

Proponents: Scott Brody, Self (sbrody96@gmail.com)

2024 International Building Code

Revise as follows:

1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any *story* or *occupiable roof* where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).

2. Group R-1 and R-2 occupancies complying with Section 1006.3.5.

~~2~~ 3. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.

~~3~~ 4. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.

~~4~~ 5. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.

~~5~~ 6. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:

~~5.1~~ 6.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.

~~5.2~~ 6.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2[a, b, c]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).

c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use Table 1006.3.4(2).

TABLE 1006.3.4(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane and occupiable roofs over the first story above grade plane	A, B[b], E, F[b], M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a, c]	10	75
	S[b, d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an occupiable roof of such buildings shall have a maximum exit access travel distance of 100 feet.

c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).

d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

1006.3.4.1 Mixed occupancies. Where one *exit*, or *exit access stairway* or *ramp* providing access to exits at other *stories*, is permitted to serve individual *stories* , mixed occupancies shall be permitted to be served by single *exits* provided that each individual occupancy complies with the applicable requirements of Table 1006.3.4(1) or 1006.3.4(2) for that occupancy. Where applicable, cumulative *occupant loads* from adjacent occupancies shall be considered to be in accordance with the provisions of Section 1004.1. In each *story* of a mixed occupancy *building*, the maximum number of occupants served by a single exit shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants indicated in Table 1006.3.4(2) for each occupancy does not exceed one. Where *dwelling units* are located on a story with other occupancies, the actual number of *dwelling units* divided by four plus the ratio from the other occupancy does not exceed one.

Add new text as follows:

1006.3.5 Group R-1 and R-2 occupancies. In Group R-1 and R-2 occupancies, a single exit shall be permitted from any story or occupiable roof where the number of dwelling units served per exit at each story comply with one of the following:

1. The basement and first through sixth story above grade plane with a maximum of 4 dwelling units or sleeping units per story.
2. The basement and first through third story above grade plane with a maximum of 6 dwelling units or sleeping units per story.

Such building shall comply with Sections 1006.3.5.1 through 1006.3.5.7.

1006.3.5.1 Construction type. The building is Type IA, IB, IIA, or IV construction.

1006.3.5.2 Automatic sprinkler system. An automatic sprinkler system shall be installed throughout in accordance with Section 903.3.1.1.

1006.3.5.3 Corridors. Dwelling units or sleeping units that do not open directly into an exterior exit stairway shall exit directly to a corridor complying with Section 1020.

1006.5.3.4 Travel distance. For Group R-1, the maximum exit access travel distance shall be not more than 75 feet (22.9 m). For Group R-2, the maximum exit access travel distance shall be not more than 125 feet (38.1 m). Travel distance from the exit access door of the unit to the exit door for the stairway shall be not more than 25 feet (7.62 m).

1006.3.5.5 Exit stairways. Means of egress shall be provided from each story above the level of exit discharge by an interior exit stairway or exterior exit stairway. Exit stairways shall be protected with 2-hour fire barriers in accordance with Section 707 or a 2-hour horizontal assemblies in accordance with Section 711. An interior exit stairway shall be a smokeproof enclosure in accordance with with Section 909.20.

1006.3.5.6 Emergency escape and rescue openings. Emergency escape and rescue openings shall be provided in accordance with Section 1031.

1006.3.5.7 Mixed occupancies. Mixed occupancies shall be permitted at and below the level of exit discharge. Other occupancies shall not have direct access to the Group R-1 and R-2 occupancy portion of the building or to the exit stairway serving the Group R-1 and R-2 occupancy. **Exception:** Parking garages and occupied roofs that serve the Group R-1 and R-2 occupancy shall be permitted to have direct access to the exit stairway.

Revise as follows:

1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2, ~~or~~ 412.2.2.1 or 1006.3.5.5, interior exit *stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2).
2. Group R-3 and R-4 occupancies.
3. Group R-1 and R-2 occupancies located in stories with one one exit as permitted by Section 1006.3.5.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way, or to an egress balcony that leads to a public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.

5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, *sleeping rooms* in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:

   5.1. One *means of egress* and one *emergency escape and rescue opening*.

   5.2. Two *means of egress*.

2024 International Fire Code

Revise as follows:

[BE] 1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any story or *occupiable roof*, where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).

2. Group R-1 and R-2 occupancies complying with Section 1006.3.5.

~~2~~ 3. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.

~~3~~ 4. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.

~~4~~ 5. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.

~~5~~ 6. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:

   ~~5.1~~ 6.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.

   ~~5.2~~ 6.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

[BE] TABLE 1006.3.4(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2[a, b, c]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).

c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use Table 1006.3.4(2).

[BE] TABLE 1006.3.4(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane and occupiable roofs over the first story above grade plane	A, B[b], E, F[b], M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a, c]	10	75
	S[b, d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.

b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an occupiable roof of such buildings shall have a maximum exit access travel distance of 100 feet.

c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).

d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

[BE] 1006.3.4.1 Mixed occupancies. Where one *exit*, or *exit access stairway* or *ramp* providing access to *exits* at other stories, is permitted to serve individual stories, mixed occupancies shall be permitted to be served by single *exits* provided that each individual occupancy complies with the applicable requirements of Table 1006.3.4(1) or 1006.3.4(2) for that occupancy. Where applicable, cumulative *occupant loads* from adjacent occupancies shall be considered to be in accordance with the provisions of Section 1004.1. In each story of a mixed occupancy building, the maximum number of occupants served by a single *exit* shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants indicated in Table 1006.3.4(2) for each occupancy does not exceed one. Where *dwelling units* are located on a story with other occupancies, the actual number of *dwelling units* divided by four plus the ratio from the other occupancy does not exceed one.

Add new text as follows:

1006.3.5 Group R-1 and R-2 occupancies. In Group R-1 and R-2 occupancies, a single exit shall be permitted from any story or occupiable roof where the number of dwelling units served per exit at each story comply with one of the following:

1. The basement and first through sixth story above grade plane with a maximum of 4 dwelling units or sleeping units per story.
2. The basement and first through third story above grade plane with a maximum of 6 dwelling units or sleeping units per story.

Such building shall comply with Sections 1006.3.5.1 through 1006.3.5.7.

1006.3.5.1 Construction type. The building is Type IA, IB, IIA, or IV construction.

1006.3.5.2 Automatic sprinkler system. An automatic sprinkler system shall be installed throughout in accordance with Section 903.3.1.1.

1006.3.5.3 Corridors. Dwelling units or sleeping units that do not open directly into an exterior exit stairway shall exit directly to a corridor

complying with Section 1020.

1006.5.3.4 Travel distance. For Group R-1, the maximum exit access travel distance shall be not more than 75 feet (22.9 m). For Group R-2, the maximum exit access travel distance shall be not more than 125 feet (38.1 m). Travel distance from the exit access door of the unit to the exit door for the stairway shall be not more than 25 feet (7.62 m).

1006.3.5.5 Exit stairways. Means of egress shall be provided from each story above the level of exit discharge by an interior exit stairway or exterior exit stairway. Exit stairways shall be protected with 2-hour fire barriers in accordance with Section 707 or a 2-hour horizontal assemblies in accordance with Section 711. An interior exit stairway shall be a smokeproof enclosure in accordance with with Section 909.20.

1006.3.5.6 Emergency escape and rescue openings. Emergency escape and rescue openings shall be provided in accordance with Section 1031.

1006.3.5.7 Mixed occupancies. Mixed occupancies shall be permitted at and below the level of exit discharge. Other occupancies shall not have direct access to the Group R-1 and R-2 occupancy portion of the building or to the exit stairway serving the Group R-1 and R-2 occupancy. **Exception:** Parking garages and occupied roofs that serve the Group R-1 and R-2 occupancy shall be permitted to have direct access to the exit stairway.

Revise as follows:

[BE] 1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2, ~~or~~ 412.2.2.1 or 1006.3.5.5, interior exit *stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

[BE] 1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in stories with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2).
2. Group R-3 and R-4 occupancies.
3. Group R-1 and R-2 occupancies located in stories with one one exit as permitted by Section 1006.3.5.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way* , or to an egress balcony that leads to a *public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.

5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:

   5.1. One *means of egress* and one *emergency escape and rescue opening*.

   5.2. Two *means of egress*.

Reason: Many years ago, fire officials drafted codes based on their intuition of what's safest. These codes saved lives, but not all rules remain consistent with evidence. Hundreds of thousands of fires occur annually, resulting in several thousand deaths a year. There is further a huge amount of evidence internationally. Therefore, even if past performance cannot predict every single possibility, there is enough data to say past performance closely reflects the level of risk. Old assumptions from before the Internet age, and before the advent of more modern fire-safety technologies, warrant fresh reexamination. I am accordingly proposing a new code section, because the existing requirements appear based on the following erroneous assumptions:

1) Bigger buildings with more staircases are safer than smaller buildings with fewer staircases.

2) Redundant staircases are so beneficial that it is safer to provide two nearby staircases without smoke control than a single staircase which resists smoke contamination via elements such as being open air, having a smoke-resistant vestibule with automatic opening windows, or being protected with a pressurization system.

3) Transient occupancies like hotels are more dangerous than ordinary dwellings, even when accounting for the additional protective features this construction type is typically required to follow.

All these assumptions are challenged by data. Therefore, it is imperative that the code be updated to provide fair treatment based on risk.

Previously, I assisted two other individuals to support a code change proposal in R-2 (non-transient) single exit cases. That proposal (10412) contains a reason statement, based on citations, that explains why small single exit buildings with enhanced protectives experience satisfactory safety performance. Please accept that proposal's reason statement here as well. Please additionally accept the following reasoning in support of extending allowances to hotels:

Per NFPA's latest Home Structure Fires Report, 49% of fires involve cooking. Cooking is much less likely to occur in hotel/motel occupancies because many rooms don't include kitchens. Even a room does include a kitchen or kitchenette, it may be less utilized if the hotel offers breakfast, people receive other meals at events like conferences or weddings, or they choose to use limited vacation time to go to restaurants vs shopping for ingredients and cooking themselves.

The second highest fatality generator is heating equipment, such as space heaters. These fires cause 13% of deaths. I don't have data on this, but reasonably believe people don't commonly travel to hotels with space heaters. If they come on an airplane, carrying heaters would waste baggage space and consume unnecessary weight allowance.

The final point on the NFPA list I will note is smoking materials. These are the 5th largest cause of fatal fires, generating 5% of deaths. Since many hotels are smoke-free, this is also less of a risk in this case.

In all, since potentially close to 2/3rds of the fire causes are eliminated, it is unjust for hotels to face stricter stairway requirements than similarly sized non-transient occupancies.

This risk argument is further supported by the 2010 US Fire Administration report on hotel fires. This shows hotels/motels experience less than half the number of fatalities per 1000 fires. Though injuries are slightly higher, since this is from 2005-2007 data, I wouldn't be surprised if the injury rate is now also lower in hotels, considering the proportion of new hotels fitted with sprinklers vs new single-family homes. On the subject of exit knowledge, since we are talking such small corridors, the hazard of people getting lost is extremely low. Further, research has linked central stair placement with huge increases in utilization of the stairs vs elevator. We can therefore expect more people to be familiar with the stair location in a small single stairway case vs the other scenario. If we are still concerned about wayfinding, this proposal could be amended to require low level egress path markers compliant with UL 1994, to reinforce the exit location.

Across the US and world, there are many small-scale hotels centered around an ornate central staircase. Some operate as bed and breakfasts. In the US, these buildings are often allowed due to their historic nature or are illegal conversions rented online. Given the demand for home-like transient buildings, the fire code should provide more options for this. Doing so will encourage more people to act under the purview of regulators, vs under-the-table operations.

As a final note, if the code committee is not comfortable going up to 6 stories single stair in this case, I believe they should at least raise the R1 single stair allowance to 3 or 4 stories. This would better reflect the level of risk in R1 vs R2 cases.

Bibliography: 1. Hall, S. Home Structure Fires Report. *National Fire Protection Association*. 2023. https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/home-structure-fires

2. Hotel and Motel Fires. Topical Fire Report Series. Volume 10, Issue 4 / January 2010. US Fire Administration. https://apps.usfa.fema.gov/downloads/pdf/statistics/v10i4.pdf

3. Bassett DR, Browning R, Conger SA, Wolff DL, Flynn JI. Architectural design and physical activity: an observational study of staircase and elevator use in different buildings. J Phys Act Health. 2013 May;10(4):556-62. https://doi.org/10.1123/jpah.10.4.556

SEE ADDITIONAL SOURCES IN Proposal 10412

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

Since this allows for a new type of construction not currently allowed, there are no immediate cost impacts.

Compared with an existing allowed building, we expect a 7% new construction cost decrease. This is based on additional floor area not consumed by stairwells and inefficient corridors. The actual usable area would increase closer to 9%, but we assume some savings would be offset by investments in more advanced protectives such as smoke control systems. Thus, for a $2,000,000 small hotel, the costs would fall by $14,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

See Proposal 10412 attachment for additional cost details.

Estimated Life Cycle Cost Impact:

Estimated to be similar to the initial cost savings (7%), mainly due to lower HVAC costs, less maintenance of materials, and more leasable area.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

See Proposal 10412 attachment for additional cost details.

Attached Files

- **Single-stair proposal attachment (2).pdf**
  https://www.cdpaccess.com/proposal/9653/28764/files/download/4799/

E25-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The disapproval is consistent with the committee action on E24-24. The transient nature of the occupants decreases the familiarity of the occupants with the building, so this single exit building should not be permitted for Group R-1 occupancies. (Vote: 14-0)

E25-24

Individual Consideration Agenda

Comment 1:

IBC: APPENDIX Q (New), SECTION Q101 (New), Q101.1 (New), SECTION Q102 (New), Q102.1 (New), Q102.2 (New), Q102.3 (New), 1006.3.5, 1006.3.5.1, Q102.5 (New), 1006.3.5.2, Q102.5.2 (New), Q102.5.3 (New), 1006.3.5.3, Q102.6.1 (New), 1006.5.3.4, 1006.3.5.5, 1006.3.5.7, Q102.10 (New), 1006.3.5.6, 1006.3.4, 1023.12, 1031.2

Proponents: Scott Brody, Self (sbrody96@gmail.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Add new text as follows:

APPENDIX Q
SINGLE EXIT RESIDENTIAL BUILDINGS

SECTION Q101
GENERAL

Q101.1 Scope. The scope of this appendix shall apply exclusively to Group R-1 and R-2 occupancies with access to a single exit. Such building shall be constructed in accordance with this appendix. **Exception:** Occupancies, other than Group H or I occupancies, are permitted only at the level of exit discharge and one story below the level of exit discharge.

SECTION Q102
APPLICATION

Q102.1 General. Stories within Group R-1 and R-2 occupancies served by a single exit shall comply with Sections Q102.2 through Q102.11.

Q102.2 Height. The height of the building shall comply with all of the following:

1. The building shall be six stories or less in height.
2. The building shall not be a high-rise building.

Exception: Occupiable roof areas shall be permitted where the area serves and is accessed through individual dwelling units or sleeping units.

Q102.3 Story size. The size of the stories shall comply with the following:

1. Each story shall have a maximum of four dwelling units or sleeping units.
2. The occupant load per story shall be 30 occupants maximum.

Revise as follows:

~~**1006.3.5 Group R-1 and R-2 occupancies.** In Group R-1 and R-2 occupancies, a single exit shall be permitted from any story or occupiable roof where the number of dwelling units served per exit at each story comply with one of the following:~~

1. ~~The basement and first through sixth story above grade plane with a maximum of 4 dwelling units or sleeping units per story.~~
2. ~~The basement and first through third story above grade plane with a maximum of 6 dwelling units or sleeping units per story.~~

~~Such building shall comply with Sections 1006.3.5.1 through 1006.3.5.7.~~

~~**1006.3.5.1**~~ **Q102.4 Construction type.** The building is Type IA, IB, IIA, IIIA, ~~or~~ IV or VA construction.

Add new text as follows:

Q102.5 Fire protection systems. Fire protection systems shall comply with Q102.5.1 through Q102.5.3.

~~**1006.3.5.2**~~ **Q102.5.1 Automatic sprinkler system.** The building shall be equipped throughout with an ~~An~~ automatic sprinkler system ~~shall be installed throughout~~ in accordance with Section 903.3.1.1.
Residential-type sprinklers shall be used in all habitable spaces in each dwelling unit or sleeping unit.

Add new text as follows:

Q102.5.2 Standpipes. Class I standpipe shall be provided in accordance with Section 905. Standpipe outlets shall be configured in such a way as to minimize the hose conflicting with egress from doors to individual dwelling units.

Q102.5.3 Fire Alarm System. A fire alarm system and smoke alarms shall be installed in accordance with Section 907.2.9.

~~**1006.3.5.3**~~ **Q102.6 Corridors.** Dwelling units or sleeping units that do not open directly into an exterior exit stairway shall exit directly to a corridor complying with Section 1020.

Add new text as follows:

Q102.6.1 Elevators. Elevator hoistway doors shall be protected in accordance with Section 3006.3.

~~**1006.5.3.4**~~ **Q102.7 Travel distance.** For Group R-1, the maximum exit access travel distance shall be not more than 75 feet (22.9 m). For Group R-2, the maximum exit access travel distance shall be not more than 125 feet (38.1 m). Travel distance from the exit access door of the unit to the exit door for the stairway shall be not more than 25 feet (7.62 m).

~~**1006.3.5.5**~~ **Q102.8 Exit stairways.** Means of egress shall be provided from each story above the level of exit discharge by an interior exit stairway or exterior exit stairway. Exit stairways shall be protected with 2-hour fire barriers in accordance with Section 707 or a 2-hour horizontal assemblies in accordance with Section 711. An interior exit stairway shall be a smokeproof enclosure in accordance with with Section 909.20.

~~**1006.3.5.7**~~ **Q102.9 Mixed occupancies.** Mixed occupancies shall be permitted at and below the level of exit discharge. Other

occupancies shall not have direct access to the Group R-1 and R-2 occupancy portion of the building or to the exit stairway serving the Group R-1 and R-2 occupancy.

~~**Exception:** Parking garages and occupied roofs that serve the Group R-1 and R-2 occupancy shall be permitted to have direct access to the exit stairway.~~

Add new text as follows:

Q102.10 Egress courts. The single exit shall not terminate in an egress court where the court depth exceeds the court width unless direct and unobstructed access to the public way through two or more independent paths is provided.

~~**1006.3.5.6**~~ **Q102.11 Emergency escape and rescue openings.** Emergency escape and rescue openings shall be provided in every sleeping room in accordance with ~~Section 1031~~ Sections 1031.2.1 through 1031.6.

1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any *story* or *occupiable roof* where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).

~~2. Group R-1 and R-2 occupancies complying with Section 1006.3.5.~~

~~3.~~ 2. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.

~~4.~~ 3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.

~~5.~~ 4. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.

~~6.~~ 5. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:

~~6.1.~~ 5.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.

~~6.2.~~ 5.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved* independent *exits*.

1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2, or 412.2.2.1 ~~or 1006.3.5.5~~, interior exit *stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2).
2. Group R-3 and R-4 occupancies.
3. ~~Group R-1 and R-2 occupancies located in stories with one one exit as permitted by Section 1006.3.5.~~

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way, or to an egress balcony that leads to a public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.

2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, *sleeping rooms* in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:
   5.1. One *means of egress* and one *emergency escape and rescue opening*.
   5.2. Two *means of egress*.

Reason: *CLAIM: The disapproval is consistent with the committee action on E24-24. The transient nature of the occupants decreases the familiarity of the occupants with the building, so this single exit building should not be permitted for Group R-1 occupancies.*

RESPONSE:
Committee's implied claim: Buildings allowed by the IBC to be larger and have no smoke control are safer than our proposed single stair building.
My apologies for not including this research previously… your claim is challenged by modeling from the Netherlands. The corridor building will not deliver safe sight lines, a key performance indicator of smoke and hot gas spread, if the fire is uncontrolled by a sprinkler. This was proven in burn tests with smoke measurement, and again by modeling, for both situations. As you can see in the below figure, concentration of smoke and harmful gasses in the corridor do not provide acceptable evacuation conditions in the typical case where the door to the unit sometimes opens for firefighting operations.

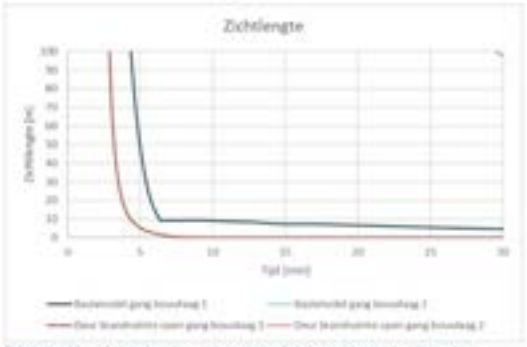


Figure 4.4 Line of sight length in the corridors for the residential building with corridor access at fire room door open/closed

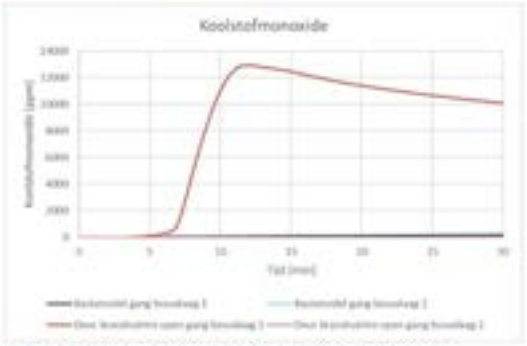


Figure 4.5 Concentration of carbon monoxide in the corridors in front of the residential building with corridor access with fire room door open/closed

Figure: Line of sight and carbon monoxide concentration graph for double loaded corridor building sofa fire. (Source: NIPV 2022, Smoke dispersion and

personal safety Facilities for escape safety and stay-in-place / Original in Dutch: Rookverspreiding en persoonlijke veiligheid:Voorzieningen voor vluchtveiligheid en stay-in-place. / see R2 proposal for translation) The fact that the corridor will not deliver safe conditions was also shown via burn tests in NIPVs Oudewater smoke propagation

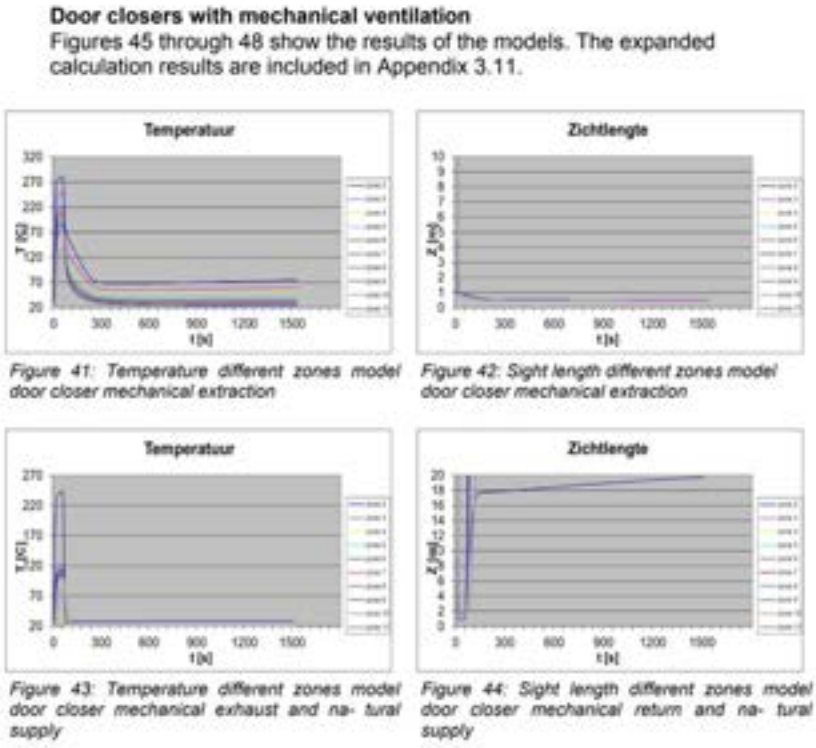


Figure: Key performance metrics for single exit building, determined in previous report by Nieman 2011. (See Research Smoke Control Porch Solutions / Witte, H.L. de, and R.A.P. van Herpen. Original in Dutch: Onderzoek Rookbeheersing Portiekoplossingen. Nieman Adviesburo B.V., September 2011/ see R2 proposal for translated copy) The fact that mechanical ventilation can deliver safe results was also proven in full scale burn testing conducted by the Colt Company in the UK.

On the other hand, the SIGHT LENGTH IS MUCH BETTER IN THE CASE OF THE SMALL SINGLE STAIR BUILDING with mechanical ventilation and self-closers. OTHER VARIABLES SIMILARLY SUGGEST THE VENTILATED SINGLE STAIR BUILDING WILL GENERALLY DELIVER SAFE CONDITIONS, WHILE THE CORRIDOR BUILDING WILL NOT. The finding that a mechanical smoke shaft can deliver safe conditions, but the unventilated corridor will not, is supported by both the above models, and full scale burn tests for each scenario. Other testing has shown natural ventilation can also work. Therefore, the current I-codes are inconsistent with research.

Our related R2 proposal provides more information on this claim. See there for full bibliography.

Occupant Familiarity – Committee Claim Challenged by Human Factors Studies

If occupant unfamiliarity is your reason for limiting single stair hotels even below 2 stories, it is illogical for code to mandate a layout that is proven to cause less occupant familiarity with the emergency exits.

According to the study Spatial Measures Associated with Stair Use, published in the American Journal of Health Prevention, “spatial qualities that optimize the convenience and legibility of stairs may have the most influence on stair use in buildings.”[1] Similarly, another study found shifting stair location from the ends to the center is associated with an increase in stair vs elevator use 8-10X%.[2] While our staircase being behind fire protectives would likely not lead to as high a utilization jump as the latter, basic human behavior tendencies still strongly imply moving the stair to the middle of the building would increase overall utilization. Therefore, the occupant familiarity argument is dubious.

Overall Hazard of R1 vs R2 – Committee Claim Discredited by Fire Data

The code committee is obligated to give due process to substantive comments. I will repeat what was stated previously. R1 OCCUPANCIES ARE MUCH LOWER FIRE RISK THAN R2. THEREFORE, YOUR CHOICE TO PLACE MUCH MORE ONEROUS RULES ON R1 IS AN ARBITRARY AND CAPRICIOUS AND COULD MAKE THE I-CODES SUCEPTIBLE TO COURT CHALLANGES.

Per NFPA's latest Home Structure Fires Report[3], 49% of fires involve cooking. Cooking is much less likely to occur in hotel/motel occupancies because many rooms don't include kitchens. Even if a room does include a kitchen or kitchenette, it may be less utilized if the hotel offers breakfast, people receive other meals at events like conferences or weddings, or they choose to use limited vacation time to go to restaurants vs cooking and cleaning dishes.

The second highest fatality generator is heating equipment, such as space heaters. These fires cause 13% of deaths. I don't have data on this but know people don't commonly travel to hotels with space heaters.

The final point of note on the NFPA list is smoking materials. These are the 5th largest cause of fatal fires, generating 5% of deaths. Since many hotels are smoke-free, this is also less of a risk in this case.

In all, since potentially CLOSE TO 2/3RDS OF THE FIRE CAUSES ARE ELIMINATED, it is ARBITRARY AND CAPRICIOUS for hotels to face stricter stairway requirements than similarly sized non-transient occupancies.

This risk argument is further supported by the 2010 US Fire Administration report on hotel fires. This shows HOTELS/MOTELS EXPERIENCE A MUCH LOWER NUMBER OF FATALITIES PER 1000 FIRES. Further, they had a low overall number of deaths. Though property damage was somewhat elevated, this is likely impacted by automatic extinguishing systems causing water damage.

Table 2. Loss measures for hotel and motel fires (three-year average, 2014-2016)

Measure	Hotel and motel fires	Confined hotel and motel fires	Nonconfined hotel and motel fires	Residential building fires (excluding hotel and motel fires)
Average loss:				
Fatalities/1,000 fires	3.2	0.0	7.1	5.8
Injuries/1,000 fires	24.0	4.6	48.2	25.6
Dollar loss/fire	$25,090	$250	$56,070	$17,420

Figure 1: Hotel vs Residential Building Fire deaths highlighted from USFA Report. [4]

The I-codes targeting of hotels and motels for more onerous exit rules is therefore unsubstantiated by evidence. Rather than trust assumptions by groups of people ages ago, folks who lacked computers, the I-codes should be listening to data and treating occupancies fairly based on their actual performance, which roughly equals risk when you have thousands of data points.

I-codes failure to provide 2 means of egress from hotel rooms places occupants in more danger than lack of two stairways

Because of how the IBC rules impact architecture, units tend to be abnormally long vs square. This commonly results in the layout where the kitchen is along the route of egress. In a hotel, if someone is heating food while working at the computer, their only egress from the room will be blocked by the fire. On the other hand, in my proposal, it would be easier to survive a fire in the room of fire origin because there is a second egress.

Figure 2: Small single stair building with egress balconies (Image own work)

Figure 3: Typical N American hotel with non-openable windows. (Image credit: Michael Rivera reuse permitted per CC BY SA 4.0, image adapted to remove hotel branding.)

Figure 4: Example of a hotel room where occupant trapped by fire. No way to escape, unlike the illegal single staircase building with secondary egress balcony (in Figure 2).

The committee appears to justify its approach in the idea that the stairway is the most hazardous location for occupants, but data on the size of fire spread shows 93.1% of hotel fires do not extend to multiple floors.[5] Therefore, the focus on having multiple staircases vs multiple ways out of the room is misguided.

Increasing Hazard by Pushing People to Unregulated Structures

By banning even 2-story single staircase transient occupancies, the committee ignores the elephant in the room – services like Air B&B. The very onerous IBC rules simply drive much of the population to rent dwellings unofficially, rather than through regulated channels. People also turn to historic bed and breakfasts for the old style, rather than stay in new single stair buildings that maintain the classic smaller proportions, but with better fire safety measures. It is similar to the problem of marijuana dispensary fires. For many years, fire

officials acted like marijuana is a fire hazard. Yet, in states where the substance was later legalized, it turned out cannabis growing did not really result in much hazard. Rather, it was overregulation which pushed activities under the table that actually contributed to dangerous situations. The I-code committee now has a chance avoid repeating this mistake with hotels.

Code must be changed because it is preempted by the Code of Federal Regulations (Federal Administrative Law), and ICC bylaw CP49-21 prohibits conflicts with US Federal Law

The Secretary of the Interior has issued regulations for preservation, rehabilitation, restoration or reconstruction of historic properties under the authority of Section 106 of the National Historic Preservation Act[6]. 36 CFR § 800.6 (b)(1)(i) requires government officials "seek ways to avoid, minimize or mitigate … adverse effects" on historic properties.[7]

IBC Inconsistent with Interior Secretary's Standards for Preserving "Size", "Scale", "Proportion" and other "Spatial Relationships" in Historic Districts

Per 36 CFR § 800.5 , adverse historic effects are defined to include work "that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;"
Per the Secretary's standards at 36 CFR § 68.3 (b)(9):[9]
New additions, exterior alterations or related **new construction will not destroy historic** materials, features and **spatial relationships** that characterize the property… The **new work will be … compatible with the historic** materials, features, **size, scale and proportion,** and massing to protect the integrity of the property and its environment.

In cases of restoration, it is stated that:
A property will be used as it was historically or be given a new use that interprets the property and its restoration period…. **alteration of features, spaces and spatial relationships that characterize the period will not be undertaken.**

Within 36 CFR § 68.3, similar requirements can be found for reconstruction and rehabilitation projects.

As defined in the National Historic Preservation Act, [54 U.S.C. § 300308]:

the term ''**historic property" means any** prehistoric or **historic district**, site, building, structure, or object included on, or eligible for inclusion on, the National Register [10]

While the I-codes allow reconstructions of historic buildings, the latest historic preservation regulations also require new buildings in historic districts to match the features and proportions of the district's historic period. Since the double exit rule effectively blocks construction of small buildings of varying heights, the historic proportions are impermissibly degraded. This breach of federal regulations is further unnecessary because higher levels of safety have been shown to be achievable in single stair buildings using methods similar to what we are proposing.

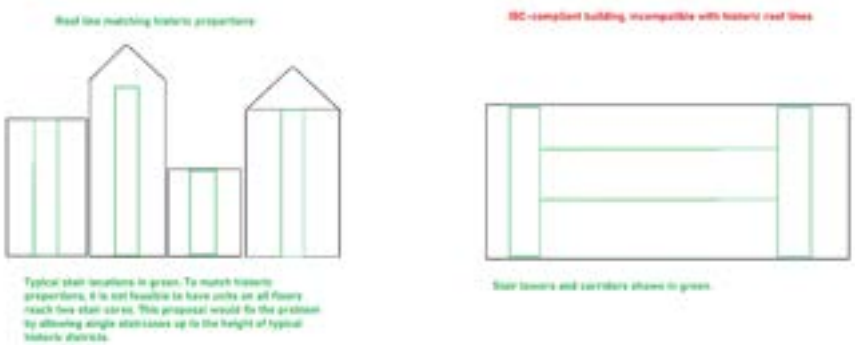


Figure: Shows how historic roofline typology is not able to be maintained with IBC rules.

Should your committee fail to take meaningful action, there is the possibility of preemption challenges being launched.

Old San Juan National Historic District. Photo own work.

Failure to include proven single stair safety previsions in the I-codes is also a tragedy for fire safety. Historic buildings often will never be renovated to have two stairs; therefore, the I-codes should provide better guidance on how to achieve safety alternatively for the many structures that are this way.

Thank you for your consideration.

1) G. Nicoll, "Spatial Measures Associated with Stair Use," American Journal of Health Promotion, 2007. [Online]. Available: https://journals.sagepub.com/doi/10.4278/0890-1171-21.4s.346?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed.
2) Basset et. al., "Architectural Design and Physical Activity: An Observational Study of Staircase and Elevator Use in Different Buildings," Journal of Physical Activity and Health, 2023. [Online]. Available: https://doi.org/10.1123/jpah.10.4.556.
3) Home Structure Fires Report. National Fire Protection Association. Hall. 2023. https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/fire-loss-in-the-united-states
4) Hotel and Motel Fires (2014-2016). Topical Fire Series. US Fire Administration. 2016. https://www.usfa.fema.gov/downloads/pdf/statistics/v19i4.pdf
5) See Figure 3 in Citation 4.
6) An Introduction to Section 106. Advisory Council on Historic Preservation. Accessed July 2024. https://www.achp.gov/protecting-historic-properties/section-106-process/introduction-section-106
7) 36 CFR 800. Subpart B. The Section 106 Process. https://www.ecfr.gov/current/title-36/chapter-VIII/part-800/subpart-B
8) 36 CFR 800. Subpart B. The Section 106 Process. https://www.ecfr.gov/current/title-36/chapter-VIII/part-800/subpart-B
9) 36 CFR 68.3. The Secretary of the Interior's Standards for the Treatment of Historic Properties. Accessed 7/27/2024. Title 36 Last Amended 7/25/2024. Via Federal Register. https://www.ecfr.gov/current/title-36/chapter-I/part-68/section-68.3

Bibliography: See attachment.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Will allow more buildings to be built on constrained lots, therefore inherent land development value which didn't exist before. See original proposal for additional details.

Estimated Immediate Cost Impact Justification (methodology and variables):

Varies based on jurisdiction. See original proposal for additional details. See original proposal for additional details.

Estimated Life Cycle Cost Impact:

Building will not be especially costly to maintain if provided with natural vent systems. Probably in the range of several thousand dollars.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Please find a costs table at the following link:

https://docs.google.com/spreadsheets/d/13_euR2DQrf4xHUw4SaLjyiP119KTZXnyZRMoRfMO2Oo/edit?usp=sharing

This is based on the analysis Nieman Consulting Engineers prepared for the Netherlands government in 2011. Report translation is attached. Original is available at the following address:

https://open.overheid.nl/documenten/ronl-archief-d66b9d0a-bd74-44ed-9796-c4c43211bc68/pdf

I have attached a translation.
https://www.cdpaccess.com/p/comment/799/32933/files/download/8202/Nieman%202011%20Report%20Research%20Smoke%20Cont

Attached Files

- **Nieman 2011 Report Research Smoke Control Porch Solutions.pdf**
  https://www.cdpaccess.com/comment/799/32933/files/download/8202/

Comment (CAH2)# 799

E28-24

IBC: 1008.2.1, 1011.3, 1011.6, 1011.7.1, 1011.13, 1023.9, 1027.5, 2406.4.6; IFC: [BE] 1008.2.1, [BE] 1011.3, [BE] 1011.6, [BE] 1011.7.1, [BE] 1011.13, [BE] 1023.9, [BE] 1027.5

Proposed Change as Submitted

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org)

2024 International Building Code

Revise as follows:

1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, and exit stairways ~~and at their required landings~~, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. **Exception:** For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

1011.3 Headroom. *Stairways* shall have a headroom clearance of not less than 80 inches (2032 mm) measured vertically from a line connecting the *nosings*. Such headroom shall be continuous above the *stairway* to the point where the line intersects the landing below, one tread depth beyond the bottom riser. The minimum clearance shall be maintained the full width of the *stairway* ~~and landing~~ . **Exceptions:**

1. *Spiral stairways* complying with Section 1011.10 are permitted a 78-inch (1981 mm) headroom clearance.
2. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; where the *nosings* of treads at the side of a *flight* extend under the edge of a floor opening through which the *stair* passes, the floor opening shall be allowed to project horizontally into the required headroom not more than $4\frac{3}{4}$ inches (121 mm).

1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each ~~*stairway*~~ *flight*. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

1011.7.1 Stairway walking surface. The walking surfaces ~~surface of treads and landings~~ of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached.

Exceptions:

1. Openings in *stair* walking surfaces shall be a size that does not permit the passage of $^1/_2$-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking *structures* accessible to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1^1/_8$ inches (29 mm) cannot pass through the opening.

1011.13 Guards. *Guards* shall be provided along *stairways* ~~and landings~~ where required by Section 1015 and shall be constructed in accordance with Section 1015. Where the roof hatch opening providing the required access is located within 10 feet (3049 mm) of the roof edge, such roof access or roof edge shall be protected by *guards* installed in accordance with Section 1015.

1023.9 Stairway identification signs. A sign shall be provided at each floor level landing in an *interior exit stairway* and *ramp* connecting more than three *stories* designating the floor level, the terminus of the top and bottom of the *interior exit stairway* and *ramp* and the identification of the *stairway* or *ramp.* The signage shall state the story of and direction to the *exit discharge,* and the availability of roof access from the *interior exit stairway* and *ramp* for the fire department. The bottom of the sign shall be located not less than 5 feet (1524 mm) above the floor level landing in a position that is readily visible when the doors are in the open and closed positions.

1027.5 Location. *Exterior exit stairways* and *ramps* shall have a minimum *fire separation distance* of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or *ramp* ~~*ramps*~~, including the ramp landing ~~landings~~, to:

1. Adjacent *lot lines*.
2. Other portions of the *building*.
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance*.

For the purposes of this section, other portions of the building shall be treated as separate *buildings*.

Exception: *Exterior exit stairways* and *ramps* serving individual *dwelling units* of Group R-3 shall have a minimum *fire separation distance* of 5 feet (1525 mm).

2406.4.6 Glazing adjacent to stairways and ramps. Glazing where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above the plane of the adjacent walking surface of *stairways*, ~~landings between *flights* of *stairs* and~~ *ramps* and ramp landings shall be considered to be a hazardous location. **Exceptions:**

1. The side of a *stairway*, ~~landing~~ ramp or *ramp* landing that has a *guard* complying with the provisions of Sections 1015 and 1607.9, and the plane of the glass is greater than 18 inches (457 mm) from the railing.
2. Glazing 36 inches (914 mm) or more measured horizontally from the walking surface.

2024 International Fire Code

Revise as follows:

[BE] 1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, and exit stairways ~~and at their required landings~~, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).

2. Steps, landings and the sides of *ramps* shall be permitted to be marked with self-luminous materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

[BE] 1011.3 Headroom. *Stairways* shall have a headroom clearance of not less than 80 inches (2032 mm) measured vertically from a line connecting the *nosings*. Such headroom shall be continuous above the *stairway* to the point where the line intersects the landing below, one tread depth beyond the bottom riser. The minimum clearance shall be maintained the full width of the *stairway* ~~and landing~~.

Exceptions:

1. *Spiral stairways* complying with Section 1011.10 are permitted a 78-inch (1981 mm) headroom clearance.
2. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; where the *nosings* of treads at the side of a *flight* extend under the edge of a floor opening through which the *stair* passes, the floor opening shall be allowed to project horizontally into the required headroom not more than $4^{3}/_{4}$ inches (121 mm).

[BE] 1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each ~~*stairway*~~ *flight*. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing*and the intersection of the walkline of the upper *flight* at the *nosing*of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

[BE] 1011.7.1 Stairway walking surface. The walking surfaces ~~surface of treads and landings~~ of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached.

Exceptions:

1. Openings in *stair* walking surfaces shall be a size that does not permit the passage of $^{1}/_{2}$-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1^{1}/_{8}$ inches (29 mm) cannot pass through the opening.

[BE] 1011.13 Guards. *Guards* shall be provided along *stairways* ~~and landings~~ where required by Section 1015 and shall be constructed in accordance with Section 1015. Where the roof hatch opening providing the required access is located within 10 feet (3049 mm) of the roof edge, such roof access or roof edge shall be protected by *guards* installed in accordance with Section 1015.

[BE] 1023.9 Stairway identification signs. A sign shall be provided at each floor level landing in an *interior exit stairway* and *ramp* connecting more than three stories designating the floor level, the terminus of the top and bottom of the *interior exit stairway* and *ramp* and the identification of the *stairway* or *ramp*. The signage shall state the story of, and the direction to, the *exit discharge* and the

availability of roof access from the *interior exit stairway* and *ramp* for the fire department. The bottom of the sign shall be located not less than 5 feet (1524 mm) above the floor level landing in a position that is readily visible when the doors are in the open and closed positions.

[BE] 1027.5 Location. *Exterior exit stairways* and *ramps* shall have a minimum *fire separation distance* of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or *ramps*, including landings, to:

1. Adjacent lot lines.
2. Other portions of the building.
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 of the International Building Code based on *fire separation distance*.

For the purposes of this section, other portions of the building shall be treated as separate buildings.

Exception: *Exterior exit stairways* and *ramps* serving individual *dwelling units* of Group R-3 shall have a *fire separation distance* of not less than 5 feet (1524 mm).

Reason: Stairway is a defined term and as such stairways have two basic components landings and flights. Flight is also a defined term and as such do not include landings. The same definitions appear in both the IBC and IRC is:

Stairway. One or more flights of stairs, either exterior or interior, **with the necessary landings** and platforms connecting them, to form a continuous and uninterrupted passage from one level to another.

Flight. A continuous run of rectangular treads, winders or combination thereof from one landing to another.

Landings are currently only required at the top and bottom of stairways. Landings and flights of stairs are the elements of a stairway. The current text is incorrect because landings are used between flights within a stairway to change direction or stride or to offer a rest not just at the top and bottom of a stairway. To correct this, we have deleted “stairway” and substituted “flight” in **1011.6 Stairway landings** and searched the code for further necessary changes related to the term landing.

In **1011.3 Headroom** and **1011.3 Guards**, we have deleted "and landings" because a stairway includes the landings by definition.

In **1011.7.1 Stairway walking surface**, we have deleted "treads and landings" as these terms are superfluous and understood as the defined components of the stairway.

In **1023.9 Stairway identification signs**, we have inserted "level" in two locations to more specifically describe that the landings where the required signs are to be located are at the floor levels.

In **1027.5 Location** we corrected the plurality of stairway and inserted "ramp" before landing because landings are part of a stairway but are not part of a ramp. We made similar changes in **2406.4.6 Glazing adjacent to stairways and ramps** and in **1008.2.1 Illumination level under normal power,** and also deleted "landings between flights of stairs and", "and at their required landings" respectively. The text was deleted because landings are defined as part of a stairway and the language is redundant.These corrections assure that landings are required at between flights of stairs as well as at the the top and bottom of stairways and provide for the correct use of the term stairway as defined in the code. Comprehensive changes have been made in each of the related IBC requirements relating to landings for both stairways and ramps to assure consistency throughout the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes in the text provide for clarification and consistent use of terms defined in the code and have no effect upon the cost of construction.

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: While this proposal eliminates redundant language and focuses on defined terms, Section 1008.2.1 will be misread without 'landings'. (Vote: 10-4)

E28-24

Individual Consideration Agenda

Comment 1:

IBC: 1008.2.1, 1011.6, 1027.5; IFC: [BE] 1008.2.1, [BE] 1011.6, [BE] 1027.5

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, ~~and~~ exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. **Exception:** For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each *flight* of stairs. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.

3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

1027.5 Location. *Exterior exit stairways* and *ramps* shall have a minimum *fire separation distance* of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or ~~ramp~~ *ramps*, including ~~the ramp landing~~ landings, to:

1. Adjacent *lot lines*.
2. Other portions of the *building*.
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance*.

For the purposes of this section, other portions of the building shall be treated as separate *buildings*.

Exception: *Exterior exit stairways* and *ramps* serving individual *dwelling units* of Group R-3 shall have a minimum *fire separation distance* of 5 feet (1525 mm).

2024 International Fire Code

[BE] 1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, ~~and~~ exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with self-luminous materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

[BE] 1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each *flight* of stairs. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

[BE] 1027.5 Location. *Exterior exit stairways* and *ramps* shall have a minimum *fire separation distance* of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or ~~ramp~~ *ramps*, including ~~the ramp landing~~ landings, to:

1. Adjacent lot lines.
2. Other portions of the building.

3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 of the International Building Code based on *fire separation distance*.

For the purposes of this section, other portions of the building shall be treated as separate buildings.

Exception: *Exterior exit stairways* and *ramps* serving individual *dwelling units* of Group R-3 shall have a *fire separation distance* of not less than 5 feet (1524 mm).

Reason: In accordance with the committee's reason for disapproval and testimony related to 1027.5, the changes made in the original proposal to Sections 1008.2.1 and 1027.5 have been removed leaving them unchanged. However the intent of the original proposal is maintained, eliminating redundant text and promoting consistent interpretation through the correct use of terms as they are defined in the code. In 1011.6 Stairway landings we have "of stairs" following flight to match the language approved in E69 "...flight of stairs." Approval as modified by this comment addresses the committees reason for disapproval and proponents intent to clarify the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes in the text provide for clarification and consistent use of terms defined in the code and have no effect upon the cost of construction.

Comment (CAH2)# 110

E31-24

IBC: 1008.2.1; IFC: [BE] 1008.2.1

Proposed Change as Submitted

Proponents: Jack Bailey, One Lux Studio LLC, International Association of Lighting Designers (jbailey@oneluxstudio.com); Eunice Noell-Waggoner, Center of Design for an Aging Society, IES Lighting for Seniors and the Visually Impaired Committee (eunice@centerofdesign.org); Harold Jepsen, Legrand (harold.jepsen@legrand.us); Marsha Mazz, United Spinal Association, United Spinal Association (mmazz@accessibility-services.com); Koni Sims, ACB Board of Director, American Council of the Blind (ACB), Visually Impaired/Low Vision (koni.l.sims@gmail.com); Nancy Clanton, Clanton & Associates, Inc, Clanton & Associates, Inc. (nancy@clantonassociates.com); Jonathan McHugh, McHugh Energy Consultants Inc., California Investor Owned Utilities (jon@mchughenergy.com)

2024 International Building Code

Revise as follows:

1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. Illumination levels on *stairways* shall be measured at the *nosing* of each landing and tread at a horizontal distance 12 inches (305 mm) to 14 inches (356 mm) from the stair side of each *handrail.*

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

2024 International Fire Code

Revise as follows:

[BE] 1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit *stairways* and at their required landings, the illumination level shall be not less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. Illumination levels on *stairways* shall be measured at the *nosing* of each landing and tread at a horizontal distance 12 inches (305 mm) to 14 inches (356 mm) from the stair side of each *handrail.*

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with self-luminous materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

Reason: 1. To enhance safety by improving the visibility of stairs. Visibility is improved when there is visual contrast between the nosing and the portion of the tread near the riser. With overhead lighting, this contrast is created by (a) contrasting materials, and (b) the shadow created by the riser. If the 10fc minimum is interpreted to be measured in the shadow adjacent to the riser, then lighting will be designed to minimize this shadow and reduce contrast and hence reduce visibility.

2. To provide for greater consistency in application and enforcement of the code by specifying where readings are to be taken. There is a fair amount of disagreement about how far into the darkest corner a light meter should be placed when searching for the point with minimum illuminance.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal could be interpreted to reduce overall light level requirements in stairs, which would reduce costs. This impact is likely minimal. There is no plausible scenario where this would increase costs.

E31-24

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: This gives a measurement point to determine averages for officials and designers. The proposal puts the lighting levels on the walkline within reach of the handrail - this is where the lighting is most needed. (AS 11-3)

E31-24

Individual Consideration Agenda

Comment 1:

IBC: 1008.2.1; IFC: [BE] 1008.2.1

Proponents: Jack Bailey, One Lux Studio LLC, International Association of Lighting Designers (jbailey@oneluxstudio.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. Illumination levels on *stairways* shall be measured at the *nosing* of each landing, at the lowest *nosing* in each *flight*, and at one *nosing* in the middle of each *flight*, ~~and tread~~ at a horizontal distance 12 inches (305 mm) to 14 inches (356 mm) from the stair side of each *handrail*.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

[BE] 1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit *stairways* and at their required landings, the illumination level shall be not less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. Illumination levels on *stairways* shall be measured at the *nosing* of each landing, at the lowest *nosing* in each *flight*, and at one *nosing* in the middle of each *flight*, ~~and tread~~ at a horizontal distance 12 inches (305 mm) to 14 inches (356 mm) from the stair side of each *handrail*.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with self-luminous materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

Reason: The proponents of E31 got feedback from several interested parties who were concerned that requiring measurements at every nosing would make inspection difficult.

From a practical standpoint, we believe that measuring at three nosings on each flight (top, middle, and bottom) will achieve substantially the same result as measuring at every nosing.

From a safety standpoint, we are most concerned about lighting the transitions from flight to landing, so we have required measurement points there. And with a light at each landing (most often the case), the darkest point will be in the middle of the flight, so we have required a measurement point there.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

By reducing the number of measurement points this proposal may make inspection and enforcement easier.

Comment (CAH2)# 348

E32-24

IBC: SECTION 202 (New), 1008.2.1; IFC: SECTION 202 (New), [BE] 1008.2.1

Proposed Change as Submitted

Proponents: Jack Bailey, One Lux Studio LLC, International Association of Lighting Designers (jbailey@oneluxstudio.com); Eunice Noell-Waggoner, President, Center of Design for an Aging Society, IES Lighting for Seniors and the Visually Impaired Committee (eunice@centerofdesign.org); Harold Jepsen, Legrand (harold.jepsen@legrand.us); Marsha Mazz, United Spinal Association, United Spinal Association (mmazz@accessibility-services.com); Koni Sims, ACB Board of Director, American Council of the Blind (ACB), Visually Impaired/Low Vision (koni.l.sims@gmail.com); Nancy Clanton, Clanton & Associates, Inc, Clanton & Associates, Inc. (nancy@clantonassociates.com); Jonathan McHugh, McHugh Energy Consultants Inc., California Investor Owned Utilities (jon@mchughenergy.com)

2024 International Building Code

Add new definition as follows:

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area and causes lighting, equipment, or appliances to be regulated accordingly.

Revise as follows:

1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. ~~**Exception**~~ **Exceptions:**

1. *Occupant sensor controls* shall be permitted to reduce illumination levels along the *means of egress* serving occupied rooms and spaces where the following conditions are met:
   1.1. When no occupants are present, the illumination level shall not be less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.
   1.2. Along *stairways*, when an occupant is present on a *landing*, the illumination level shall be automatically restored on that landing and on all *flights* adjacent to that *landing*.
   1.3. Along *stairways*, when an occupant is present on a *flight*, the illumination level shall be automatically restored on that *flight* and on both *landings* adjacent to that *flight*.
   1.4. Along the *means of egress* in rooms and spaces other than *stairways*, the illumination level shall be automatically restored in each *occupant sensor* control zone when occupants are present.
   1.5. After the occupants leave each *occupant sensor* control zone, the illumination level shall be maintained for no less than 15 minutes.
   1.6. In *interior exit stairways*, *interior exit ramps*, and *exit passageways* in buildings with fire alarm systems, the illumination level shall be automatically restored upon activation of the premises' fire alarm system.
2. For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:
   2.1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
   2.2 Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

2024 International Fire Code

Add new definition as follows:

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area and causes lighting, equipment, or appliances to be regulated accordingly.

Revise as follows:

[BE] 1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit *stairways* and at their required landings, the illumination level shall be not less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. **~~Exception~~ Exceptions:**

1. *Occupant sensor controls* shall be permitted to reduce illumination levels along the *means of egress* serving occupied rooms and spaces where the following conditions are met:
   1.1. When no occupants are present, the illumination level shall not be less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.
   1.2. Along *stairways*, when an occupant is present on a *landing*, the illumination level shall be automatically restored on that landing and on all *flights* adjacent to that *landing*.
   1.3. Along *stairways*, when an occupant is present on a *flight*, the illumination level shall be automatically restored on that *flight* and on both *landings* adjacent to that *flight*.
   1.4. Along the *means of egress* in rooms and spaces other than *stairways*, the illumination level shall be automatically restored in each *occupant sensor* control zone when occupants are present.
   1.5. After the occupants leave each *occupant sensor* control zone, the illumination level shall be maintained for no less than 15 minutes.
   1.6. In *interior exit stairways*, *interior exit ramps*, and *exit passageways* in buildings with fire alarm systems, the illumination level shall be automatically restored upon activation of the premises' fire alarm system.

2. For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:
   2.1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
   2.2 Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

Reason: To provide necessary clarity for the safe installation of occupant sensors to conserve energy in unoccupied means of egress.

A lot of energy is wasted operating lights in unoccupied spaces. The IBC currently requires that light levels be maintained at 1 footcandle minimum in many types of unoccupied spaces, provided that those spaces serve other spaces which may be occupied. First, please consider that a 1 footcandle minimum implies an average of 2-5 footcandes with typical uniformity ratios. Second, please consider that there is often no practical way to determine if the "spaces served" are occupied (e.g. a corridor in a residential building serving multiple dwelling units is always assumed to be serving occupied spaces), so the 2-5 footcandle average illumination is maintained 24 hours/day, 365 days/year even with occupant sensors controlling the lights.

This proposal would allow a reduction of light levels to 1 footcandle average in unoccupied means of egress serving occupied spaces. The specified illuminance levels for the unoccupied condition (Exception 1.1) are identical to the illuminance level required while occupied under emergency power (1008.3.2). So these spaces are always maintained at a light level which has been deemed to be safe under all versions of the IBC dating back to 2000, even if the occupant sensors were to fail to raise light levels when an occupant entered.

Energy savings would be quite significant where occupant sensor controls are provided in spaces like corridors, warehouses, and open office areas, where anywhere from 50% to 80% less energy would be required to light unoccupied spaces.

To ensure that safety is not compromised, and to ensure consistent application and enforcement of the code, this proposal adds six requirements for the safe installation and operation of occupant sensors.

1.1 Specifies the illumination level for unoccupied means of egress (as explained above).

1.2 and 1.3 Allow for the most common lighting control strategy in stairways (occupant sensors integrated into fixtures) to be employed, provided that the sensors can detect motion for the full flight leading to each landing. This way occupants are never walking into darkness.

1.4 Requires that sensors automatically raise light levels when an occupant enters (i.e. manual-on "vacancy sensors" are not permitted).

1.5 Requires that occupant sensors keep lights at the occupied level 15 minutes after the last occupant leaves the control zone, to avoid "false offs" (i.e. where illumination levels are reduced while the space is still occupied).

1.6 Requires that critical spaces in the exit automatically rise their occupied level when the fire alarm system is triggered, because occupant sensors are not tested in smoke.

None of these safety requirements are included in the IECC.

Please note that ICC A117.1 includes language permitting the use of occupant sensors which are "equipped for fail-safe operation and evaluated for this purpose" along stairways. But controls manufacturers do not do this, and similar language was removed from NFPA101 in 2015.

Bibliography: ANSI/ICC 117.1 *Accessible and Usable Buildings and Facilities* 2017 – 4th Version: Sept 2022 International Code Council. Washington, DC

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not requireusers of the code to do anything. It allowsthem to install occupant sensing lighting controls to save energy.

E32-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: There needs to be greater than just emergency lighting levels when an occupant sensor fails - there needs to be a failsafe level set. There needs to be additional clarification for what happens as a person moves up or down the stairway. (Vote: 8-6)

E32-24

Individual Consideration Agenda

Comment 1:

IBC: SECTION 202, SECTION 202 (New), 1008.2.1; IFC: SECTION 202, SECTION 202 (New), [BE] 1008.2.1

Proponents: Jack Bailey, One Lux Studio LLC, International Association of Lighting Designers (jbailey@oneluxstudio.com); Jonathan McHugh, McHugh Energy Consultants Inc., California Investor Owned Utilities (jon@mchughenergy.com); Koni Sims, ACB Board of Director, American Council of the Blind (ACB), Visually Impaired/Low Vision (koni.l.sims@gmail.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area and causes lighting, equipment, or appliances to be regulated accordingly.

Add new definition as follows:

OCCUPANT SENSOR CONTROL ZONE. An area served by one or more light sources simultaneously controlled by one or more occupant sensors.

1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. **Exceptions:**

1. *Occupant sensor controls* shall be permitted to reduce illumination levels along the *means of egress* serving occupied rooms and spaces where the following conditions are met:
   1.1. When no occupants are present, the illumination level shall not be less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.
   1.2. Along *stairways*, when an occupant is present on a *landing*, the illumination level shall be automatically restored on that landing and on all *flights* ~~adjacent to~~ immediately above and below that *landing*.
   1.3. Along *stairways*, when an occupant is present on a *flight*, the illumination level shall be automatically restored on that *flight* and on the ~~both~~ *landings* ~~adjacent to~~ immediately above and below that *flight*.
   1.4. Along the *means of egress* in rooms and spaces other than *stairways*, the illumination level shall be automatically restored in each *occupant sensor* control zone when occupants are present.
   1.5. After the occupants leave each *occupant sensor* control zone, the illumination level shall be maintained for no less than 15 minutes.
   1.6. In *interior exit stairways, interior exit ramps*, and *exit passageways* in buildings with fire alarm systems, the illumination level shall be automatically restored upon activation of the premises' fire alarm system.
2. For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:
   2.1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
   2.2 Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

2024 International Fire Code

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area

and causes lighting, equipment, or appliances to be regulated accordingly.

Add new definition as follows:

OCCUPANT SENSOR CONTROL ZONE. An area served by one or more light sources simultaneously controlled by one or more occupant sensors.

[BE] 1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit *stairways* and at their required landings, the illumination level shall be not less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use. **Exceptions:**

1. *Occupant sensor controls* shall be permitted to reduce illumination levels along the *means of egress* serving occupied rooms and spaces where the following conditions are met:
   1.1. When no occupants are present, the illumination level shall not be less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.
   1.2. Along *stairways*, when an occupant is present on a *landing*, the illumination level shall be automatically restored on that landing and on all *flights* ~~adjacent to~~ immediately above and below that *landing.*
   1.3. Along *stairways*, when an occupant is present on a *flight*, the illumination level shall be automatically restored on that *flight* and on the ~~both~~ *landings* ~~adjacent to~~ immediately above and below that *flight*.
   1.4. Along the *means of egress* in rooms and spaces other than *stairways*, the illumination level shall be automatically restored in each *occupant sensor* control zone when occupants are present.
   1.5. After the occupants leave each *occupant sensor* control zone, the illumination level shall be maintained for no less than 15 minutes.
   1.6. In *interior exit stairways, interior exit ramps*, and *exit passageways* in buildings with fire alarm systems, the illumination level shall be automatically restored upon activation of the premises' fire alarm system.

2. For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:
   2.1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
   2.2 Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

Reason: This revised language was suggested by a committee member during the CAH hearing in Orlando. We believe it helps clarify that light levels need to be increased both above and below an occupant in a stairwell, since people do walk up and down stairs.

This comment also includes the floor modification Bailey-1, adding a definition for OCCUPANT SENSOR CONTROL ZONE, which received strong support from the committee.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of language, not a new requirement.

Comment (CAH2)# 347

Comment 2:

IBC: SECTION 202, SECTION 202 (New), 1008.2.1; IFC: SECTION 202, SECTION 202 (New), [BE] 1008.2.1

Proponents: Jonathan McHugh, McHugh Energy Consultants Inc., California Investor Owned Utilities (jon@mchughenergy.com); Koni Sims, ACB Board of Director, American Council of the Blind (ACB), Visually Impaired/Low Vision (koni.l.sims@gmail.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area and causes lighting, equipment, or appliances to be regulated accordingly.

Add new definition as follows:

OCCUPANT SENSOR CONTROL ZONE. . An area served by one or more light sources simultaneously controlled by one or more occupant sensors.

1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, *exit stairways* and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use.

Exceptions:

1. *Occupant sensor controls* shall be permitted to reduce illumination levels along the *means of egress* serving occupied rooms and spaces where the following conditions are met:
   - 1.1. When no occupants are present on *interior exit stairways*, the illumination level shall be not less than 1 footcandle (11 lux).
   - ~~1.1.~~ 1.2. When no occupants are present, in portions of the *means of egress* other than *interior exit stairways* and where an emergency electrical system is required, the illumination level shall not be less than ~~an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. A maximum-to-minimum illumination uniformity ratio of 40-to-1 shall not be exceeded.~~ the intial illumination level required in Section 1008.3.2.
   - ~~1.2.~~ 1.3. Along *stairways*, when an occupant is present on a *landing*, the illumination level shall be automatically restored on that landing and on all *flights* ~~adjacent to~~ immediately above and below that *landing.*
   - ~~1.3.~~ 1.4. Along *stairways*, when an occupant is present on a *flight*, the illumination level shall be automatically restored on that *flight* and on ~~both~~ *landings* ~~adjacent to~~ immediately above and below that *flight*.
   - ~~1.4.~~ 1.5. Along the *means of egress* in rooms and spaces other than *stairways*, the illumination level shall be automatically restored in each *occupant sensor* control zone when occupants are present.
   - ~~1.5.~~ 1.6. After the occupants leave each *occupant sensor* control zone, the illumination level shall be maintained for no less than 15 minutes.
   - ~~1.6.~~ 1.7 In *interior exit stairways, interior exit ramps*, and *exit passageways* in buildings with fire alarm systems, the illumination level shall be automatically restored upon activation of the premises' fire alarm system.

2. For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

   2.1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).

   2.2 Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

2024 International Fire Code

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area and causes lighting, equipment, or appliances to be regulated accordingly.

Add new definition as follows:

OCCUPANT SENSOR CONTROL ZONE. . An area served by one or more light sources simultaneously controlled by one or more occupant sensors.

[BE] 1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, *exit stairways* and at their required landings, the illumination level shall be not less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use.

Exceptions:

1. *Occupant sensor controls* shall be permitted to reduce illumination levels along the *means of egress* serving occupied rooms and spaces where the following conditions are met:

   1.1. When no occupants are present on *interior exit stairways*, the illumination level shall be not less than 1 footcandle (11 lux).

   ~~1.1.~~ 1.2. When no occupants are present, in portions of the *means of egress* other than *interior exit stairways* and where an emergency electrical system is required, the illumination level shall not be less than ~~an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.~~ the intial illumination level required in Section 1008.3.2.

   ~~1.2.~~ 1.3. Along *stairways*, when an occupant is present on a *landing*, the illumination level shall be automatically restored on that landing and on all *flights* ~~adjacent to~~ immediately above and below that *landing*.

   ~~1.3.~~ 1.4. Along *stairways*, when an occupant is present on a *flight*, the illumination level shall be automatically restored on that *flight* and on ~~both~~ *landings* immediately above and below ~~adjacent to~~ that *flight*.

   ~~1.4.~~ 1.5 Along the *means of egress* in rooms and spaces other than *stairways*, the illumination level shall be automatically restored in each *occupant sensor* control zone when occupants are present.

   ~~1.5.~~ 1.6 After the occupants leave each *occupant sensor* control zone, the illumination level shall be maintained for no less than 15 minutes.

   ~~1.6.~~ 1.7 In *interior exit stairways, interior exit ramps*, and *exit passageways* in buildings with fire alarm systems, the illumination level shall be automatically restored upon activation of the premises' fire alarm system.

2. For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

   2.1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).

   2.2 Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

Reason: This proposal modifies the original egress lighting controls proposal E32-24, based on comments from the committee or other commenters and research from other sources.

Incorporating approved changes

Definition of occupant sensor control zone. This definition was added as part of floor modification E32-24-Bailey-MP1 and was non-controversial (no one spoke in opposition to this definition).

Incorporating comments from the committee or commenters

Committee member Fattah suggested using language of "landings immediately above and below that flight" and "flights immediately above and below a landing." This text is editorial in nature and others also thought this was more clear, so this change was incorporated.Commissioners Campbell and Fattah were concerned about stairs having a minimum of 0.1 fc in the stairs when the occupant sensor fails. The low illuminance setting can be considered to be the "fail-safe" illuminance during sensor failure. To address the special concern of light levels in interior exit stairways, this proposal increases by a factor of 10 the minimum unoccupied light levels from 0.1 fc minimum to 1.0 footcandles minimum when no occupants are sensed. 1.0 fc minimum was considered sufficient for stair safety in every version of the IBC prior to 2021, and is also the minimum illuminance which is usually required to charge photoluminescent tape.

Other commenters were concerned about applying the emergency illumination requirements to portions of the means of egress not required to have emergency lighting during occupied periods when no occupancy is detected; in that they expressed concerns about the complexity of calculating the maximum to minimum ratio of 40:1. Currently this calculation of minium to maximum ratios are not required unless the application is required to have emergency power back-up for lighting. This proposal is modified so these unoccupied light levels including maximum to minimum ratios are required only where the emergency lighting is required. Rather than repeating the emergency power initial illumination requirements from Section 1008.3.5, the section is referenced. These minimum light levels provide an additional level of security associated with the operation of the occupancy sensor. Even if the occupancy sensor failed by not detecting occupants, there would still be enough light for egress during normal operation (i.e. utility electrical power is still powering all lighting circuits) comparable to the intial (fully charged) lighting levels provided by the emergency lighting system.

Research from other sources When combined with the other proposals approved by the committee, this proposal aligns the stairway illuminance requirements in IBC Section 1008.2.1 with those in ANSI/ICC 117.1 accessibility standard in Section 504.9.1 "Illumination Level" and in IES-RP-28-20 Recommended Practice: Lighting and the Visual Environment for Older Adults and the Visually Impaired.

ICC 117.1 also allows 1 fc minimum illumination when the stair is not in use. Similarly in IES RP-28-20, in Table A-1 "Recommended Illuminance Criteria for Spaces Specific to Lighting for Older Adults or Those with Impaired Vision" the table indicates that for exit stairways and landings, the recommended average illuminance value is 10 footcandles and has a footnote with the following instruction: "Measured at the center of the step (If local code permits, stairwell lighting can be reduced when stairwell is unoccupied)."

Research conducted by the Virgina Transportation Technology Institute (Bhagavathula & Gibbons, 2020) evaluated illuminance levels necessary for visibility in parking lots and parking garages. This research informed the recommended illuminance levels in the Illuminating Engineering Society Standard ANSI/IES RP8-22 Recommended Practice: Lighting Roadway and Parking Facilities. In Table 17-3.

Recommended Maintained Illuminance for Parking Garages of IES-RP-8, recommended minimum illuminance in "Dedicated Corners, Ramps; Drive Aisles, Parking Areas" is 0.9 footcandle when active (motion sensed) and 0.2 footcandle when inactive (no motion detected). .The vast majority of outdoor lighting applications are in lighting zones 2 and 3. IES RP 43-22 has recommended upper and lower average recommended maintained illuminance targets in Table A-3. Recommended Illuminance Criteria for People in Outdoor Environments. For Walking Surfaces (general circulation and egress) in lighting zone 2 this range is 1 to 2 fc and in lighting zone 3 this range is 2 to 4 fc. For Stairs and Ramps in lighting zone 2 this range is 2 to 3 fc and in lighting zone 3 this range is 3 to 4 fc. Applying a lower limits of 10 fc average to these outdoor stairs would result in a code minimum that would be higher than the maximum average illumination recommendation from the Illuminating Engineering Society.

Bibliography: ANSI/IES RP-28-20 *Recommended Practice: Lighting and the Visual Environment for Older Adults and the Visually Impaired.* Illuminating Engineering Society. New York.
ANSI/IES RP-43-22-20 *Recommended Practice: Lighting Exterior Applications.* Illuminating Engineering Society. New York.
ANSI/ICC 117.1 *Accessible and Usable Buildings and Facilities 2017 – 4th Version: Sept 2022* International Code Council. Washington, DC.

Bhagavathula R, Gibbons RB. *Light Levels for Parking Facilities Based on Empirical Evaluation of Visual Performance and User Perceptions*. **LEUKOS**. 2020;16(2):115-36.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impact. Controlling lights with occupancy sensors increases the first cost. However this proposal does not require that occupancy sensors shall be installed. This proposal describes that if one does control lights with occupancy sensors how much the lighting level is allowed to drop.

Comment (CAH2)# 562

E33-24

IBC: 1008.2.1, 1008.2.3; IFC: [BE] 1008.2.1, [BE] 1008.2.3

Proposed Change as Submitted

Proponents: Jack Bailey, One Lux Studio LLC, International Association of Lighting Designers (jbailey@oneluxstudio.com); Eunice Noell-Waggoner, Center of Design for an Aging Society, IES Lighting for Seniors and the Visually Impaired Committee (eunice@centerofdesign.org); Harold Jepsen, Legrand (harold.jepsen@legrand.us); Marsha K. Mazz, United Spinal Association, United Spinal Association (mmazz@unitedspinal.org); Koni Sims, ACB Board of Director, American Council of the Blind (ACB), Visually Impaired/Low Vision (koni.l.sims@gmail.com); Nancy Clanton, Clanton & Associates, Inc, Clanton & Associates, Inc. (nancy@clantonassociates.com); Jonathan McHugh, McHugh Energy Consultants Inc., California Investor Owned Utilities (jon@mchughenergy.com)

2024 International Building Code

Revise as follows:

1008.2.1 Illumination level under normal power. The interior *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

1008.2.3 Exit discharge. Illumination shall be provided along the path of travel for the *exit discharge* from each exit to the *public way*. Illumination levels shall not be less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.

Exception: Illumination shall not be required where the path of the *exit discharge* meets both of the following requirements:

1. The path of *exit discharge* is illuminated from the exit to a safe dispersal area complying with Section 1028.5.
2. A dispersal area shall be illuminated to a level not less than 1 footcandle (11 lux) at the walking surface.

2024 International Fire Code

Revise as follows:

[BE] 1008.2.1 Illumination level under normal power. The interior *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with self-luminous materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

[BE] 1008.2.3 Exit discharge. Illumination shall be provided along the path of travel for the *exit discharge* from each exit to the *public way*. Illumination levels shall not be less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded. **Exception:** Illumination shall not be required where the path of the *exit discharge* meets both of the following requirements:

1. The path of *exit discharge* is illuminated from the exit to a safe dispersal area complying with Section 1028.5.
2. A dispersal area shall be illuminated to a level not less than 1 footcandle (11 lux) at the walking surface.

Reason: To reduce the significant environmental impact that results when exterior spaces are over-lighted. Exterior spaces are rarely illuminated to a minimum of 1 footcandle, and exterior exit discharges lighted to meet current requirements in the IBC are unusually bright. This proposal would ensure that light levels which are currently considered sufficient for emergency conditions (refer to Section 1008.3.2) are maintained at all times, which will reduce energy costs and reduce light pollution.

Exterior occupancy sensors are not available for most pedestrian-scale lighting, which means that exit discharge lights will usually burn all night long.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

By reducing light level requirements this proposal will result in a reduction in construction costs for many projects as fixtures can be spaced further apart. Construction costs will not be increased for any projects.

E33-24

Public Hearing Results (CAH1)

Committee Action: **As Modified by Committee (AMC1)**

Committee Modification:

2024 International Building Code

1008.2.1 Illumination level under normal power. The ~~interior~~ *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with *self-luminous* materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

2024 International Fire Code

[BE] 1008.2.1 Illumination level under normal power. The ~~interior~~ *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along *exit access stairways*, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the *stairway* is in use.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is

automatically restored upon activation of a premises' *fire alarm system*:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of *ramps* shall be permitted to be marked with self-luminous materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems *listed* in accordance with UL 1994.

Committee Reason: The modification is to delete 'interior' from Section 1008.2.1 was approved so that lighting will still be required on exterior exit stairways or egress balconies. The proposal will clarify requirements for illumination of the path of exit discharge. This is consistent with emergency lighting level. (Vote: 14-0)

E33-24

Individual Consideration Agenda

Comment 1:

IBC: 1008.2.3; IFC: [BE] 1008.2.3

Proponents: Jeffrey Munsterteiger, National Association of Home Builders, National Association of Home Builders (jmunsterteiger@nahb.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Revise as follows:

1008.2.3 Exit discharge. Illumination shall be provided along the path of travel for the *exit discharge* from each exit to the *public way*. Illumination levels shall not be less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. ~~A maximum-to-minimum illumination uniformity ratio of 40-to-1 shall not be exceeded.~~

Exception: Illumination shall not be required where the path of the *exit discharge* meets both of the following requirements:

1. The path of *exit discharge* is illuminated from the exit to a safe dispersal area complying with Section 1028.5.
2. A dispersal area shall be illuminated to a level not less than 1 footcandle (11 lux) at the walking surface.

2024 International Fire Code

Revise as follows:

[BE] 1008.2.3 Exit discharge. Illumination shall be provided along the path of travel for the *exit discharge* from each exit to the *public way*. Illumination levels shall not be less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at the walking surface. ~~A maximum-to-minimum illumination uniformity ratio of 40-to-1 shall not be exceeded.~~ **Exception:** Illumination shall not be required where the path of the *exit discharge* meets both of the following requirements:

1. The path of *exit discharge* is illuminated from the exit to a safe dispersal area complying with Section 1028.5.
2. A dispersal area shall be illuminated to a level not less than 1 footcandle (11 lux) at the walking surface.

Reason: The purpose of this committee comment is to strike the uniformity ratio added to the exit discharge requirements by the original

proposal. The proponent's reason statement characterized the change as editorial; however, it is adding new technical requirements to the section, including the calculation of a uniformity ratio, and should have been disapproved on that basis.

While it's true that the uniformity ratio is already in the code, it applies only to the illumination level under emergency power. In this context it is a basic calculation, it's the ratio of when the lights are on versus on only under emergency power. Most of the lighting requiring emergency power is within the building and therefore entirely under the building owner's control.

But adding it to Section 1008.2.3 brings in many variables not within the control of the building's owner and leaves more questions. First is the question of how lighting on neighboring properties or other exterior sources impacts the ratio. The ratio across the exit discharge will be influenced by lighting on neighboring properties, lighting in the public way as well as other environmental factors. This cannot be left open to interpretation at the time of enforcement. The committee disapproved item E34, which was adding ratings for glare across the exit discharge, for this same reason; that it didn't consider light from other external sources.

Another question is the distance across where the ratio of lighting is measured. An exit discharge is not limited in length and can be dozens or even hundreds of yards long. How many points of measurement are taken in that distance to determine the correct ratio? Is it only across the distance of a few feet or across its entire length and width? How does it account for the changing landscape, such as trees with or without leaves blocking overhead lighting? This also cannot be left open to interpretation at the time of enforcement.

It is for these reasons that the ratio in the original proposal should be stricken.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

By removing the ratio calculation this proposal will have little cost impact. With it in place the costs could be incalculable as a permit holder attempts to comply and pass inspections.

Comment (CAH2)# 275

E35-24

IBC: 1008.3; IFC: [BE] 1008.3

Proposed Change as Submitted

Proponents: Lucas Pump, City of Cedar Rapids, Self (l.pump@cedar-rapids.org)

2024 International Building Code

Revise as follows:

1008.3 Illumination required by an emergency electrical system. An emergency electrical system shall be provided to automatically illuminate the following areas in the event of a power supply failure:

1. In rooms or spaces that require two or more exits or access to exits:
   1.1. *Aisles*.
   1.2. *Corridors*.
   1.3. *Exit access stairways* and *ramps*.
2. In *buildings* that require two or more exits or access to exits:
   2.1. Interior *exit access stairways* and *ramps*.
   2.2. Interior and *exterior exit stairways* and *ramps*.
   2.3. Exit passageways.
   2.4. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.2.
   2.5. Exterior landings as required by Section 1010.1.5 for exit doorways that lead directly to the *exit discharge*.
3. In other rooms and spaces:
   3.1. Electrical equipment rooms.
   3.2. *Fire command centers*.
   3.3. Fire pump rooms.
   3.4. Generator rooms.
   3.5. Public restrooms ~~with and area greater then 300 square feet (27.87 m^2).~~

2024 International Fire Code

Revise as follows:

[BE] 1008.3 Illumination required by an emergency electrical system. An emergency electrical system shall be provided to automatically illuminate the following areas in the event of a power supply failure:

1. In rooms or spaces that require two or more *exits* or access to *exits*:
   1.1. *Aisles*.
   1.2. *Corridors*.
   1.3. *Exit access stairways* and *ramps*.

2. In buildings that require two or more *exits* or access to *exits*:
   2.1. *Interior exit access stairways* and *ramps*.
   2.2. *Interior* and *exterior exit stairways* and *ramps*.
   2.3. *Exit passageways*.
   2.4. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.2.
   2.5. Exterior landings as required by Section 1010.1.5 for exit doorways that lead directly to the *exit discharge*.
3. In other rooms and spaces:
   3.1. Electrical equipment rooms.
   3.2. Fire command centers.
   3.3. Fire pump rooms.
   3.4. Generator rooms.
   3.5. Public restrooms ~~with an area greater than 300 square feet (27.87 m^2).~~

Reason: The deleting of this text of the square footage would require emergency lighting in all public restrooms. Public restrooms typically do not contain natural lighting, and when the electrical power goes out, these restrooms become completely black. Furthermore, a public restroom is usually not a familiar place, therefore safely exiting these spaces can be very difficult in an emergency situation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

The cost increase would be negligible because the average emergency light cost is between $20-$60 USD.

Estimated Immediate Cost Impact Justification (methodology and variables):

This would increase the cost of construction as emergency lighting would be required in all public restrooms, although the cost increase would be negligible because the average emergency light cost is between $20-$60 USD.

Estimated Life Cycle Cost Impact:

$20-$60 USD per new public restroom

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Safety of occupants of the building

E35-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The original requirement was for multi-stall toilet rooms. Why is emergency lighting required in single occupant restroom where there might not be emergency lighting required in the space the toilet room was located in? As written this would require emergency lighting on individual stalls where the compartments extended floor to ceiling - that is a very high cost with minimal gain. (Vote: 11-3)

Individual Consideration Agenda

Comment 1:

IBC: 1008.3; IFC: [BE] 1008.3

Proponents: Lucas Pump, City of Cedar Rapids, Self (l.pump@cedar-rapids.org) requests As Modified by Committee (AMC2)

Replace as follows:

2024 International Building Code

1008.3 Illumination required by an emergency electrical system. An emergency electrical system shall be provided to automatically illuminate the following areas in the event of a power supply failure:

1. In rooms or spaces that require two or more exits or access to exits:
   1.1. *Aisles*.
   1.2. *Corridors*.
   1.3. *Exit access stairways* and *ramps*.
2. In *buildings* that require two or more exits or access to exits:
   2.1. Interior *exit access stairways* and *ramps*.
   2.2. Interior and *exterior exit stairways* and *ramps*.
   2.3. Exit passageways.
   2.4. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.2.
   2.5. Exterior landings as required by Section 1010.1.5 for exit doorways that lead directly to the *exit discharge*.
3. In other rooms and spaces:
   3.1. Electrical equipment rooms.
   3.2. *Fire command centers*.
   3.3. Fire pump rooms.
   3.4. Generator rooms.
   3.5. ~~Public restrooms with an area greater than 300 square feet (27.87 m^2)~~ Common areas of multi-stall toilet and bathing rooms.

2024 International Fire Code

[BE] 1008.3 Illumination required by an emergency electrical system. An emergency electrical system shall be provided to automatically illuminate the following areas in the event of a power supply failure:

1. In rooms or spaces that require two or more *exits* or access to *exits*:
   1.1. *Aisles*.
   1.2. *Corridors*.
   1.3. *Exit access stairways* and *ramps*.
2. In buildings that require two or more *exits* or access to *exits*:
   2.1. *Interior exit access stairways* and *ramps*.
   2.2. *Interior* and *exterior exit stairways* and *ramps*.
   2.3. *Exit passageways*.
   2.4. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.2.
   2.5. Exterior landings as required by Section 1010.1.5 for exit doorways that lead directly to the *exit discharge*.
3. In other rooms and spaces:
   3.1. Electrical equipment rooms.
   3.2. Fire command centers.
   3.3. Fire pump rooms.
   3.4. Generator rooms.
   3.5. ~~Public restrooms with an area greater than 300 square feet (27.87 m^2)~~ Common areas of multi-stall toilet and bathing rooms.

Reason: The feedback at the Committee Action Hearings was that a single user restroom shouldn't be required to provide emergency lighting as the original intent of the code was for multi-user restroom where you might have several occupants that need to safely egress. Further testimony at the Hearings indicated that as written in the original proposal, a Building Official may interpret that every stall of a single user gender neutral restroom would need an emergency lighting because the stall partitions are floor to ceiling. This code change eliminates the arbitrary size of 300 sq. ft., which is not referenced anywhere else in the code. Public restrooms typically do not contain natural lighting, and when the electrical power goes out, these restrooms become completely black. Furthermore, a public restroom is usually not a familiar place, therefore safely exiting these spaces can be very difficult in an emergency situation. This comment fixes the concerns of the committee as well as the testimony in opposition.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The cost increase would be negligible because the average emergency light cost is between $20-$60 USD, and would only now require emergency lighting on a small percentage of new restrooms.

Estimated Immediate Cost Impact Justification (methodology and variables):

Safety of occupants of the occupants in public restroom.

Estimated Life Cycle Cost Impact:

There would be a slight increase due to maintain of the lighting as well as replacement of the back-up battery.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Safety of occupants of the building

Comment (CAH2)# 33

E38-24

IBC: 1009.2, 1009.7; IFC: [BE] 1009.2, [BE] 1009.7

Proposed Change as Submitted

Proponents: David Renn, PE, SE, City and County of Denver, Colorado Chapter Code Development Committee (david.renn@denvergov.org)

2024 International Building Code

Revise as follows:

1009.2 Continuity and components. Each required *accessible means of egress* shall be continuous to a *public way* and shall consist of one or more of the following components:

1. *Accessible routes* complying with Section 1104.
2. *Interior exit stairways* complying with Sections 1009.3 and 1023.
3. *Exit access stairways* complying with Sections 1009.3 and 1019.3 or 1019.4.
4. *Exterior exit stairways* complying with Sections 1009.3 and 1027 and serving levels other than the *level of exit discharge*.
5. Elevators complying with Section 1009.4.
6. Platform lifts complying with Section 1009.5.
7. *Horizontal exits* complying with Section 1026.
8. *Ramps* complying with Section 1012.
9. *Areas of refuge* complying with Section 1009.6.
10. Exterior areas for assisted rescue complying with Section 1009.7 serving *exits* at the *level of exit discharge*.

Exception: An *accessible means of egress* that ends at one of the following components is not required to be continuous to a *public way*:

1. *Area of refuge* complying with Section 1009.6 at the *level of exit discharge* that provides direct access to an exterior *exit* door.
2. Exterior area for assisted rescue complying with Section 1009.7 serving an *exit* at the *level of exit discharge*.

1009.7 Exterior areas for assisted rescue. Exterior areas for assisted rescue shall be accessed by an *accessible route* from the area served, shall be located on the exterior landing adjacent to an *exit*, and shall comply with Sections 1009.7.1 through 1009.7.4. ~~.Where the *exit discharge* does not include an *accessible route* from an exit located on the *level of exit discharge* to a *public way*, an exterior area of assisted rescue shall be provided on the exterior landing in accordance with Sections 1009.7.1 through 1009.7.4.~~

2024 International Fire Code

Revise as follows:

[BE] 1009.2 Continuity and components. Each required *accessible means of egress* shall be continuous to a *public way* and shall consist of one or more of the following components:

1. *Accessible routes* complying with Section 1104 of the International Building Code.
2. *Interior exit stairways* complying with Sections 1009.3 and 1023.
3. *Exit access stairways* complying with Sections 1009.3 and 1019.3 or 1019.4.

4. *Exterior exit stairways* complying with Sections 1009.3 and 1027 and serving levels other than the *level of exit discharge*.
5. Elevators complying with Section 1009.4.
6. Platform lifts complying with Section 1009.5.
7. *Horizontal exits* complying with Section 1026.
8. *Ramps* complying with Section 1012.
9. *Areas of refuge* complying with Section 1009.6.
10. Exterior areas for assisted rescue complying with Section 1009.7 serving *exits* at the *level of exit discharge*.

Exception: An *accessible means of egress* that ends at one of the following components is not required to be continuous to a *public way*:

1. *Area of refuge* complying with Section 1009.6 at the *level of exit discharge* that provides direct access to an exterior *exit* door.
2. Exterior area for assisted rescue complying with Section 1009.7 serving an *exit* at the *level of exit discharge*.

[BE] 1009.7 Exterior areas for assisted rescue. Exterior areas for assisted rescue shall be accessed by an *accessible route* from the area served, shall be located on the exterior landing adjacent to an *exit*, and shall comply with Sections 1009.7.1 through 1009.7.4. ~~.Where the *exit discharge* does not include an *accessible route* from an *exit* located on the *level of exit discharge* to a *public way*, an exterior area of assisted rescue shall be provided on the exterior landing in accordance with Sections 1009.7.1 through 1009.7.4.~~

Reason: Section 1009.7 currently requires an exterior area for assisted rescue where the exit discharge does not include an accessible route from the exit to a public way. This requirement is essentially an exception to 1009.2 that requires an accessible means of egress (AMOE) to be continuous to the public way. Also, the exception to Section 1009.6.2 was added to allow an interior area of refuge at the level of exit discharge to act the same as an exterior area of rescue assistance - both provide a protected space where persons with physical disabilities can wait for an assisted rescue by an emergency responder. The exception to 1009.6.2 doesn't specifically say the AMOE does not need an accessible route to the public way, but that is clearly the intent since there would be no other reason to provide such an area of refuge. Also, the commentary to Section 1009.7 discusses both an exterior area for assisted rescue and an interior area of refuge and indicates they both are an option to not providing an AMOE that is continuous to the public way.

To clarify the continuity requirements for an exterior area for assisted rescue and an interior area of refuge at the level of exit discharge, this proposal adds an exception to the continuity requirement in 1009.2 and deletes the implied exception in 1009.7 since it would be redundant.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the intent of the code with regard to continuity requirements for assisted rescue components of the accessible means of egress, so there will be no cost impact.

E38-24

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: The continuity requirements are moved from Section 1009.7 and allows for an exception for an accessible route to the public way from both options at the level of exit discharge where an accessible route is not available to the public way. This proposal is preferred over E37-24. (Vote: 14-0)

Individual Consideration Agenda

Comment 1:

IBC: 1009.2; IFC: [BE] 1009.2

Proponents: Gene Boecker, CCI, self (geneb@codeconsultants.com) requests As Modified by Committee (AMC2)

Further modify as follows:

2024 International Building Code

1009.2 Continuity and components. Each required *accessible means of egress* shall be continuous to a *public way* and shall consist of one or more of the following components:

1. *Accessible routes* complying with Section 1104.
2. *Interior exit stairways* complying with Sections 1009.3 and 1023.
3. *Exit access stairways* complying with Sections 1009.3 and 1019.3 or 1019.4.
4. *Exterior exit stairways* complying with Sections 1009.3 and 1027 and serving levels other than the *level of exit discharge*.
5. Elevators complying with Section 1009.4.
6. Platform lifts complying with Section 1009.5.
7. *Horizontal exits* complying with Section 1026.
8. *Ramps* complying with Section 1012.
9. *Areas of refuge* complying with Section 1009.6.
10. Exterior areas for assisted rescue complying with Section 1009.7 serving *exits* at the *level of exit discharge*.

Exception: An *accessible means of egress* that ends at one of the following components is not required to be continuous to a *public way*:

1. *Area of refuge* complying with Section 1009.6 at the *level of exit discharge* that provides direct access to an exterior *exit* door.
2. Exterior area for assisted rescue complying with Section 1009.7 serving an *exit* at the *level of exit discharge*.
3. Interior exit stairways complying with Sections 1009.3 and 1023.
4. Exit access stairways complying with Sections 1009.3 and 1019.3 or 1019.4.
5. Exterior exit stairways complying with Section 1009.4.

2024 International Fire Code

[BE] 1009.2 Continuity and components. Each required *accessible means of egress* shall be continuous to a *public way* and shall consist of one or more of the following components:

1. *Accessible routes* complying with Section 1104 of the International Building Code.
2. *Interior exit stairways* complying with Sections 1009.3 and 1023.
3. *Exit access stairways* complying with Sections 1009.3 and 1019.3 or 1019.4.

4. *Exterior exit stairways* complying with Sections 1009.3 and 1027 and serving levels other than the *level of exit discharge*.
5. Elevators complying with Section 1009.4.
6. Platform lifts complying with Section 1009.5.
7. *Horizontal exits* complying with Section 1026.
8. *Ramps* complying with Section 1012.
9. *Areas of refuge* complying with Section 1009.6.
10. Exterior areas for assisted rescue complying with Section 1009.7 serving *exits* at the *level of exit discharge*.

Exception: An *accessible means of egress* that ends at one of the following components is not required to be continuous to a *public way*:

1. *Area of refuge* complying with Section 1009.6 at the *level of exit discharge* that provides direct access to an exterior *exit* door.
2. Exterior area for assisted rescue complying with Section 1009.7 serving an *exit* at the *level of exit discharge*.
3. Interior exit stairways complying with Sections 1009.3 and 1023.
4. Exit access stairways complying with Sections 1009.3 and 1019.3 or 1019.4.
5. Exterior exit stairways complying with Section 1009.4.

Reason: The committee preferred the wording and format for E38 over E37. However, E38 did not go far enough. While it includes two of the obvious elements where the continuity of accessible egress can be stopped, it did not include stairways, and obvious obstruction and impediment to free accessible egress. While E37 was attempting to do other things as well as this, the opportunity to include these elements in the exception should be taken. It is clear that the accessible route from stairways stops at the stairway, whether they have areas of refuge of not within them.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The question of where to end the accessible means of egress were the path is not continuous to the public way needs clarity. The original proposal and this modification seek to accomplish that clarification. As such, there is no associated cost.

Comment (CAH2)# 689

E41-24

IBC: 1009.2.1; IFC: [BE] 1009.2.1

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

1009.2.1 Elevators required. In *buildings* where a required *accessible* floor is four or more *stories* above or below a *level of exit discharge* or where an accessible *occupiable roof* is above a *story* that is three or more *stories* above the *level of exit discharge* , not less than one required *accessible means of egress* shall include an elevator complying with Section 1009.4. **Exceptions:**

1. ~~In *buildings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the~~ The elevator shall not be required as part of the *accessible means of egress* ~~on floors provided with a *horizontal exit* and located at or above the *levels of exit discharge*.~~ where the building complies with all of the following:
   1.1. The building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
   1.2. All floors above the level of exit discharge are provided with a horizontal exit.
   1.3. Where there is an occupiable roof, the means of egress serving the occupiable roof is provided by interior exit stairways or ramps complying with Section 1023.
2. In *buildings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required as part of the *accessible means of egress* on floors or *occupiable roofs* provided with a ramp conforming to the provisions of Section 1012.

2024 International Fire Code

Revise as follows:

[BE] 1009.2.1 Elevators required. In buildings where a required accessible floor is four or more stories above or below a *level of exit discharge* or where an accessible *occupiable roof* is above a story that is three or more stories above the *level of exit discharge* , not less than one required *accessible means of egress* shall include an elevator complying with Section 1009.4. **Exceptions:**

1. ~~In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the~~ The elevator shall not be required as part of the *accessible means of egress* ~~on floors provided with a *horizontal exit* and located at or above the *levels of exit discharge*.~~ where the building complies with all of the following:
   1.1. The building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
   1.2. All floors above the level of exit discharge are provided with a horizontal exit.
   1.3. Where there is an occupiable roof, the means of egress serving the occupiable roof is provided by interior exit stairways or ramps complying with Section 1023.
2. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required as part of the *accessible means of egress* on floors or *occupiable roofs* provided with a *ramp* conforming to the provisions of Section 1012.

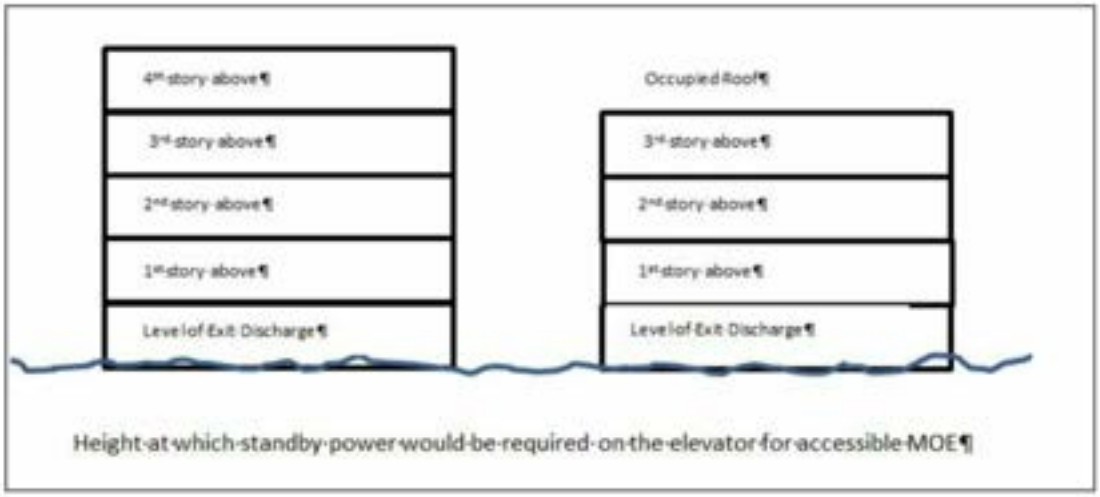
Reason: The intent of this proposal is to address buildings that have an occupiable roof and to allow for those buildings to use the option

of elevators with standby power (required in Section 1009.4) or to allow the use of horizontal exits. The reformatting is for ease of use and clarity. The new requirement for occupiable roofs is addressed in 1.3.

Horizontal exits on floors provide protected areas for people to wait for fire department assisted rescue if they need it.

With the addition of 1.3, people on the occupied roofs would be protected from smoke and fumes by being open to the air. If the people enter directly into enclosed exit stairways, they are protected to the level of exit discharge. These are sprinklered buildings, so no interior areas of refuge are required. The horizontal exits below allow for slower evacuation time, so the fire department can have additional time to assist anyone on the roof. Section 1006.3 considers occupiable roofs as a story for means of egress, so there will always be at least two ways off.

The Egress committee (E31-21) raised some concerns last cycle which this proposal addresses . The concern as to the location of the horizontal exit on the level below the occupied roof is immaterial because the occupants will already be within a protected exit enclosure. Following, there is not a concern of an occupant traveling down to the fire side of a horizontal exit on the floor below with the use of an exit access stairway or ramp.



This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Occupiable roofs were added to Section 1009.2 by E30-18. This clarifies an option for accessible means of egress for building with occupiable roofs.

E41-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This clarification is needed to address occupied roofs. However, the exception does not address what happens in

the basement levels - either address these or limit the exception to above grade. (Vote: 14-0)

E41-24

Individual Consideration Agenda

Comment 1:

IBC: 1009.2.1; IFC: [BE] 1009.2.1

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1009.2.1 Elevators required. In *buildings* where a required *accessible* floor is four or more *stories* above or below a *level of exit discharge* or where an accessible *occupiable roof* is above a *story* that is three or more *stories* above the *level of exit discharge* , not less than one required *accessible means of egress* shall include an elevator complying with Section 1009.4. **Exceptions:**

1. The elevator shall not be required as part of the *accessible means of egress* where the building complies with all of the following:
   1.1. The building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
   1.2. All floors above or below the level of exit discharge are provided with a horizontal exit.
   1.3. Where there is an occupiable roof, the means of egress serving the occupiable roof is provided by interior exit stairways or ramps complying with Section 1023.
2. In *buildings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required as part of the *accessible means of egress* on floors or *occupiable roofs* provided with a ramp conforming to the provisions of Section 1012.

2024 International Fire Code

[BE] 1009.2.1 Elevators required. In buildings where a required accessible floor is four or more stories above or below a *level of exit discharge* or where an accessible *occupiable roof* is above a story that is three or more stories above the *level of exit discharge* , not less than one required *accessible means of egress* shall include an elevator complying with Section 1009.4. **Exceptions:**

1. The elevator shall not be required as part of the *accessible means of egress* where the building complies with all of the following:
   1.1. The building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
   1.2. All floors above or below the level of exit discharge are provided with a horizontal exit.
   1.3. Where there is an occupiable roof, the means of egress serving the occupiable roof is provided by interior exit stairways or ramps complying with Section 1023.
2. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required as part of the *accessible means of egress* on floors or *occupiable roofs* provided with a *ramp* conforming to the provisions of Section 1012.

Reason: The revision to the proposal is to address a concern brought up during the testimony at the spring hearings. "Or below" was pointed out as a miss and has been corrected.

Please see the reason for the original proposal.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Occupiable roofs were added to Section 1009.2 by E30-18. This clarifies an option for accessible means of egress for building with occupiable roofs.

Comment (CAH2)# 220

E44-24

IBC: 1009.3; IFC: [BE] 1009.3

Proposed Change as Submitted

Proponents: Gene Boecker, CCI, self (geneb@codeconsultants.com); Matt Lescher, CCI, self (mattl@codeconsultants.com); Marsha Mazz, United Spinal Association, United Spinal Association (mmazz@accessibility-services.com)

2024 International Building Code

Revise as follows:

1009.3 Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between *stories* shall comply with ICC A117.1 and Sections 1009.3.1 through 1009.3.3. **Exception:** Stairways within dwelling units or sleeping units, other than Accessible dwelling or sleeping unit, shall not be required to comply with ICC A117.1.

2024 International Fire Code

Revise as follows:

[BE] 1009.3 Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between *stories* shall comply with ICC A117.1 and Sections 1009.3.1 through 1009.3.3. **Exception:** Stairways within dwelling units or sleeping units, other than Accessible dwelling or sleeping unit, shall not be required to comply with ICC A117.1.

Reason: While many of the accessibility related provisions of the A117.1 and ADA Standards have been mainstreamed into the IBC, some have not. The IBC includes provisions for stairs assuming the broad population as a whole. The A117.1 looks at these elements for their unique qualities as they relate to people with limited mobility and limited vision capabilities. The A117.1 standards are based on review of ergonomic data and actual fall and accident events as well as a comparison to other accessibility standards around the world. The A117.1 standard is better equipped to address the needs and concerns for people with disabilities.

As most of the requirements are the same and IBC Section 102.4 states that where conflicts exist between the code and a standard, the code shall prevail, the impact will be largely for the visual contrast at stair nosings. Visual contrast is especially important for people with limited vision and for people who are not functioning to their highest mental capability due to medication, intoxication or medical cognition.

The exception acknowledges the fact that the IBC contains a number of exceptions for stairs within dwelling units; and, that many people will not desire some of the A117.1 requirements for stairs within Type A and Type B units, as well as those not required to be Type A or Type B, since the A117.1 includes requirements for handrail extensions, and contrasting stripes. Since Type A and Type B units are adaptable, it seems reasonable that these elements could be added at a time when the occupant requires such features.

When evaluating the differences between the IBC requirements for stairways and the A117.1 requirements, the following table identifies the similarities and differences. Below each item is a notation about which is more restrictive or contains more criteria for compliance.

AMOE Stairways.

Requirement	IBC	A117.1
Riser Height (same)	4" min – 7" max	4" min – 7" max
Tread depth (same)	11" min	11" min
Open Risers (same)	Not required where stair is part of accessible means of egress.	Not Permitted
Tread surface (same)	Max opening of ½", securely attached, with slope not steeper than 1:48.	Max opening of 1/2", firm, stable, slip resistant and slope not steeper than 1:48
Tread and Riser uniformity (IBC)	Very Specific criteria for how uniformity is measured to adjacent steps and overall	All must be "uniform"
Nosing profile (A117.1)	9/16" max radius, underside at 30 degrees (no language about beveled nosings)	½" radius, ½" bevel, underside at 30 degrees max to vertical
Nosing depth (IBC)	1-1/4" max	1-1/2" max
Landings (IBC)	Specific criteria	No criteria
Visual contrast (A117.1)	Luminescent marking for high-rise buildings.	One of the following: 1. The leading 1 to 2 inches (25 to 51 mm) of every tread and landing, measured horizontally from the leading edge of the nosing, shall consist of a solid color having visual contrast of dark-on-light or light-on-dark from the remainder of the tread. The contrasting marking shall be durable and shall extend from one side of each tread to the other side of each tread. 2. Durable distinctive warning markings required by the adopted building code or ANSI safety standard.
Handrails (A117.1)	Required on both sides with some exceptions for short stairs and inside dwelling units.	Required on both sides, except for dwelling units NOT required to be Accessible.
Wet conditions (same)	Designed not to allow water accumulation.	Designed not to allow water accumulation.
Maxi. rise between landings (IBC)	12 feet vertical	Not addressed

Requirement	IBC	A117.1
Lighting (IBC)	The means of egress illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along exit access stairways, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the stairway is in use.	1. A 1-foot-candle (10.8 lux) minimum illumination at times other than conditions of stair use 2. A 10-foot-candle (108 lux) minimum illumination during conditions of stair use 3. The transition from 1 foot candle (10.8 lux) to 10 foot candle (108 lux) under conditions of stair use shall be permitted to be achieved by automatic, motion sensor-type lighting switches provided the switch controllers comply with all of the following: 3.1 The switch controllers are equipped for fail-safe operation and evaluated for this purpose 3.2 The motion sensor is activated by occupant movement on the stair or stair landings 3.3 The illumination timers are set for a minimum 15-minute duration.
Signage within Stair enclosure (A117.1)	"1023.11 Tactile floor-level signs. Where floor level signs are provided in interior exit stairways and ramps, a floor-level sign identifying the floor level in visual characters, raised characters and braille complying with ICC A117.1 shall be located at each floor-level landing adjacent to the door leading from the interior exit stairway and ramp into the corridor."	"Stair level identification signs in raised characters and braille complying with [A117.1] Sections 703.3 and 703.4 shall be located at each floor level landing in all enclosed stairways adjacent to the door leading from the stairwell into the corridor to identify the floor level. The exit door discharging to the outside or to the level of exit discharge shall have a sign with raised characters and braille stating "EXIT.""
Signage at exits (IBC – includes horizontal exits)	"Where exit signs are provided at an area of refuge with direct access to a stairway, an exterior area for assisted rescue, an exit stairway or ramp, an exit passageway, a horizontal exit and	"A sign stating EXIT in raised characters and Braille and complying with [A117.1] Sections 703.3 and 703.4 shall be provided adjacent to each door to an area of refuge

Requirement	IBC	A117.1
	the exit discharge, a sign stating "EXIT" in visual characters, raised characters and braille and complying with ICC A117.1 shall be provided."	providing direct access to a stairway, an exterior area for assisted rescue, an exit stairway, an exit ramp, an exit passageway and the exit discharge."

Bibliography: IBC - 2024

ICC A117.1 - 2017, Supplement

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

The additional material cost to adding a stripe to the tread can be as little as $0.02 is it involves paint or $0.70 per tread for adhesive-type anti-slip tape applications. For a 4 story building with two exit stairways, the anti-slip application would increase the material cost by less than $100 for the entire project.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost would be minimal. Most of the differences are in the details which would not affect cost. The only item which would be a cost

increase is the visual contrast marking. In many facilities, this is already installed for general safety reasons and is therefore no cost at all.

Estimated Life Cycle Cost Impact:

Depending on the material used the life cycle costs could be $0 or an estimated $100 every 6-10 years.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Variables include the type of materials originally used for contrast and the types of materials used for maintaining the contrasting stripes as well as teh frequency of maintenance - also dependent on the materials selected.

E44-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: Contrast on stairways should be addressed directly in the code. A reference to ICC A117.1 for this would cause confusion. (Vote: 14-0)

E44-24

Individual Consideration Agenda

Comment 1:

IBC: 1009.3, 1009.3.3 (New); IFC: [BE] 1009.3, [BE] 1009.3.3 (New)

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1009.3 Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between *stories* shall comply with ~~ICC A117.1 and~~ Sections 1009.3.1 through 1009.3.~~3~~4. **~~Exception:~~** ~~Stairways within dwelling units or sleeping units, other than Accessible dwelling or sleeping unit, shall not be required to comply with ICC A117.1.~~

Add new text as follows:

1009.3.3 Visual contrast markings. Visual contrast markings shall comply with either 1 or 2:

1. The leading 1 to 2 inches (25 to 51 mm) of every tread and landing, measured horizontally from the leading edge of the nosing, shall consist of a solid color having visual contrast of dark-on-light or light-on-dark from the remainder of the tread. The contrasting marking shall be durable and shall extend from one side of each tread to the other side of each tread.
2. Required distinctive warning and photoluminescent markings.

[BE] 1009.3 Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between *stories* shall comply with ~~ICC A117.1 and~~ Sections 1009.3.1 through 1009.3.~~3~~4. **~~Exception:~~** ~~Stairways within dwelling units or sleeping units, other than Accessible dwelling or sleeping unit, shall not be required to comply with ICC A117.1.~~

Add new text as follows:

[BE] 1009.3.3 Visual contrast markings. Visual contrast markings shall comply with either 1 or 2:

1. The leading 1 to 2 inches (25 to 51 mm) of every tread and landing, measured horizontally from the leading edge of the nosing, shall consist of a solid color having visual contrast of dark-on-light or light-on-dark from the remainder of the tread. The contrasting marking shall be durable and shall extend from one side of each tread to the other side of each tread.
2. Required distinctive warning and photoluminescent markings.

Reason: The stated reason of the original proposal was to add the visual contrast requirements for stairs from the A117.1 standard to the IBC. The simple reference to the A117.1 standard invoked conflicting requirements within chapter 10 Means of Egress as well as chapter 11 of the IBC where accessibility is scoped. The referenced standard has been delteted.

This comment simply incorporates the language of the current A117.1 standard regarding contrast markings at stairs.

This comment is one of several dealing with the need for contrast markings on stairways and resolves the intent of the original proposal as the committee suggested without unnecessary or controversial reference to the A117.1 standard.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Labor and materials to apply the contrast strip will vary greatly depending on the durability desired any where from $10 to $100 + per stripe. The less expensive options of paint or tape will wear and need to be maintained on not less than an annual basis for all but the lesser used stairways.

Estimated Immediate Cost Impact Justification (methodology and variables):

Less durable must be maintained or replaced annually- Paint or tape $1 - $5 material, Labor $5 - $10 per stripe

Most durable typically permanent - Mechanically fastened or inlaid stripe $20 -$30+, Labor $25 - $75 per stripe

Estimated Life Cycle Cost Impact:

Stairs are typically rarely replaced in a building. The life cycle of a stair is that of the building where it is located.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Less Durable - $10 x 16 stripes per stair x 50 years = $8000 per stair/50year (inflation not factored)

More to Most Durable - $100 x 16 stripes per stair = $1600 per stair one time expense

Comment (CAH2)# 57

Comment 2:

IBC: 1009.3, 1009.3.3 (New); IFC: [BE] 1009.3, [BE] 1009.3.3 (New)

Proponents: Ashley Goodin, Technical Services, Stairbuilders and Manufacturers Association (ashley.goodin@stairways.org); David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1009.3 Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between *stories* shall comply with ~~ICC A117.1 and~~ Sections 1009.3.1 through 1009.3.~~3~~4. ~~**Exception:** Stairways within dwelling units or sleeping units, other than Accessible dwelling or sleeping unit, shall not be required to comply with ICC A117.1.~~

Add new text as follows:

1009.3.3 Contrast marking stripe. A contrast marking stripe shall be provided on each tread and landing *nosing* such that the location of each tread is readily apparent when viewed in descent. Such stripe shall be not less than 1 inch (25 mm) and not more than 2 inches (51 mm) wide. **Exception:** The contrasting marking stripe is permitted to be omitted where tread surfaces are such that the location of each tread is readily apparent when viewed in descent.

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[BE] 1009.3 Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between *stories* shall comply with ~~ICC A117.1 and~~ Sections 1009.3.1 through 1009.3.~~3~~4. ~~**Exception:** Stairways within dwelling units or sleeping units, other than Accessible dwelling or sleeping unit, shall not be required to comply with ICC A117.1.~~

Add new text as follows:

[BE] 1009.3.3 Contrast marking stripe. A contrast marking stripe shall be provided on each tread and landing *nosing* such that the location of each tread is readily apparent when viewed in descent. Such stripe shall be not less than 1 inch (25 mm) and not more than 2 inches (51 mm) wide. **Exception:** The contrasting marking stripe is permitted to be omitted where tread surfaces are such that the location of each tread is readily apparent when viewed in descent.

Reason: The stated reason of the original proposal was to add the visual contrast requirements for stairs from the A117.1 standard to the IBC. The simple reference to the A117.1 standard invoked conflicting requirements within chapter 10 Means of Egress as well as chapter 11 of the IBC where accessibility is scoped.

This comment is one of several dealing with the need for contrast markings on stairways and resolves the intent of the original proposal as the committee suggested without unnecessary or controversial reference to the A117.1 standard by simply incorporating existing text from Section 1030 Assembly as shown below.

> **1030.14.2.3 Tread contrasting marking stripe.** A contrasting marking stripe shall be provided on each tread at the *nosing* or leading edge such that the location of each tread is readily apparent when viewed in descent. Such stripe shall be not less than 1 inch (25 mm) and not more than 2 inches (51 mm) wide.
>
> **Exception:**The contrasting marking stripe is permitted to be omitted where tread surfaces are such that the location of each tread is readily apparent when viewed in descent.

The text was modified slightly in this comment to include the marking of landing nosings as well as tread nosings. Approval of this change would incorporate a requirement that has proven to be consistently enforceable in similar application.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Labor and materials to apply the contrast strip will vary greatly depending on the durability desired any where from $10 to $100 + per stripe. The less expensive options of paint or tape will wear and need to be maintained on not less than an annual basis for all but the lesser used stairways.

Estimated Immediate Cost Impact Justification (methodology and variables):

Less durable must be maintained or replaced annually- Paint or tape $1 - $5 material, Labor $5 - $10 per stripe
Most durable typically permanent - Mechanically fastened or inlaid stripe $20 -$30+, Labor $25 - $75 per stripe

Estimated Life Cycle Cost Impact:

Stairs are typically rarely replaced in a building. The life cycle of a stair is that of the building where it is located.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Less Durable - $10 x 16 stripes per stair x 50 years = $8000 per stair/50year (inflation not factored)
More to Most Durable - $100 x 16 stripes per stair = $1600 per stair one time expense

Comment (CAH2)# 59

Comment 3:

IBC: 1009.3, 1009.3.3 (New); IFC: [BE] 1009.3, [BE] 1009.3.3 (New)

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org); Paul Wishnoff, United Rockland Stairs, Self (pwishnoff@unitedrocklandstairs.com) requests As Modified by Committee (AMC2)

Modify as follows:

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1009.3 Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between *stories* shall comply with ~~ICC A117.1 and~~ Sections 1009.3.1 through 1009.3.~~3~~4. ~~**Exception:** Stairways within dwelling units or sleeping units, other than Accessible dwelling or sleeping unit, shall not be required to comply with ICC A117.1.~~

Add new text as follows:

1009.3.3 Visual contrast markings. Visual contrast markings shall comply with either 1 or 2:

1. The leading 1 to 2 inches (25 to 51 mm) of every tread and landing nosing shall include a solid color marking stripe having visual contrast of dark-on-light or light-on-dark from the background. The contrasting marking shall be uniform, located not more than 1/2 inch from the leading edge, and extend the full width of the stair.
2. Required distinctive warning and photoluminescent markings.

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[BE] 1009.3 Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between *stories* shall comply with ~~ICC A117.1 and~~ Sections 1009.3.1 through 1009.3.~~3~~4. ~~**Exception:** Stairways within dwelling units or sleeping units, other than Accessible dwelling or sleeping unit, shall not be required to comply with ICC A117.1.~~

Add new text as follows:

[BE] 1009.3.3 Visual contrast markings. Visual contrast markings shall comply with either 1 or 2:

1. The leading 1 to 2 inches (25 to 51 mm) of every tread and landing nosing shall include a solid color marking stripe having visual contrast of dark-on-light or light-on-dark from the background. The contrasting marking shall be uniform, located not more than 1/2 inch from the leading edge, and extend the full width of the stair.
2. Required distinctive warning and photoluminescent markings.

Reason: The stated reason of the original proposal was to add the visual contrast requirements for stairs from the A117.1 standard to the IBC. The simple reference to the A117.1 standard invoked conflicting requirements within chapter 10 Means of Egress as well as chapter 11 of the IBC where accessibility is scoped. The referenced standard has been delteted.

This comment is a composite of current A117.1, E73, and New version of the A117.1 as currently being developed without a contrast formula.

This comment is one of several dealing with the need for contrast markings on stairways and resolves the intent of the original proposal as the committee suggested without unnecessary or controversial reference to the A117.1 standard.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Labor and materials to apply the contrast strip will vary greatly depending on the durability desired any where from $10 to $100 + per stripe. The less expensive options of paint or tape will wear and need to be maintained on not less than an annual basis for all but the lesser used stairways.

Estimated Immediate Cost Impact Justification (methodology and variables):

Less durable must be maintained or replaced annually- Paint or tape $1 - $5 material, Labor $5 - $10 per stripe
Most durable typically permanent - Mechanically fastened or inlaid stripe $20 -$30+, Labor $25 - $75 per stripe

Estimated Life Cycle Cost Impact:

Stairs are typically rarely replaced in a building. The life cycle of a stair is that of the building where it is located.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Less Durable - $10 x 16 stripes per stair x 50 years = $8000 per stair/50year (inflation not factored)
More to Most Durable - $100 x 16 stripes per stair = $1600 per stair one time expense

Comment (CAH2)# 60

E48-24

IBC: SECTION 202 (New), 1010.1.4, 1010.1.6, 1011.5.5.2, 1011.6, 1011.8, 1011.14, 1027.3; IFC: SECTION 202 (New), [BE] 1010.1.4, [BE] 1010.1.6, [BE] 1011.5.5.2, [BE] 1011.6, [BE] 1011.8, [BE] 1011.14, [BE] 1027.3

Proposed Change as Submitted

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org)

2024 International Building Code

Add new definition as follows:

LANDING. The portion of a walking surface required for direct access to or from an adjacent, door, stair, flight of stairs, ramp run, or elevator.

Revise as follows:

1010.1.4 Floor elevation. There shall be a ~~floor or~~ landing on each side of a door. Such ~~floor or~~ landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope). **Exceptions:**

1. At doors serving individual *dwelling units* or *sleeping units* in Groups R-2 and R-3, a door is permitted to open at the top step of an interior *flight* of stairs, provided that the door does not swing over the top step.
2. At exterior doors serving Groups F, H, R-2 and S and where such doors are not part of an *accessible route*, the landing at an exterior door shall not be more than 7 inches (178 mm) below the landing on the egress side of the door, provided that the door, other than an exterior storm or screen door, does not swing over the landing.
3. At exterior doors serving Group U and individual *dwelling units* and *sleeping units* in Groups R-2 and R-3, and where such units are not required to be *Accessible units*, *Type A units* or *Type B units*, the landing at an exterior doorway shall be not more than $7\,^3/_4$ inches (197 mm) below the landing on the egress side of the door. Such doors, including storm or screen doors, shall be permitted to swing over either landing.
4. Variations in elevation due to differences in finish materials, but not more than $^1/_2$ inch (12.7 mm).
5. Exterior decks, patios or balconies that are part of Type B *dwelling units* or *sleeping units*, that have impervious surfaces and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the *dwelling unit* or *sleeping unit*.
6. Doors serving equipment spaces not required to be *accessible* in accordance with Section 1103.2.9 and serving an *occupant load* of five or less shall be permitted to have a landing on one side to be not more than 7 inches (178 mm) above or below the landing on the egress side of the door.

1010.1.6 Thresholds. Thresholds at doorways shall not exceed $^3/_4$ inch (19.1 mm) in height above the ~~finished floor or~~ landing for sliding doors serving *dwelling units* or $^1/_2$ inch (12.7 mm) above the ~~finished floor or~~ landing for other doors. Raised thresholds and ~~floor level~~ changes of level greater than $^1/_4$ inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope). **Exceptions:**

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to $7^{3}/_{4}$ inches (197 mm) in height if all of the following apply:

   1.1. The door is not part of the required *means of egress*.

   1.2. The door is not part of an *accessible route* as required by Chapter 11.

   1.3. The door is not part of an *Accessible unit*, *Type A unit* or *Type B unit*.

2. In *Type B units*, where Exception 5 to Section 1010.1.4 permits a 4-inch (102 mm) elevation change at the door, the threshold height on the exterior side of the door shall not exceed $4^{3}/_{4}$ inches (120 mm) in height above the exterior deck, patio or balcony for sliding doors or $4^{1}/_{2}$ inches (114 mm) above the exterior deck, patio or balcony for other doors.

1011.5.5.2 Nosing projection uniformity. Nosing projections shall be of uniform size, including the projection~~s~~ of the *nosing~~s~~* of the ~~floor or~~ landing at the top of a *flight*.

1011.6 Stairway landings. There shall be a ~~floor or~~ landing at the top and bottom of each *stairway*. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

1011.8 Vertical rise. A *flight* of *stairs* shall not have a vertical rise greater than 12 feet (3658 mm) between ~~floor levels or~~ landings.

Exception: *Spiral stairways* used as a *means of egress* from *technical production areas*.

1011.14 Alternating tread devices. *Alternating tread devices* are limited to an element of a *means of egress* in *buildings* of Groups F, H and S from a *mezzanine* not more than 250 square feet (23 m^2) in area and that serves not more than five occupants; in *buildings* of Group I-3 from a guard tower, observation station or control room not more than 250 square feet (23 m^2) in area and for access to unoccupiable roofs. *Alternating tread devices* used as a *means of egress* shall not have a rise greater than 20 feet (6096 mm) between ~~floor levels or~~ landings.

1027.3 Open side. *Exterior exit stairways* and *ramps* serving as an element of a required *means of egress* shall be open on not less than one side, except for required structural columns, beams, *handrails* and *guards*. An open side shall have not less than 35 square feet (3.3 m^2) of aggregate open area adjacent to ~~each floor level and~~ the level of each ~~intermediate~~ landing. The required open area shall be located not less than 42 inches (1067 mm) above the adjacent floor or landing level.

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Add new definition as follows:

LANDING. The portion of a walking surface required for direct access to or from an adjacent, door, stair, flight of stairs, ramp run, or elevator.

Revise as follows:

[BE] 1010.1.4 Floor elevation. There shall be a ~~floor or~~ landing on each side of a door. Such ~~floor or~~ landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope). **Exceptions:**

1. At doors serving individual *dwelling units* or *sleeping units* in Groups R-2 and R-3, a door is permitted to open at the top step of an interior *flight* of stairs, provided that the door does not swing over the top step.
2. At exterior doors serving Groups F, H, R-2 and S and where such doors are not part of an *accessible route*, the landing at an exterior door shall be not more than 7 inches (178 mm) below the landing on the egress side of the door, provided that the door, other than an exterior storm or screen door, does not swing over the landing.
3. At exterior doors serving Group U and individual *dwelling units* and *sleeping units* in Groups R-2 and R-3, and where such units are not required to be Accessible units, Type A units or Type B units, the landing at an exterior doorway shall be not more than $7\frac{3}{4}$ inches (197 mm) below the landing on the egress side of the door. Such doors, including storm or screen doors, shall be permitted to swing over either landing.
4. Variations in elevation due to differences in finish materials, but not more than $\frac{1}{2}$ inch (12.7 mm).
5. Exterior decks, patios or balconies that are part of Type B *dwelling units* or *sleeping units*, that have impervious surfaces and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the *dwelling unit* or *sleeping unit*.
6. Doors serving equipment spaces not required to be accessible in accordance with Section 1103.2.9 of the International Building Code and serving an *occupant load* of five or less shall be permitted to have a landing on one side to be not more than 7 inches (178 mm) above or below the landing on the egress side of the door.

[BE] 1010.1.6 Thresholds. Thresholds at doorways shall not exceed $\frac{3}{4}$ inch (19.1 mm) in height above the ~~finished floor or~~ landing for sliding doors serving *dwelling units* or $\frac{1}{2}$ inch (12.7 mm) above the ~~finished floor or~~ landing for other doors. Raised thresholds and ~~floor level~~ changes <u>of level</u> greater than $\frac{1}{4}$ inch (6.4 mm) at doorways shall be beveled with a slope not greater than 1 unit vertical in 2 units horizontal (50-percent slope). **Exceptions:**

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to $7\frac{3}{4}$ inches (197 mm) in height if all of the following apply:
   1.1. The door is not part of the required *means of egress*.
   1.2. The door is not part of an *accessible route* as required by Chapter 11 of the International Building Code.
   1.3. The door is not part of an accessible unit, Type A unit or Type B unit.
2. In Type B units, where Exception 5 to Section 1010.1.4 permits a 4-inch (102 mm) elevation change at the door, the threshold height on the exterior side of the door shall not exceed $4\frac{3}{4}$ inches (120 mm) in height above the exterior deck, patio or balcony for sliding doors or $4\frac{1}{2}$ inches (114 mm) above the exterior deck, patio or balcony for other doors.

[BE] 1011.5.5.2 Nosing projection uniformity. Nosing projections shall be of uniform size, including the projections of the *nosings* of the ~~floor or~~ landing at the top of a *flight*.

[BE] 1011.6 Stairway landings. There shall be a ~~floor or~~ landing at the top and bottom of each *stairway*. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.

2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing*and the intersection of the walkline of the upper *flight* at the *nosing*of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

[BE] 1011.8 Vertical rise. A *flight* of *stairs* shall not have a vertical rise greater than 12 feet (3658 mm) between ~~floor levels or~~ landings.

Exception: *Spiral stairways* used as a *means of egress* from technical production areas.

[BE] 1011.14 Alternating tread devices. *Alternating tread devices* are limited to an element of a *means of egress* in buildings of Groups F, H and S from a *mezzanine* not more than 250 square feet (23 m^2) in area and that serves not more than five occupants; in buildings of Group I-3 from a guard tower, observation station or control room not more than 250 square feet (23 m^2) in area and for access to unoccupiable roofs. *Alternating tread devices* used as a *means of egress* shall not have a rise greater than 20 feet (6096 mm) between ~~floor levels or~~ landings.

[BE] 1027.3 Open side. *Exterior exit stairways* and *ramps* serving as an element of a required *means of egress* shall be open on not less than one side, except for required structural columns, beams, *handrails* and guards. An open side shall have not less than 35 square feet (3.3 m^2) of aggregate open area adjacent to ~~each floor level and~~ the level of each ~~intermediate~~ landing. The required open area shall be located not less than 42 inches (1067 mm) above the adjacent floor or landing level.

Reason: What is the difference between a landing and a floor? There is clearly a difference that is not understood. An entire floor is not a landing, but the code uses the term “floor-or-landing” as if they are the same. In other instances, such as in **1027.3 Open side**, the two terms used confusingly allow the required open side to be located anywhere on the floor level as opposed to at the landing, as if they might be considered to be uniquely different locations. The confused use of the terms interchangeably is due to the lack of a definition for either floor or landing.

Is it a "landing", a "floor", or is it a "floor-or-landing"?

A landing is but a portion of a floor. The attribute of size is not addressed in dictionaries and this alone is justification for a unique definition in the code. A landing may not be a floor at all if it is not at a floor level but only located between flights or at a mezzanine. If it is a landing, the current code does not require it between flights. Landings are only required at the top and bottom of stairways. But that is an issue we will discuss in a separate code change related to the definition of stairway.

If it is a deck or patio connected to the structure, is it a floor or landing? Clearly only enough area is needed to safely access or depart from the door or flight of stairs. The code, however, provides an option for a floor of indefinite size though only a landing is needed. An entire floor is not necessary to enter or exit a stairway. If a floor is provided instead of a landing, is it limited to the size of a landing or what portion of the floor is the landing? This same circular rhetoric could be applied to landings at elevators as well.

How big is a floor or should I ask is there a need to describe the limits of a floor's size? If you could define "floor", it would likely not be in terms of its size? A landing is much different. The code specifies landing sizes throughout the code, albeit, sometimes indirectly as related to egress capacity. This alone makes a landing uniquely different from a floor.

The limit of a landing’s size is what defines where the stairway ends and where a floor begins. This is important because the width, depth, and headroom of landings are uniquely regulated within **1011 Stairways**. The suggested definition clearly identifies the unique quality of landing size as *"The portion of a walking surface required..."* and quantifies the landing as the amount of space needed to perform the functions of a landing, e.g., change in direction, change in stride, rest, or simply provide the area required to enter or exit a doorway, stair, ramp or elevator.

In addition to the definition, we have included comprehensive changes to all the requirements with instances of confusing reference to the terms floor or landing based upon a search of the IBC. Each has been corrected by deleting floor where "floor or landing" has been used and any related contextual changes necessary. Each of these necessary changes to the code are very clear examples of how the suggested definition for landing can simplify code language and provide for consistent interpretation.

In an effort to correlate with the A117.1 standard the proposed definition has been submitted and approved in the proceedings of the

A117.1 committee for inclusion in the final ballot of the ICC A117.1 Standard expected in 2024. The text is the same except that "door" is deleted as landings at doors are not mentioned in A117.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a new definition and editorial changed needed to correlate with other ICC defined terminology. The changes have no material affect upon the cost of construction.

E48-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved. This is not an issue - changing this will cause confusion. Removing "floor" would add confusion for threshold measurements in Section 1010.1.6. Landings are part of a floor, so they can be the same location. There are not boundary explanation on where a landing ends and a floor would start. (Vote: 13-1)

E48-24

Individual Consideration Agenda

Comment 1:

IBC: SECTION 202, 1010.1.4, 1010.1.6, 1011.5.5.2, 1011.6, 1011.8, 1011.14, 1027.3; IFC: SECTION 202, [BE] 1010.1.4, [BE] 1010.1.6, [BE] 1011.5.5.2, [BE] 1011.6, [BE] 1011.8, [BE] 1011.14, [BE] 1027.3

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

LANDING. The portion of a walking surface required for direct access to or from an adjacent, door, stair, flight of stairs, ramp run, or elevator.

1010.1.4 Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope). **Exceptions:**

1. At doors serving individual *dwelling units* or *sleeping units* in Groups R-2 and R-3, a door is permitted to open at the top step of an interior *flight* of stairs, provided that the door does not swing over the top step.
2. At exterior doors serving Groups F, H, R-2 and S and where such doors are not part of an *accessible route*, the landing at an exterior door shall not be more than 7 inches (178 mm) below the landing on the egress side of the door, provided that the door, other than an exterior storm or screen door, does not swing over the landing.

3. At exterior doors serving Group U and individual *dwelling units* and *sleeping units* in Groups R-2 and R-3, and where such units are not required to be *Accessible units*, *Type A units* or *Type B units*, the landing at an exterior doorway shall be not more than $7^3/_4$ inches (197 mm) below the landing on the egress side of the door. Such doors, including storm or screen doors, shall be permitted to swing over either landing.
4. Variations in elevation due to differences in finish materials, but not more than $^1/_2$ inch (12.7 mm).
5. Exterior decks, patios or balconies that are part of Type B *dwelling units* or *sleeping units*, that have impervious surfaces and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the *dwelling unit* or *sleeping unit*.
6. Doors serving equipment spaces not required to be *accessible* in accordance with Section 1103.2.9 and serving an *occupant load* of five or less shall be permitted to have a landing on one side to be not more than 7 inches (178 mm) above or below the landing on the egress side of the door.

1010.1.6 Thresholds. Thresholds at doorways shall not exceed $^3/_4$ inch (19.1 mm) in height above the finished floor or landing for sliding doors serving *dwelling units* or $^1/_2$ inch (12.7 mm) above the finished floor or landing for other doors. Raised thresholds and floor level changes ~~of level~~ greater than $^1/_4$ inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope). **Exceptions:**

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to $7^3/_4$ inches (197 mm) in height if all of the following apply:
   1.1.The door is not part of the required *means of egress*.1.2.The door is not part of an *accessible route* as required by Chapter 11.1.3.The door is not part of an *Accessible unit*, *Type A unit* or *Type B unit*.
2. In *Type B units*, where Exception 5 to Section 1010.1.4 permits a 4-inch (102 mm) elevation change at the door, the threshold height on the exterior side of the door shall not exceed $4^3/_4$ inches (120 mm) in height above the exterior deck, patio or balcony for sliding doors or $4^1/_2$ inches (114 mm) above the exterior deck, patio or balcony for other doors.

1011.5.5.2 Nosing projection uniformity. Nosing projections shall be of uniform size, including the projection of the *nosing* of the landing at the top of a *flight*.

1011.6 Stairway landings. There shall be a landing at the top and bottom of each ~~*stairway*~~ *flight* of stairs. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

1011.8 Vertical rise. A *flight* of *stairs* shall not have a vertical rise greater than 12 feet (3658 mm) between landings.

Exception: *Spiral stairways* used as a *means of egress* from *technical production areas*.

1011.14 Alternating tread devices. *Alternating tread devices* are limited to an element of a *means of egress* in *buildings* of Groups F, H and S from a *mezzanine* not more than 250 square feet (23 m^2) in area and that serves not more than five occupants; in *buildings* of

Group I-3 from a guard tower, observation station or control room not more than 250 square feet (23 m^2) in area and for access to unoccupiable roofs. *Alternating tread devices* used as a *means of egress* shall not have a rise greater than 20 feet (6096 mm) between landings.

1027.3 Open side. *Exterior exit stairways* and *ramps* serving as an element of a required *means of egress* shall be open on not less than one side, except for required structural columns, beams, *handrails* and *guards*. An open side shall have not less than 35 square feet (3.3 m^2) of aggregate open area adjacent to each floor level and the level of each intermediate landing. The required open area shall be located not less than 42 inches (1067 mm) above the adjacent floor or landing level.

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LANDING. The portion of a walking surface required for direct access to or from an adjacent, door, stair, flight of stairs, ramp run, or elevator.

[BE] 1010.1.4 Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope). **Exceptions:**

1. At doors serving individual *dwelling units* or *sleeping units* in Groups R-2 and R-3, a door is permitted to open at the top step of an interior *flight* of stairs, provided that the door does not swing over the top step.
2. At exterior doors serving Groups F, H, R-2 and S and where such doors are not part of an *accessible route*, the landing at an exterior door shall be not more than 7 inches (178 mm) below the landing on the egress side of the door, provided that the door, other than an exterior storm or screen door, does not swing over the landing.
3. At exterior doors serving Group U and individual *dwelling units* and *sleeping units* in Groups R-2 and R-3, and where such units are not required to be Accessible units, Type A units or Type B units, the landing at an exterior doorway shall be not more than $7\,^3/_4$ inches (197 mm) below the landing on the egress side of the door. Such doors, including storm or screen doors, shall be permitted to swing over either landing.
4. Variations in elevation due to differences in finish materials, but not more than $^1/_2$ inch (12.7 mm).
5. Exterior decks, patios or balconies that are part of Type B *dwelling units* or *sleeping units*, that have impervious surfaces and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the *dwelling unit* or *sleeping unit*.
6. Doors serving equipment spaces not required to be accessible in accordance with Section 1103.2.9 of the International Building Code and serving an *occupant load* of five or less shall be permitted to have a landing on one side to be not more than 7 inches (178 mm) above or below the landing on the egress side of the door.

[BE] 1010.1.6 Thresholds. Thresholds at doorways shall not exceed $^3/_4$ inch (19.1 mm) in height above the finished floor or landing for sliding doors serving *dwelling units* or $^1/_2$ inch (12.7 mm) above the finished floor or landing for other doors. Raised thresholds and floor level changes ~~of level~~ greater than $^1/_4$ inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope).

Exceptions:

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to $7\,^3/_4$ inches (197 mm) in height if all of the following apply:
   1.1. The door is not part of the required *means of egress*.
   1.2. The door is not part of an *accessible route* as required by Chapter 11 of the International Building Code.
   1.3. The door is not part of an accessible unit, Type A unit or Type B unit.

2. In Type B units, where Exception 5 to Section 1010.1.4 permits a 4-inch (102 mm) elevation change at the door, the threshold height on the exterior side of the door shall not exceed $4^{3}/_{4}$ inches (120 mm) in height above the exterior deck, patio or balcony for sliding doors or $4^{1}/_{2}$ inches (114 mm) above the exterior deck, patio or balcony for other doors.

[BE] 1011.5.5.2 Nosing projection uniformity. Nosing projections shall be of uniform size, including the projections of the *nosings* of the landing at the top of a *flight*.

[BE] 1011.6 Stairway landings. There shall be a landing at the top and bottom of each ~~*stairway*~~ *flight* of stairs. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

[BE] 1011.8 Vertical rise. A *flight* of *stairs* shall not have a vertical rise greater than 12 feet (3658 mm) between landings.

Exception: *Spiral stairways* used as a *means of egress* from technical production areas.

[BE] 1011.14 Alternating tread devices. *Alternating tread devices* are limited to an element of a *means of egress* in buildings of Groups F, H and S from a *mezzanine* not more than 250 square feet (23 m^2) in area and that serves not more than five occupants; in buildings of Group I-3 from a guard tower, observation station or control room not more than 250 square feet (23 m^2) in area and for access to unoccupiable roofs. *Alternating tread devices* used as a *means of egress* shall not have a rise greater than 20 feet (6096 mm) between landings.

[BE] 1027.3 Open side. *Exterior exit stairways* and *ramps* serving as an element of a required *means of egress* shall be open on not less than one side, except for required structural columns, beams, *handrails* and *guards*. An open side shall have not less than 35 square feet (3.3 m^2) of aggregate open area adjacent to each floor level and the level of each intermediate landing. The required open area shall be located not less than 42 inches (1067 mm) above the adjacent floor or landing level.

Reason: Where the committee felt that the text deleted in sections 1010.4, 1010.6 and 1027.3 aided understanding this comment modifies the original proposal and returns the text maintaining these sections unchanged.

In accordance with the committees approval of E69-24 stairway has been replaced with "flight of stairs" and "floor or" remains deleted at 1011.6 Stairway landing and 1011.5.5.2 Nosing projection uniformity. In these locations a landing of specific size is required by the code. The code prescribes a specific area described by the width and depth requirements in 1011.6 that must meet other requirements such as headroom, slope, illumination. The landings and flights required from one level to another are defined as the components of a stairway with unique requirements that do not apply to floors. A floor has no limits of size nor is the slope of the walking surface regulated as is a landing. Allowing a floor to be substituted for the required landing offers a loophole to compliance, and confuses interpretation. Clearly distinguishing the landing from the remaining walking surface at a floor level will be of considerable consequence in relation to the illumination proposals approved at CAH1.

Also 1011.6 Stairway landings provides the specific requirements for the size of all stairway landings whether between flights within a stairway or at a floor level. E69-24 as approved at CAH1 is shown below:

1011.6 Stairway landings. There shall be a landing at the top and bottom of each flight of stairs. The **width of landings**, measured perpendicularly to the direction of travel of the flight served , shall be not less than the width of the flight served. Where there is a change in direction of the stairway at the landing, **the landing depth** shall be not less than the smallest width of the flights served. Where there is no change in direction of the stairway at the landing, the landing depth shall be 48 inches (1219 mm) minimum. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces. **<emphasis added>**

Clearly the problem is further exacerbated without a definition of landing as a portion of a walking surface. The landing must be understood to be a portion of the walking surface which may or may not be a floor at all as in the case of a sidewalk, driveway, etc. The definition of landing as a portion of the walking surface is essential to provide for consistent enforcement and interpretation of those requirements that are uniquely different from floors.
This comment addresses the committee's request for us to bring the definition back and retain the references to floor and finished floor where it had been deleted in sections related to doors. Please approve as modified by this comment.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a new definition and editorial changed needed to correlate with other ICC defined terminology. The changes have no material affect upon the cost of construction.

Comment (CAH2)# 86

E49-24

IBC: 1010.1.4, 1010.1.6; IFC: [BE] 1010.1.4, [BE] 1010.1.6

Proposed Change as Submitted

Proponents: Jennifer Hatfield, J. Hatfield & Associates, Fenestration & Glazing Industry Alliance (formerly AAMA) (jen@jhatfieldandassociates.com)

2024 International Building Code

Revise as follows:

1010.1.4 Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope). **Exceptions:**

1. At doors serving individual *dwelling units* or *sleeping units* in Groups R-2 and R-3, a door is permitted to open at the top step of an interior *flight* of stairs, provided that the door does not swing over the top step.
2. At exterior doors serving Groups F, H, R-2 and S and where such doors are not part of an *accessible route*, the landing at an exterior door shall not be more than 7 inches (178 mm) below the landing on the egress side of the door, provided that the door, other than an exterior storm or screen door, does not swing over the landing.
3. At exterior doors serving Group U and individual *dwelling units* and *sleeping units* in Groups R-2 and R-3, and where such units are not required to be *Accessible units*, *Type A units* or *Type B units*, the landing at an exterior doorway shall be not more than $7^3/_4$ inches (197 mm) below the landing on the egress side of the door. Such doors, including storm or screen doors, shall be permitted to swing over either landing.
4. Variations in elevation due to differences in finish materials, but not more than $^1/_2$ inch (12.7 mm).
5. Exterior decks, patios or balconies that are part of Type B dwelling units or sleeping units, that have impervious surfaces shall be permitted for the exterior surface to be ~~and that are~~ not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the dwelling unit or *sleeping unit*. or allowed at a height necessary to comply with the water resistance requirements of Section 1709.5, whichever is greater.
6. Doors serving equipment spaces not required to be *accessible* in accordance with Section 1103.2.9 and serving an *occupant load* of five or less shall be permitted to have a landing on one side to be not more than 7 inches (178 mm) above or below the landing on the egress side of the door.

1010.1.6 Thresholds. Thresholds at doorways shall not exceed $^3/_4$ inch (19.1 mm) in height above the finished floor or landing for sliding doors serving *dwelling units* or $^1/_2$ inch (12.7 mm) above the finished floor or landing for other doors. Raised thresholds and floor level changes greater than $^1/_4$ inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope). **Exceptions:**

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to $7^3/_4$ inches (197 mm) in height if all of the following apply:
   1.1. The door is not part of the required *means of egress*.
   1.2. The door is not part of an *accessible route* as required by Chapter 11.
   1.3. The door is not part of an *Accessible unit*, *Type A unit* or *Type B unit*.
2. In *Type B units*, where Exception 5 to Section 1010.1.4 permits a 4-inch (102 mm) elevation change at the door, the threshold height on the exterior side of the door shall not exceed 43/4 inches (120 mm) in height above the exterior deck, patio or balcony for sliding doors or 41/2 inches (114 mm) above the exterior deck, patio or balcony for other doors or allowed at a height necessary to comply with the water resistance requirements of Section 1709.5, whichever is greater.

2024 International Fire Code

Revise as follows:

[BE] 1010.1.4 Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope). **Exceptions:**

1. At doors serving individual *dwelling units* or *sleeping units* in Groups R-2 and R-3, a door is permitted to open at the top step of an interior *flight* of stairs, provided that the door does not swing over the top step.
2. At exterior doors serving Groups F, H, R-2 and S and where such doors are not part of an *accessible route*, the landing at an exterior door shall be not more than 7 inches (178 mm) below the landing on the egress side of the door, provided that the door, other than an exterior storm or screen door, does not swing over the landing.
3. At exterior doors serving Group U and individual *dwelling units* and *sleeping units* in Groups R-2 and R-3, and where such units are not required to be Accessible units, Type A units or Type B units, the landing at an exterior doorway shall be not more than $7^3/_4$ inches (197 mm) below the landing on the egress side of the door. Such doors, including storm or screen doors, shall be permitted to swing over either landing.
4. Variations in elevation due to differences in finish materials, but not more than $^1/_2$ inch (12.7 mm).
5. Exterior decks, patios or balconies that are part of Type B dwelling units or sleeping units, that have impervious surfaces shall be permitted for the exterior surface to be ~~and that are~~ not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the dwelling unit or *sleeping unit*. or allowed at a height necessary to comply with the water resistance requirements of Section 1709.5 of the *International Building Code*, whichever is greater.
6. Doors serving equipment spaces not required to be accessible in accordance with Section 1103.2.9 of the International Building Code and serving an *occupant load* of five or less shall be permitted to have a landing on one side to be not more than 7 inches (178 mm) above or below the landing on the egress side of the door.

[BE] 1010.1.6 Thresholds. Thresholds at doorways shall not exceed $^3/_4$ inch (19.1 mm) in height above the finished floor or landing for sliding doors serving *dwelling units* or $^1/_2$ inch (12.7 mm) above the finished floor or landing for other doors. Raised thresholds and floor level changes greater than $^1/_4$ inch (6.4 mm) at doorways shall be beveled with a slope not greater than 1 unit vertical in 2 units horizontal (50-percent slope). **Exceptions:**

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to $7^3/_4$ inches (197 mm) in height if all of the following apply:
   1.1. The door is not part of the required *means of egress*.
   1.2. The door is not part of an *accessible route* as required by Chapter 11 of the International Building Code.
   1.3. The door is not part of an accessible unit, Type A unit or Type B unit.
2. In *Type B units*, where Exception 5 to Section 1010.1.4 permits a 4-inch (102 mm) elevation change at the door, the threshold height on the exterior side of the door shall not exceed 43/4 inches (120 mm) in height above the exterior deck, patio or balcony for sliding doors or 41/2 inches (114 mm) above the exterior deck, patio or balcony for other doors or allowed at a height necessary to comply with the water resistance requirements of Section 1709.5 of the *International Building Code*, whichever is greater..

Reason: This proposal is intended to provide needed clarity in Section 1010.1.4 Exception 5 and Section 1010.1.6 Exception 2 for decks on Type B units, as it is confusing as currently written. The revised language simply clarifies that a higher door threshold may be allowed as required to meet the water testing requirements found in Section 1709.5 of the IBC.

This change is similar to the clarification made in the current Florida Building Code.

Bibliography: Section 1010.1.6 of the 2023 Florida Building Code, Building, Eighth Edition

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a clarification of allowances required for step downs and thresholds at decks when it comes to door thresholds and water testing requirements.

E49-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved. It is not clear on what the maximum height would be under Section 1709.5. How would this be evaluated, inspected or reviewed? This could be a conflict with ICC A117.1 and Fair Housing requirements. Hurricane and wind storm requirements are not applicable for all areas of the country like it is in Florida. (Vote: 14-0)

E49-24

Individual Consideration Agenda

Comment 1:

Proponents: Jennifer Hatfield, J. Hatfield & Associates, Fenestration & Glazing Industry Alliance (formerly AAMA) (jen@jhatfieldandassociates.com) requests As Submitted

Reason: Section 1709.5 of the IBC provides for water testing requirements, requiring the design pressure rating of exterior windows and door assemblies (including sliding glass doors) to comply with either the AAMA/WDMA/CSA 101/I.S.2/A440 (NAFS) or the ASTM E330 standard. At the same time, Sections 1010.1.4 and 1010.1.6 of both the IBC and IFC provide for a maximum 4 inch threshold at doorways. Based on both these existing code provisions, this proposal is first and foremost intended to simply better coordinate the provisions. Second, it would allow for a threshold over 4 inches only if the water testing requirements of Section 1709.5 call for it, which could possibly occur in a unique building design.

It was brought up at the Committee Action Hearings in Orlando that making this clarification could conflict with the Americans with Disability Act (ADA), Fair Housing Act (FHA) and ICC A117.1 requirements. The code provisions being coordinated address Type B dwelling units. Whereas the ADA Standard for Accessible Design addresses accessible units and applies to public accommodations. The Type B units are coordinated with the FHA Accessibility Guidelines.

The 4 inch threshold found in the IBC and IFC comes from the FHA, which did not consider the need for more than 4 inches to address water resistance. The United States Department of Housing and Urban Development (HUD) came up with the 4 inches in the late 1980s, prior to the weather changes that have occurred over the last few decades. The strength of storms and wind driven rain have not only increased but have also become an issue for states that have not previously been in the path of these types of weather systems. This is not just a concern in hurricane prone states such as Florida, as storms increasingly go farther into the northeast.

These weather changes have resulted in the need to design products for higher rain and winds than what was done decades ago, and the current provisions in the IBC provide for those water testing requirements. In most cases, the threshold would never go over 4 inches, but in rare cases where it might be necessary, it is imperative the property be properly protected from water damage. Worst case scenario would be 7 3/4 inches below the top of the threshold, as allowed for in Section R318.3.1 of the IRC. The FHA Design and Construction Requirements adopts the IBC as a safe harbor under the FHA. If this proposal were to be adopted it would allow ICC staff to further

discuss with HUD the technical justification for why, in limited applications, the allowance for greater than a 4 inch threshold may sometimes be needed to protect the owners and residents from possible water damage.

Lastly, we recognize that the ICC A117.1 addresses all four levels of accessibility, including Type B units. However, it is our understanding that anytime there is a conflict with a standard and the building code, the code requirements rule. In the rare instance where an over 4 inch threshold may be necessary, the IBC requirements would override the ICC A117.1 requirement found in section 1104.4.2. Further, this conflict could also be addressed in the A117.1, as it is currently being updated.

In summary, this proposal is intended to provide needed clarity and ensure better coordination between two existing I-code requirements. The revised language simply clarifies that if the water testing requirements of Section 1709.5 find that in some conditions the water column may go beyond the 4 inches, in that limited circumstance a higher door threshold may be allowed.

Bibliography: IBC, Section 1709.5

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Comment (CAH2)# 213

E50-24

IBC: 1010.2.1, 1010.2.4; IFC: [BE] 1010.2.1, [BE] 1010.2.4

Proposed Change as Submitted

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2024 International Building Code

Revise as follows:

1010.2.1 Unlatching. The unlatching of any door or leaf for egress shall require not more than one motion in a single linear or rotational direction to release all latching and all locking devices. locking devices. *Manual bolts* are not permitted. **Exceptions:**

1. Places of detention or restraint in Group I-3 occupancies.
2. Doors with *manual bolts*, *automatic flush bolts* and *constant latching bolts* as permitted by Section 1010.2.4, Item 4.
3. Doors from individual *dwelling units* and *sleeping units* of Group R occupancies as permitted by Section 1010.2.4, Item 5.

1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint in Group I-3 occupancies.
2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of *persons* receiving care require containment or where *persons* receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.
3. In *buildings* in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided that:
   3.1. The doors are the main exterior doors to the *building*, or the doors are the main doors to the tenant space.
   3.2. The locking device is readily distinguishable as locked.
   3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
   3.4. The use of the key-operated locking device is revocable by the *building official* for due cause.
4. *Manual bolts*, automatic flush bolts and *constant latching bolts* on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, *panic hardware*, or similar operating hardware.
5. Single exit doors complying with Section 1006.2.1 or 1006.3.4 from individual *dwelling* or *sleeping units* of Group R occupancies and equipped with a night latch, *dead bolt* or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.
6. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
7. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the *building* from the roof.

8. Other than egress *courts*, where occupants must egress from an exterior space through the *building* for *means of egress*, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:

    8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such signage shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.

    8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.

    8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

    8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.

    8.5. A readily visible, durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating, "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.

    8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.

9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling* or *sleeping units*.

10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less serving a private office space.

2024 International Fire Code

Revise as follows:

[BE] 1010.2.1 Unlatching. The unlatching of any door orleaf for egress shall require not more than one motion ina single linear or rotational direction to release all latching and all locking devices. locking devices. Manual bolts are not permitted. **Exceptions:**

1. Places of detention or restraint <u>in Group I-3 occupancies</u>.
2. Doors with manual bolts, automatic flush bolts and constant latching bolts as permitted by Section 1010.2.4, Item 4.
3. Doors from individual *dwelling units* and *sleeping units* of Group R occupancies as permitted by Section 1010.2.4, Item 5.

[BE] 1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint <u>in Group I-3 occupancies</u>.
2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of persons receiving care require containment or where persons receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.

3. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided that:

   3.1. The doors are the main exterior doors to the building, or the doors are the main doors to the tenant space.

   3.2. The locking device is readily distinguishable as locked.

   3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: "THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED." The sign shall be in letters 1 inch (25 mm) high on a contrasting background.

   3.4. The use of the key-operated locking device is revocable by the *fire code official* for due cause.

4. Manual bolts, automatic flush bolts and constant latching bolts on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, panic hardware, or similar operating hardware.

5. Single exit doors complying with Section 1006.2.1 or 1006.3.4 from individual *dwelling* or sleeping units of Group R occupancies and equipped with a night latch, dead bolt or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.

6. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed* fire door test procedures.

7. Doors serving roofs not intended to be occupied shall be permitted to be locked, preventing entry to the building from the roof.

8. Other than *egress courts*, where occupants must egress from an exterior space through the building for *means of egress*, *exit access* doors shall be permitted to be equipped with an *approved* locking device where installed and operated in accordance with all of the following:

   8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such sign shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.

   8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required *exit access* door on the exterior side.

   8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

   8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each *exit access* door to determine if there are occupants using the outdoor area.

   8.5. A readily visible durable sign shall be posted on the interior side on or adjacent to each locked required *exit access* door serving the exterior area stating: "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.

   8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.

9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling*or *sleeping units*.

10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less, serving a private office space.

Reason: The revisions of this proposal are intended to be editorial and to better communicate the intent of the code.
Our understanding is Exception 1 is intended to apply to Occupancy Group I-3, where security measures are not under the occupants' control.
In Occupancy Group I-3, the unlatching of a door would be expected to require more than on motion.
These are the only locations in the IBC and IFC where the phrase "detention or restraint" is used.
The specific needs for Groups I-1 and I-2 for health care clinical needs of care recipients are addressed in 1010.2.4 Item 2 (locks and latches), 1010.2.13.1 Item 6 exception (delayed egress locking systems), and 1010.2.14 Item 8 exception 1 (controlled egress locking systems).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Should not increase or decrease the cost of construction.
Code change proposal is editorial clarification of the intent of the code for places of detention and restraint.

E50-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: Places of detention or restraint are needed in many other occupancies other than just Group I-3. This includes police and courthouses with fewer than 6 occupants in the jail. Several other areas were identified in the testimony that should be allowed to use this section appropriately. This change does not address the issue of the schools misinterpreting this section for classrooms. (Vote: 14-0)

E50-24

Individual Consideration Agenda

Comment 1:

IBC: 1010.2.1, 1010.2.4; IFC: [BE] 1010.2.1, [BE] 1010.2.4

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com) requests As Modified by Committee (AMC2)

Further modify as follows:

2024 International Building Code

Revise as follows:

1010.2.1 Unlatching. The unlatching of any door or leaf for egress shall require not more than one motion in a single linear or rotational direction to release all latching and all locking devices. locking devices. *Manual bolts* are not permitted. **Exceptions:**

1. Places ~~of~~ designed and designated for occupant detention, ~~or~~ restraint , or containment ~~in Group I-3 occupancies~~.
2. Doors with *manual bolts*, *automatic flush bolts* and *constant latching bolts* as permitted by Section 1010.2.4, Item 4.
3. Doors from individual *dwelling units* and *sleeping units* of Group R occupancies as permitted by Section 1010.2.4, Item 5.

1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places ~~of~~ designed and designated for occupant detention, ~~or~~ restraint , or containment ~~in Group I-3 occupancies~~.

2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of *persons* receiving care require containment or where *persons* receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.
3. In *buildings* in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided that:
    3.1. The doors are the main exterior doors to the *building*, or the doors are the main doors to the tenant space.
    3.2. The locking device is readily distinguishable as locked.
    3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
    3.4. The use of the key-operated locking device is revocable by the *building official* for due cause.
4. *Manual bolts*, automatic flush bolts and *constant latching bolts* on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, *panic hardware*, or similar operating hardware.
5. Single exit doors complying with Section 1006.2.1 or 1006.3.4 from individual *dwelling* or *sleeping units* of Group R occupancies and equipped with a night latch, *dead bolt* or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.
6. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
7. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the *building* from the roof.
8. Other than egress *courts*, where occupants must egress from an exterior space through the *building* for *means of egress*, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:
    8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such signage shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.
    8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.
    8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.
    8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.
    8.5. A readily visible, durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating, "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.
    8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.
9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling* or *sleeping units*.
10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less serving a private office space.

2024 International Fire Code

Revise as follows:

[BE] 1010.2.1 Unlatching. The unlatching of any door orleaf for egress shall require not more than one motion ina single linear or rotational direction to release all latching and all locking devices. locking devices. Manual bolts are not permitted. **Exceptions:**

1. Places ~~of~~ designed and designated for occupant detention, ~~or~~ restraint , or containment ~~in Group I-3 occupancies~~.
2. Doors with manual bolts, automatic flush bolts and constant latching bolts as permitted by Section 1010.2.4, Item 4.
3. Doors from individual *dwelling units* and *sleeping units* of Group R occupancies as permitted by Section 1010.2.4, Item 5.

[BE] 1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places ~~of~~ designed and designated for occupant detention, ~~or~~ restraint , or containment ~~in Group I-3 occupancies~~.
2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of persons receiving care require containment or where persons receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.
3. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided that:
   3.1. The doors are the main exterior doors to the building, or the doors are the main doors to the tenant space.
   3.2. The locking device is readily distinguishable as locked.
   3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: “THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED.” The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
   3.4. The use of the key-operated locking device is revocable by the *fire code official* for due cause.
4. Manual bolts, automatic flush bolts and constant latching bolts on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, panic hardware, or similar operating hardware.
5. Single exit doors complying with Section 1006.2.1 or 1006.3.4 from individual *dwelling* or sleeping units of Group R occupancies and equipped with a night latch, dead bolt or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.
6. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed* fire door test procedures.
7. Doors serving roofs not intended to be occupied shall be permitted to be locked, preventing entry to the building from the roof.

8. Other than *egress courts*, where occupants must egress from an exterior space through the building for *means of egress*, *exit access* doors shall be permitted to be equipped with an *approved* locking device where installed and operated in accordance with all of the following:

   8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such sign shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.

   8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required *exit access* door on the exterior side.

   8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

   8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each *exit access* door to determine if there are occupants using the outdoor area.

   8.5. A readily visible durable sign shall be posted on the interior side on or adjacent to each locked required *exit access* door serving the exterior area stating: “THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED.” The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.

   8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.

9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling*or *sleeping units*.

10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less, serving a private office space.

Reason: During CAH #1, there was significant testimony in opposition to the original proposal. The revisions proposed here are intended to address the concerns raised during CAH #1, and to address the issue of schools misinterpreting this exception regarding classrooms.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Code change proposal is editorial clarification of the intent of the code.

Comment (CAH2)# 657

E53-24

IBC: [BE] 403.5.3, [BE] 403.5.3.1, 1010.2.4, 1010.2.6; IFC: [BE] 1010.2.4, [BE] 1010.2.6

Proposed Change as Submitted

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2024 International Building Code

Revise as follows:

[BE] 403.5.3 Stairway door operation. *Stairway* doors ~~other than the exit discharge doors~~ shall be permitted to be locked to prevent passage from the *stairway* ~~side~~ into the building. *Stairway* doors that are locked to prevent passage from the *stairway* ~~side~~ into the building shall be capable of being unlocked without unlatching where any of the following conditions occur:

1. Individually or simultaneously upon a signal from the *fire command center*.
2. Simultaneously upon activation of a *fire alarm signal* in an area served by the *stairway*.
3. Upon failure of the power supply to the lock or the locking system.

[BE] 403.5.3.1 Stairway communication system. A telephone or other two-way communications system connected to an *approved constantly attended station* shall be provided at not less than every fifth floor in each *stairway* where the ~~doors to the~~ *stairway* doors are locked to prevent passage from the stairway into the building. Systems shall be *listed* in accordance with UL 2525 and installed in accordance with NFPA 72.

1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of *persons* receiving care require containment or where *persons* receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.
3. In *buildings* in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices ~~from the~~ which, when locked, prevent egress ~~side~~ provided that:
   3.1. The doors are the main exterior doors to the *building*, or the doors are the main doors to the tenant space.
   3.2. The locking device is readily distinguishable as locked.
   3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
   3.4. The use of the key-operated locking device is revocable by the *building official* for due cause.
4. *Manual bolts*, automatic flush bolts and *constant latching bolts* on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, *panic hardware*, or similar operating hardware.
5. Single exit doors complying with Section 1006.2.1 or 1006.3.4 from individual *dwelling* or *sleeping units* of Group R occupancies and equipped with a night latch, *dead bolt* or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.

6. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
7. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the *building* from the roof.
8. Other than egress *courts*, where occupants must egress from an exterior space through the *building* for *means of egress*, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:
   8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such signage shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.
   8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.
   8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.
   8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.
   8.5. A readily visible, durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating, "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.
   8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.
9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling* or *sleeping units*.
10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less serving a private office space.

1010.2.6 Stairway doors~~~~ operation. ~~Interior *stairway*~~ *Stairway* doors in the *means of egress* ~~doors~~ shall be openable from both sides without the use of a key or special knowledge or effort. **Exceptions:**

1. *Stairway* discharge doors shall be openable from the egress side and shall ~~only be locked from the opposite side~~ be permitted to be locked to prevent passage into the stairway through the stairway discharge door.
2. ~~This section shall not apply to~~ *Stairway* doors arranged in accordance with Section 403.5.3 shall be permitted to be locked to prevent passage from the stairway into the building.
3. *Stairway* ~~exit~~ doors shall not be locked ~~from the side opposite the egress side,~~ to prevent passage from the stairway into the building unless they are openable from the egress side and capable of being unlocked ~~simultaneously~~ without unlatching by any of the following methods:
   3.1. Shall be capable of being unlocked individually or simultaneously upon a signal from the *fire command center*, where present, or a signal by emergency personnel from a single location inside the main entrance to the *building*.
   3.2. Shall unlock simultaneously upon activation of a *fire alarm signal* when a fire alarm system is present in an area served by the stairway.
   3.3. Shall unlock upon failure of the power supply to the electric lock or the locking system.
4. *Stairway* ~~*exit*~~ doors shall be openable from the egress side and shall only be locked ~~from the opposite side~~ to prevent passage from the stairway into the building in Group B, F, M and S occupancies where the only interior access to the tenant space is from a single *exit stairway* where permitted in Section 1006.3.4.
5. *Stairway* ~~exit~~ doors shall be openable from the egress side and shall only be locked ~~from the opposite side~~ to prevent passage from the stairway into the building in Group R-2 occupancies where the only interior access to the *dwelling unit* is from a single exit *stairway* where permitted in Section 1006.3.4.

2024 International Fire Code

Revise as follows:

[BE] 1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of persons receiving care require containment or where persons receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.
3. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices ~~from the~~ which, when locked, prevent egress ~~side~~ provided that:
   3.1. The doors are the main exterior doors to the building, or the doors are the main doors to the tenant space.
   3.2. The locking device is readily distinguishable as locked.
   3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: "THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED." The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
   3.4. The use of the key-operated locking device is revocable by the *fire code official* for due cause.
4. Manual bolts, automatic flush bolts and constant latching bolts on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, panic hardware, or similar operating hardware.
5. Single exit doors complying with Section 1006.2.1 or 1006.3.4 from individual *dwelling* or sleeping units of Group R occupancies and equipped with a night latch, dead bolt or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.
6. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed* fire door test procedures.
7. Doors serving roofs not intended to be occupied shall be permitted to be locked, preventing entry to the building from the roof.
8. Other than *egress courts*, where occupants must egress from an exterior space through the building for *means of egress*, *exit access* doors shall be permitted to be equipped with an *approved* locking device where installed and operated in accordance with all of the following:
   8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such sign shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.
   8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required *exit access* door on the exterior side.
   8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.
   8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each *exit access* door to determine if there are occupants using the outdoor area.
   8.5. A readily visible durable sign shall be posted on the interior side on or adjacent to each locked required *exit access* door serving the exterior area stating: "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.
   8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.
9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling* or *sleeping units*.

10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less, serving a private office space.

[BE] 1010.2.6 Stairway doors operation. ~~Interior *stairway*~~ *Stairway* doors in the *means of egress* ~~doors~~ shall be openable from both sides without the use of a key or special knowledge or effort. **Exceptions:**

1. *Stairway* discharge doors shall be openable from the egress side and shall ~~only be locked from the opposite side~~ be permitted to be locked to prevent passage into the stairway through the stairway discharge door.
2. ~~This section shall not apply to~~ *Stairway* doors arranged in accordance with Section 403.5.3 of the International Building Code shall be permitted to be locked to prevent passage from the stairway into the building.
3. *Stairway* ~~exit~~ doors shall not be locked ~~from the side opposite the egress side,~~ to prevent passage from the stairway into the building unless they are openable from the egress side and capable of being unlocked ~~simultaneously~~ without unlatching by any of the following methods:
   3.1. Shall be capable of being unlocked individually or simultaneously upon a signal from the *fire command center*, where present, or a signal by emergency personnel from a single location inside the main entrance to the building.
   3.2. Shall unlock simultaneously upon activation of a fire alarm signal when a *fire alarm system* is present in an area served by the stairway.
   3.3. Shall unlock upon failure of the power supply to the electric lock or the locking system.
4. *Stairway* ~~*exit*~~ doors shall be openable from the egress side and shall only be locked ~~from the opposite side~~ to prevent passage from the stairway into the building in Group B, F, M and S occupancies where the only interior access to the tenant space is from a single *exit stairway* where permitted in Section 1006.3.4.
5. *Stairway* ~~exit~~ doors shall be openable from the egress side and shall only be locked ~~from the opposite side~~ to prevent passage from the stairway into the building in Group R-2 occupancies where the only interior access to the *dwelling unit* is from a single exit stairway where permitted in Section 1006.3.4.

Reason: Reviewing these sections of the IBC with a critical eye identifies several opportunities for editorial improvements.

In several sections there's language that permits stairway doors, where they comply with specified conditions, to be locked preventing passage from the stairway into the building or structure. But, the language used in the code is less clear than the language used in the 1st sentence of this paragraph of this reason statement. Several edits reflect the language of the 1st sentence of this paragraph.

Section 403.5.3 is all about provisions permitting locking of stairway doors in high-rise buildings limiting passage from the stairway into the building. In these provisions, there's not a need to address stairway exit discharge doors as stairway exit discharge doors are addressed in 1010.2.6 Exception 1. Section 403.5.3 is edited appropriately.

In sections 403.5.2 and 1010.2.6, the terms "stairway doors" and "stairway exit doors" are used to describe the same doors. It appears that "stairway doors" may be the better term to use when the code is addressing doors to / from stairways where the doors are in the means of egress (if the stairway doors are not in the means of egress, the code provisions most likely would not apply). Also, these provisions regarding stairway doors should be applicable to doors in interior exit stairways and to doors in exterior exit stairways. Edits are made in 403.5.2 and 1010.2.6.

The language of Exception 1 and 2 to Section 1010.2.6, as currently in the IBC, essentially exempt stairway discharge doors (Exception 1) and stairway doors complying with 403.5.3 (Exception 2) from the requirements in 1010.2.6 to be openable without the use of a key, special knowledge, or effort. That's not the intent of the code. These two exceptions are edited to more accurately describe the intent and scope of the exceptions.

In Exception 3 of Section 1010.2.6, the word "simultaneously" is redundant with the requirements in Items 3.1 and 3.2, and not appropriate if applied to Item 3.3. Thus "simultaneously" is deleted in Item 3 of 1010.2.6.

Exceptions 4 and 5 of Section 1010.2.6 are editorially revised to more clearly describe the intent of the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal is not expected to increase or decrease the cost of construction.

The revisions are intended to be editorial improvements to the existing requirements of the code for stairways where the door can be locked.

E53-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The concept is good, but there appears to be a conflict with the change in Section 403.5.3.1 with the exit discharge section in Section 1028. The proposed text could allow for the door at the stairway door discharging into the lobby to be locked. (Vote: 14-0)

E53-24

Individual Consideration Agenda

Comment 1:

IBC: [BE] 403.5.3, 1010.2.6; IFC: [BE] 1010.2.6

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com) requests As Modified by Committee (AMC2)

Further modify as follows:

2024 International Building Code

Revise as follows:

[BE] 403.5.3 Stairway door operation. *Stairway* doors, other than exit discharge doors, shall be permitted to be locked to prevent passage from the *stairway* into the building. *Stairway* doors that are locked to prevent passage from the *stairway* into the building shall be capable of being unlocked without unlatching where any of the following conditions occur:

1. Individually or simultaneously upon a signal from the *fire command center*.
2. Simultaneously upon activation of a *fire alarm signal* in an area served by the *stairway*.
3. Upon failure of the power supply to the lock or the locking system.

1010.2.6 Stairway door operation. *Stairway* doors in the *means of egress* shall be openable from both sides without the use of a key or special knowledge or effort. **Exceptions:**

1. *Stairway* discharge doors shall be openable from the egress side and shall be permitted to be locked to prevent passage into the stairway through the stairway discharge door.

2. *Stairway* doors arranged in accordance with Section 403.5.3, other than exit discharge doors, shall be permitted to be locked to prevent passage from the stairway into the building.
3. *Stairway* doors shall not be locked to prevent passage from the stairway into the building unless they are openable from the egress side and capable of being unlocked without unlatching by any of the following methods:
   3.1. Shall be capable of being unlocked individually or simultaneously upon a signal from the *fire command center*, where present, or a signal by emergency personnel from a single location inside the main entrance to the *building*.
   3.2. Shall unlock simultaneously upon activation of a *fire alarm signal* when a fire alarm system is present in an area served by the stairway.
   3.3. Shall unlock upon failure of the power supply to the electric lock or the locking system.
4. *Stairway* doors shall be openable from the egress side and shall only be locked to prevent passage from the stairway into the building in Group B, F, M and S occupancies where the only interior access to the tenant space is from a single *exit stairway* where permitted in Section 1006.3.4.
5. *Stairway* doors shall be openable from the egress side and shall only be locked to prevent passage from the stairway into the building in Group R-2 occupancies where the only interior access to the *dwelling unit* is from a single exit *stairway* where permitted in Section 1006.3.4.

2024 International Fire Code

Revise as follows:

[BE] 1010.2.6 Stairway door operation. *Stairway* doors in the *means of egress* shall be openable from both sides without the use of a key or special knowledge or effort. **Exceptions:**

1. *Stairway* discharge doors shall be openable from the egress side and shall be permitted to be locked to prevent passage into the stairway through the stairway discharge door.
2. *Stairway* doors arranged in accordance with Section 403.5.3 of the International Building Code, other than exit discharge doors, shall be permitted to be locked to prevent passage from the stairway into the building.
3. *Stairway* doors shall not be locked to prevent passage from the stairway into the building unless they are openable from the egress side and capable of being unlocked without unlatching by any of the following methods:
   3.1. Shall be capable of being unlocked individually or simultaneously upon a signal from the *fire command center*, where present, or a signal by emergency personnel from a single location inside the main entrance to the building.
   3.2. Shall unlock simultaneously upon activation of a fire alarm signal when a *fire alarm system* is present in an area served by the stairway.
   3.3. Shall unlock upon failure of the power supply to the electric lock or the locking system.
4. *Stairway* doors shall be openable from the egress side and shall only be locked to prevent passage from the stairway into the building in Group B, F, M and S occupancies where the only interior access to the tenant space is from a single *exit stairway* where permitted in Section 1006.3.4.
5. *Stairway* doors shall be openable from the egress side and shall only be locked to prevent passage from the stairway into the building in Group R-2 occupancies where the only interior access to the *dwelling unit* is from a single exit stairway where permitted in Section 1006.3.4.

Reason: The proposal, as submitted, inadvertently affected stairway exit discharge doors, as addressed by the provisions in Section 1028. This comment replaces language deleted in 403.5.3 (with minor edits), and inserts similar language in Exception 3 of 1010.2.6 for consistency with 403.5.3.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The revisions are intended to be editorial improvements to the existing requirements of the code.

Comment (CAH2)# 670

E54-24

IBC: 1010.2.4; IFC: [BE] 1010.2.4

Proposed Change as Submitted

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2024 International Building Code

Revise as follows:

1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of *persons* receiving care require containment or where *persons* receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.
3. In *buildings* in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided that:
   3.1. The doors are the main exterior doors to the *building*, or the doors are the main doors to the tenant space.
   3.2. The locking device is readily distinguishable as locked.
   3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
   3.4. The use of the key-operated locking device is revocable by the *building official* for due cause.
4. *Manual bolts*, automatic flush bolts and *constant latching bolts* on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, *panic hardware*, or similar operating hardware.
5. ~~Single exit doors complying with Section 1006.2.1 or 1006.3.4 from individual *dwelling* or *sleeping units* of Group R occupancies and~~ Doors complying with any of the following are permitted to be equipped with a night latch, *dead bolt* or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.
   5.1. Doors from individual Group R *dwelling* or *sleeping units* where a single *exit* complies with Section 1006.2.1 or 1006.3.4.
   5.2 Doors from individual sleeping rooms within *sleeping units* of *congregate living facilities* of Group R-2 and Group R-3 occupancies.
   5.3 Doors from individual sleeping rooms of *dwelling units* of Group R-2 occupancies serving as college or university residence halls.
6. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
7. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the *building* from the roof.

8. Other than egress *courts*, where occupants must egress from an exterior space through the *building* for *means of egress*, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:

   8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such signage shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.

   8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.

   8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

   8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.

   8.5. A readily visible, durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating, "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.

   8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.

9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling* or *sleeping units*.

10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less serving a private office space.

2024 International Fire Code

Revise as follows:

[BE] 1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of persons receiving care require containment or where persons receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.
3. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided that:

   3.1. The doors are the main exterior doors to the building, or the doors are the main doors to the tenant space.

   3.2. The locking device is readily distinguishable as locked.

   3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: “THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED.” The sign shall be in letters 1 inch (25 mm) high on a contrasting background.

   3.4. The use of the key-operated locking device is revocable by the *fire code official* for due cause.

4. Manual bolts, automatic flush bolts and constant latching bolts on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, panic hardware, or similar operating hardware.

5. ~~Single exit doors complying with Section 1006.2.1 or 1006.3.4 from individual *dwelling* or sleeping units of Group R occupancies and~~ Doors complying with any of the following are permitted to be equipped with a night latch, dead bolt or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.

   5.1. Doors from individual Group R *dwelling* or *sleeping units* where a single *exit* complies with Section 1006.2.1 or 1006.3.4.

   5.2 Doors from individual sleeping rooms within *sleeping units* of *congregate living facilities* of Group R-2 and Group R-3 occupancies.

   5.3 Doors from individual sleeping rooms of *dwelling units* of Group R-2 occupancies serving as college or university residence halls.

6. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed* fire door test procedures.
7. Doors serving roofs not intended to be occupied shall be permitted to be locked, preventing entry to the building from the roof.
8. Other than *egress courts*, where occupants must egress from an exterior space through the building for *means of egress*, *exit access* doors shall be permitted to be equipped with an *approved* locking device where installed and operated in accordance with all of the following:

   8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such sign shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.

   8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required *exit access* door on the exterior side.

   8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

   8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each *exit access* door to determine if there are occupants using the outdoor area.

   8.5. A readily visible durable sign shall be posted on the interior side on or adjacent to each locked required *exit access* door serving the exterior area stating: “THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED.” The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.

   8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.

9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling*or *sleeping units*.
10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less, serving a private office space.

Reason: This code proposal is about permitting locking of doors to individual sleeping rooms on Group R-2 occupancies similar to what’s permitted regarding locking of doors of hotel rooms (i.e. *sleeping units*) and college / university *dormitory* rooms (i.e. *sleeping units*).

Some college and university *dormitories* and residence halls are designed and constructed with suite-style layouts. The residence halls at Upstate University of South Carolina are one example: www.uscupstate.edu/campus-life/housing-and-dining/housing-floor-plans/.

Another example is Clarkson College residence hall: www.clarksoncollege.edu/student-life/residence-life/floor-plan-layout/index. But, do note the layout of the Clarkson College residence hall suites include permanent provisions for living, sleeping, eating, cooking, and sanitation, which means these suites would be considered *dwelling units,* per the IBC definition of *dwelling units*, and the buildings would be R-2 apartment houses. Thus, these suites would not be *congregate living facilities* (because *congregate living facilities* have *sleeping units*, but not *dwelling units*, per the IBC definition of *congregate living facilities*), and additionally, buildings containing these suites would not be a *dormitories* (because *dormitories* are a subset of *congregate living facilities*, per IBC Section 310.3).

The IBC currently permits dead bolts on the door into residence hall suites in the same manner as doors into *dwelling units* – see IBC Section 1010.2.4 Item 5. Considering the occupants of these residence hall suites are unlikely to be of the same family group (see the IBC definition of *dormitory*), there's a desire by the occupants to be able to enhance the security of their individual sleeping rooms. But, the IBC does not permit dead bolts on doors into each of the sleeping rooms of these residence hall suites.

This proposal was initially conceived as applicable only to Group R-2 *dormitories*; but perhaps the proposed revisions should be applicable to (permitted for) the individual sleeping rooms of all Group R-2 and Group R-3 *congregate living facilities* (as proposed here). *Congregate living facilities* include *boarding houses*, convents, *dormitories*, fraternities and sororities, and monasteries. In all of these uses, the occupants of the sleeping rooms would be primarily adults, are unlikely to be of the same family group, and the person that locks the door for security would be able to quickly unlock the door for egress.

Item 5.1 is moved from the Item 5 and editorially revised.

Item 5.2 applies to the individual sleeping rooms within the *sleeping units* of nontransient *congregate living facilities* of Group R-2, and applies to the sleeping units of nontransient and *transient congregate living facilities* of Group R-3.

Item 5.3 applies to the individual sleeping rooms of *dwelling units* in college and university residence halls.

2024 IBC Definitions (for information only):

[BG] BOARDING HOUSE. A building arranged or used for lodging for compensation, with or without meals, and not occupied as a single-family unit.

[BG] CONGREGATE LIVING FACILITIES. A building or part thereof that contains sleeping units where residents share bathroom or kitchen facilities, or both.

[BG] DORMITORY. A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses.

[A] DWELLING. A building that contains one or two dwelling units used, intended or designed to be used, rented, leased, let or hired out to be occupied for living purposes.

[A] DWELLING UNIT. A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

[A] SLEEPING UNIT. A single unit that provides rooms or spaces for one or more persons, includes permanent provisions for sleeping and can include provisions for living, eating and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not sleeping units.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost changes.
This proposal permits, but does not require, the use of locking devices in these Group R applications.

E54-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: You could do a single action lock set on the bedroom to get the security you needed. There is a concern if there could be one of these on the bedroom and a second set on the unit door - there should not be two in a row. (Vote: 12-2)

E54-24

Individual Consideration Agenda

Comment 1:

IBC: 1010.2.1, 1010.2.4; IFC: [BE] 1010.2.1, [BE] 1010.2.4

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com) requests As Modified by Committee (AMC2)

Further modify as follows:

2024 International Building Code

Revise as follows:

1010.2.1 Unlatching. The unlatching of any door or leaf for egress shall require not more than one motion in a single linear or rotational direction to release all latching and all locking devices. locking devices. *Manual bolts* are not permitted. **Exceptions:**

1. Places of detention or restraint.
2. Doors with *manual bolts*, *automatic flush bolts* and *constant latching bolts* as permitted by Section 1010.2.4, Item 4.
3. Doors from individual *dwelling units*, ~~and~~ *sleeping units*, and sleeping rooms of Group R occupancies as permitted by Section 1010.2.4, Item 5.

1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of *persons* receiving care require containment or where *persons* receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.
3. In *buildings* in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided that:
   3.1. The doors are the main exterior doors to the *building*, or the doors are the main doors to the tenant space.
   3.2. The locking device is readily distinguishable as locked.
   3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
   3.4. The use of the key-operated locking device is revocable by the *building official* for due cause.
4. *Manual bolts*, automatic flush bolts and *constant latching bolts* on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, *panic hardware*, or similar operating hardware.

5. Doors complying with any of the following are permitted to be equipped with a night latch, *dead bolt* or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.

   5.1. Doors from individual Group R *dwelling* or *sleeping units* where a single *exit* complies with Section 1006.2.1 or 1006.3.4.

   5.2 Doors from individual sleeping rooms within *sleeping units* of *congregate living facilities* of Group R-2 and Group R-3 occupancies provided the doors from the *sleeping units* require not more than one motion for egress.

   5.3 Doors from individual sleeping rooms ~~of~~ within *dwelling units* of Group R-2 occupancies serving as college or university ~~residence halls~~ student housing provided the doors from the *dwelling units* require not more than one motion for egress.

6. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
7. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the *building* from the roof.
8. Other than egress *courts*, where occupants must egress from an exterior space through the *building* for *means of egress*, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:

   8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such signage shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.

   8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.

   8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

   8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.

   8.5. A readily visible, durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating, "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.

   8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.

9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling* or *sleeping units*.
10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less serving a private office space.

2024 International Fire Code

Revise as follows:

[BE] 1010.2.1 Unlatching. The unlatching of any door orleaf for egress shall require not more than one motion ina single linear or rotational direction to release all latching and all locking devices. locking devices. Manual bolts are not permitted. **Exceptions:**

1. Places of detention or restraint.
2. Doors with manual bolts, automatic flush bolts and constant latching bolts as permitted by Section 1010.2.4, Item 4.
3. Doors from individual *dwelling units*, ~~and~~ *sleeping units*, and sleeping rooms of Group R occupancies as permitted by Section 1010.2.4, Item 5.

[BE] 1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.

2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of persons receiving care require containment or where persons receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.

3. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided that:

   3.1. The doors are the main exterior doors to the building, or the doors are the main doors to the tenant space.

   3.2. The locking device is readily distinguishable as locked.

   3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: "THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED." The sign shall be in letters 1 inch (25 mm) high on a contrasting background.

   3.4. The use of the key-operated locking device is revocable by the *fire code official* for due cause.

4. Manual bolts, automatic flush bolts and constant latching bolts on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, panic hardware, or similar operating hardware.

5. Doors complying with any of the following are permitted to be equipped with a night latch, dead bolt or security chain that requires a second releasing motion, provided that such devices are openable from the inside without the use of a key or tool.

   5.1. Doors from individual Group R *dwelling* or *sleeping units* where a single *exit* complies with Section 1006.2.1 or 1006.3.4.

   5.2 Doors from individual sleeping rooms within *sleeping units* of *congregate living facilities* of Group R-2 and Group R-3 occupancies provided the doors from the *sleeping units* require not more than one motion for egress.

   5.3 Doors from individual sleeping rooms ~~of~~ within *dwelling units* of Group R-2 occupancies serving as college or university ~~residence halls~~ student housing provided the doors from the *dwelling units* require not more than one motion for egress.

6. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed* fire door test procedures.

7. Doors serving roofs not intended to be occupied shall be permitted to be locked, preventing entry to the building from the roof.

8. Other than *egress courts*, where occupants must egress from an exterior space through the building for *means of egress*, *exit access* doors shall be permitted to be equipped with an *approved* locking device where installed and operated in accordance with all of the following:

   8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such sign shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the *exit access doorways*.

   8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required *exit access* door on the exterior side.

   8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

   8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each *exit access* door to determine if there are occupants using the outdoor area.

   8.5. A readily visible durable sign shall be posted on the interior side on or adjacent to each locked required *exit access* door serving the exterior area stating: "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.

   8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.

9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual *dwelling*or *sleeping units*.

10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less, serving a private office space.

Reason: The modifications are intended to address committee comments.

The revisions in 5.2 and 5.3 address the concern the original proposal would permit up to two doors in the means of egress with where each door would be permitted to have locking systems with two releasing motions for egress.

Also, Item 5.3 was revised to “student housing” to be inclusive of student housing in addition to residence halls (i.e. dormitories).

And, the revisions proposed in Exception 3 of 1010.2.1 are to synchronize this exception with the revisions proposed in Item 5 of 1010.2.4.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal permits, but does not require, the use of locking devices in these applications

Comment (CAH2)# 673

E59-24

IBC: 1010.2.8.2, 1010.2.8.2.1 (New); IFC: [BE] 1010.2.8.2, 1010.2.8.2.1 (New)

Proposed Change as Submitted

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2024 International Building Code

Delete and substitute as follows:

~~**1010.2.8.2 Rooms with electrical equipment.** Exit or exit access doors serving transformer vaults, rooms designated for batteries or energy storage systems, or modular *data centers* shall be equipped with *panic hardware* or *fire exit hardware*. Rooms containing electrical equipment rated 800 amperes or more that contain overcurrent devices, switching devices or control devices and where the exit or exit access door is less than 25 feet (7620 mm) from the equipment working space as required by NFPA 70, such doors shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.~~

1010.2.8.2 Rooms with electrical equipment. Where an electrical equipment room, enclosure, or vault meets one or more of the following criteria, exit doors or exit access doors shall comply with Section 1010.2.8.2.1.

1. Room, enclosure, or vault for electrical equipment of 1000 volts, nominal, or less and rated 800 amperes or more that contain overcurrent devices, switching devices, or control devices and where the exit door or exit access door is less than 25 feet (7620 mm) from the equipment working space as required by NFPA 70.
2. Vault for electrical equipment of over 1000 volts, nominal.
3. Room or enclosure for electrical equipment of over 1000 volts, nominal, and where the exit door or exit access door is less than 25 feet (7620 mm) from the equipment working space as required by NFPA 70.
4. Transformer vault.
5. Room, enclosure, or vault for batteries or energy storage systems having a capacity greater than 1 kWh (3.6MJ).
6. Modular data center.

Add new text as follows:

1010.2.8.2.1 Electrical equipment room doors. Exit doors and exit access doors of such electrical room, enclosure, or vault shall swing in the direction of egress travel, and locks and latches on the doors shall be provided with panic hardware or fire exit hardware.

2024 International Fire Code

Delete and substitute as follows:

~~**[BE] 1010.2.8.2 Rooms with electrical equipment .** *Exit* or *exit access* doors serving transformer vaults, rooms designated for batteries or energy storage systems, or modular *data centers* shall be equipped with *panic hardware* or *fire exit hardware*. Rooms containing electrical equipment rated 800 amperes or more that contain overcurrent devices, switching devices or control devices and where the *exit* or *exit access* door is less than 25 feet (7620 mm) from the equipment working space as required by NFPA 70, such doors shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.~~

[BE] 1010.2.8.2 Rooms with electrical equipment . Where an electrical equipment room, enclosure, or vault meets one or more of the following criteria, exit doors or exit access doors shall comply with Section 1010.2.8.2.1.

1. Room, enclosure, or vault for electrical equipment of 1000 volts, nominal, or less and rated 800 amperes or more that contain overcurrent devices, switching devices, or control devices and where the exit door or exit access door is less than 25 feet (7620 mm) from the equipment working space as required by NFPA 70.
2. Vault for electrical equipment of over 1000 volts, nominal.
3. Room or enclosure for electrical equipment of over 1000 volts, nominal, and where the exit door or exit access door is less than 25 feet (7620 mm) from the equipment working space as required by NFPA 70.
4. Transformer vault.
5. Room, enclosure, or vault for batteries or energy storage systems having a capacity greater than 1 kWh (3.6MJ).
6. Modular data center.

Add new text as follows:

1010.2.8.2.1 Electrical equipment room doors. Exit doors and exit access doors of such electrical room, enclosure, or vault shall swing in the direction of egress travel, and locks and latches on the doors shall be provided with panic hardware or fire exit hardware.

Reason: This proposal is intended to be editorial and to more closely mesh with the requirements in NFPA 70 National Electrical Code. The IBC, in Chapter 27, requires compliance with NFPA 70. The current text in Section 1010.2.8.2 closely follows requirements in NFPA 70 regarding panic hardware and fire exit hardware, but the revised text more closely follows the requirements in NFPA 70, making it easier to understand what's required to comply with NFPA 70.

The charging language of 1010.2.8.2 is primarily the existing language in 1010.2.8.2 with editing to more closely mesh with terms used in NFPA 70. For example, electrical enclosures of wire fence-like material surrounding electrical equipment may not be considered an electrical equipment room – hence the proposed revisions to electrical equipment room, enclosure, or vault.

The criteria in Items 1 through 6 are from current requirements in 1010.2.8.2 and augmented by requirements in these sections of NFPA 70:

1. 110.26(C)(3) – electrical equipment rooms, enclosures, or vaults for 1000 volts or less
2. 110.31(A)(4) – electrical equipment vaults for more than 1000 volts
3. 110.33(A)(3) – electrical equipment rooms or enclosures for more than 1000 volts
4. 450.43(C) – transformer vaults
5. 480.1 and 480.10(E) – batteries and energy storage systems
6. 646.19 – modular data centers

Also, these six criteria were separated into items for easier correlation to NFPA 70 requirements.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal should result in no cost increase or decrease. The IBC requires compliance to the NEC, and the proposed revisions are intended for ease of understanding this aspect of NEC requirements.

E59-24

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: This clarifies the requirements for electrical equipment rooms and coordinates with NFPA 70. (Vote 14-0)

E59-24

Individual Consideration Agenda

Comment 1:

IBC: 1010.2.8.2.1; IFC: 1010.2.8.2.1

Proponents: Micah Chappell, Seattle Department of Construction and Inspections, Seattle Department of Construction and Inspections (micah.chappell@seattle.gov); Ken Brouillette, Seattle Fire Department, Seattle Fire Department (ken.brouillette@seattle.gov) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Revise as follows:

1010.2.8.2.1 Electrical equipment room doors. Exit doors and exit access doors of such electrical room, enclosure, or vault shall swing in the direction of egress travel, and locks and latches on the doors shall be provided with panic hardware or fire exit hardware.

Exception: Room, enclosure, or vault in Group R-3 or R-4 occupancies containing ESS that comply with Section 1207.11 of the *International Fire Code*.

2024 International Fire Code

Revise as follows:

1010.2.8.2.1 Electrical equipment room doors. Exit doors and exit access doors of such electrical room, enclosure, or vault shall swing in the direction of egress travel, and locks and latches on the doors shall be provided with panic hardware or fire exit hardware.

Exception: Room, enclosure, or vault in Group R-3 or R-4 occupancies containing ESS that comply with Section 1207.11.

Reason: We believe this added exception captures the intent of the original proposal and IFC Section 1207.11 that guides the installation of ESS in Group R-3 and R-4 occupancies. This exception would specify that panic hardware would not be required for exit doors or exit access doors from areas of Group R-3 and R-4 occupancies that contain energy storage systems that comply with the appropriate section of the IFC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This modification would clarify that panic hardware is not required for areas in R-3 and R-4 occupancies that have ESS installed in compliance with 1207.11 of the Fire Code.

Comment (CAH2)# 626

E60-24

IBC: 1010.2.12.1; IFC: [BE] 1010.2.12.1

Proposed Change as Submitted

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2024 International Building Code

Revise as follows:

1010.2.12.1 Delayed egress locking system. The delayed egress electrical locking system shall be installed and operated in accordance with all of the following:

1. The delay of the delayed egress electrical locking system shall deactivate upon actuation of the *automatic sprinkler system* or *automatic fire detection system*, allowing immediate free egress.
2. The delay of the delayed egress electrical locking system shall deactivate upon loss of power to the electrical locking system or electrical lock, allowing immediate free egress.
3. The delay of the delayed egress locking electrical system shall have the capability of being deactivated at the *fire command center* and other *approved* locations.
4. ~~An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when~~ When a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds, an irreversible process shall be initiated that allows such egress in not more than 15 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. ~~Once the delay has been deactivated, rearming~~ Rearming the delay electronics shall be by manual means only. **Exception:** Where *approved*, a delay of not more than 30 seconds is permitted on a door with a delayed egress ~~door~~ locking system.
5. The egress path from any point shall not pass through more than one delayed egress locking system. **Exceptions:**
    1. In Group I-1, Condition 2, Group I-2 or I-3 occupancies, the egress path from any point in the *building* shall pass through not more than two delayed egress locking systems provided that the combined delay does not exceed 30 seconds.
    2. In Group I-1, Condition 1 or Group I-4 occupancies, the egress path from any point in the *building* shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds and the *building* is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
    3. The egress path from any point in the building shall be permitted to pass a second delayed egress locking systems where the irreversible process of the second delayed egress locking system is initiated concurrently with the irreversible process required by Item 4 of the first delayed egress locking system.

6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware. **Exception:** Where *approved*, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.
   6.1. For doors that swing in the direction of egress, the sign shall read, "PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."
   6.2. For doors that swing in the opposite direction of egress, the sign shall read, "PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."
   6.3. The sign shall comply with the visual character requirements in ICC A117.1.

7. Emergency lighting shall be provided on the egress side of the door.
8. The electromechanical or electromagnetic locking device shall be *listed* in accordance with either UL 294 or UL 1034 .

2024 International Fire Code

Revise as follows:

[BE] 1010.2.12.1 Delayed egress locking system. The delayed egress electrical locking system shall be installed and operated in accordance with all of the following:

1. The delay of the delayed egress electrical locking system shall deactivate upon actuation of the *automatic sprinkler system* or automatic fire detection system, allowing immediate, free egress.
2. The delay of the delayed egress electrical locking system shall deactivate upon loss of power to the electrical locking system or electrical lock , allowing immediate free egress.
3. The delay of the delayed egress locking electrical system shall have the capability of being deactivated at the *fire command center* and other *approved* locations.
4. ~~An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when~~ When a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds, an irreversible process shall be initiated that allows such egress in not more than 15 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. ~~Once the delay has been deactivated, rearming~~ Rearming the delay electronics shall be by manual means only. **Exception:** Where *approved*, a delay of not more than 30 seconds is permitted on a door with a delayed egress ~~door~~ locking system.
5. The egress path from any point shall not pass through more than one delayed egress locking system. **Exceptions:**
   1. In Group I-1, Condition 2, Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided that the combined delay does not exceed 30 seconds.
   2. In Group I-1, Condition 1 or Group I-4 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided that the combined delay does not exceed 30 seconds and the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
   3. The egress path from any point in the building shall be permitted to pass a second delayed egress locking systems where the irreversible process of the second delayed egress locking system is initiated concurrently with the irreversible process required by Item 4 of the first delayed egress locking system.

6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware: **Exception:** Where *approved*, in Group I occupancies, the installation of a sign is not required where care recipients who, because of clinical needs, require restraint or containment as part of the function of the treatment area.
   6.1. For doors that swing in the direction of egress, the sign shall read: "PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."
   6.2. For doors that swing in the opposite direction of egress, the sign shall read: "PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."
   6.3. The sign shall comply with the visual character requirements in ICC A117.1.
7. Emergency lighting shall be provided on the egress side of the door.
8. The electromechanical or electromagnetic locking device shall be listed in accordance with either UL 294 or UL 1034.

Reason: In Item 4 and the exception to Item 4, the proposed revisions are primarily editorial. However, the revisions in the last sentence of Item 4 are technical, but are intended to clarify the intent of the code.

The last sentence of Item 4 is typically interpreted to require the delay electronics to be rearmed after the delay of the delayed egress locking system has completed. But, is that actually what this sentence requires? Copied here, for reference, is the existing last sentence of Item 4: "Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only."

Examining the current language, it has explicit requirements for rearming the locking system once the delay has completed, but, this sentence doesn't explicitly permit, or prohibit, rearming the delay electronics while the delay is underway. From a code perspective, if it's not prohibited, it's permitted. If this last sentence of Item 4 is interpreted that the delay electronics are not prohibited from being rearmed while the delay is underway, then it could be further interpreted the rearming could be executed by other than manual means only.

Rearming the delayed egress locking system, after the delay has deactivated, by manual means only communicates the intent that an authorized person, typically an employee or staff person, is required to physically be at the door to investigate what triggered the activation of the delayed egress locking system and to ensure that it is safe to re-set the delay.

With these thoughts in mind, the perspective from which the revisions to the last sentence of Item 4 are written: With a person at the delayed egress door to rearm the locking system manually, and to ensure it's safe to do so, there's little, if any, difference if the delayed egress locking system is rearmed while the delay is underway, or the locking system is rearmed after the delay has completed. In other words, there's little, if any, benefit to be gained if the locking system may be rearmed only after the delay has completed, compared to permitting rearming the locking system at any time after the delay has been initiated, assuming the rearming is required to be by manual means only (a person physically is at the door).

Moving to Item 5, the proposed new exception to Item 5 is intended to address situations in other than I-1 or I-2 where more than one delayed egress locking systems are desired. Consider the situation where a delayed locking system is needed on the stairway door on the 7th floor, and the building owner desires or needs a delayed egress locking system on the ground floor stairway discharge door. This new exception is intended to address these situations.

This proposed additional exception to Item 5 is intended to permit a 2nd delayed egress locking system where the delay of the 2nd system is initiated simultaneously with the delay of the 1st system. The effect is there is no delay at the 2nd delayed egress door for the occupant that goes through the 1st delayed egress locked door.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal should not increase or decrease the cost of construction.

The proposed revisions in Section 1010.2.12.1, Item 4are intended to clarify the intent of the code.

The proposed new exception in Section 1010.2.12.1, Item 5 is an optional application of a second delayed egress locking system. Delayed egress locking systems are not required by the code.

E60-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved. Item 4 is a good clarification, however there was concerns about Exception 3 in Item 5. Where there are two doors in a series with delayed egress locks, should there be syncing of the doors; or is this all doors that could be reached? Exception 3 in item 5 is too difficult to program and test and should be addressed through alternative means on a case by case basis. (Vote: 11-2)

E60-24

Individual Consideration Agenda

Comment 1:

IBC: 1010.2.12.1; IFC: [BE] 1010.2.12.1

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com) requests As Modified by Committee (AMC2)

Further modify as follows:

2024 International Building Code

Revise as follows:

1010.2.12.1 Delayed egress locking system. The delayed egress electrical locking system shall be installed and operated in accordance with all of the following:

1. The delay of the delayed egress electrical locking system shall deactivate upon actuation of the *automatic sprinkler system* or *automatic fire detection system*, allowing immediate free egress.
2. The delay of the delayed egress electrical locking system shall deactivate upon loss of power to the electrical locking system or electrical lock, allowing immediate free egress.
3. The delay of the delayed egress locking electrical system shall have the capability of being deactivated at the *fire command center* and other *approved* locations.
4. When a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds, an irreversible process shall be initiated that allows such egress in not more than 15 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Rearming the delay electronics shall be by manual means only. **Exception:** Where *approved*, a delay of not more than 30 seconds is permitted on a door with a delayed egress locking system.

5. The egress path from any point shall not pass through more than one delayed egress locking system. **Exceptions:**
    1. In Group I-1, Condition 2, Group I-2 or I-3 occupancies, the egress path from any point in the *building* shall pass through not more than two delayed egress locking systems provided that the combined delay does not exceed 30 seconds.
    2. In Group I-1, Condition 1 or Group I-4 occupancies, the egress path from any point in the *building* shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds and the *building* is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
    3. ~~The egress path from any point in the building shall be permitted to pass a second delayed egress locking systems where the irreversible process of the second delayed egress locking system is initiated concurrently with the irreversible process required by Item 4 of the first delayed egress locking system.~~

6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware. **Exception:** Where *approved*, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.
    6.1. For doors that swing in the direction of egress, the sign shall read, "PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."
    6.2. For doors that swing in the opposite direction of egress, the sign shall read, "PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."
    6.3. The sign shall comply with the visual character requirements in ICC A117.1.
7. Emergency lighting shall be provided on the egress side of the door.
8. The electromechanical or electromagnetic locking device shall be *listed* in accordance with either UL 294 or UL 1034 .

2024 International Fire Code

Revise as follows:

[BE] 1010.2.12.1 Delayed egress locking system. The delayed egress electrical locking system shall be installed and operated in accordance with all of the following:

1. The delay of the delayed egress electrical locking system shall deactivate upon actuation of the *automatic sprinkler system* or automatic fire detection system, allowing immediate, free egress.
2. The delay of the delayed egress electrical locking system shall deactivate upon loss of power to the electrical locking system or electrical lock , allowing immediate free egress.
3. The delay of the delayed egress locking electrical system shall have the capability of being deactivated at the *fire command center* and other *approved* locations.
4. When a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds, an irreversible process shall be initiated that allows such egress in not more than 15 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Rearming the delay electronics shall be by manual means only. **Exception:** Where *approved*, a delay of not more than 30 seconds is permitted on a door with a delayed egress locking system.

5. The egress path from any point shall not pass through more than one delayed egress locking system. **Exceptions:**

    1. In Group I-1, Condition 2, Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided that the combined delay does not exceed 30 seconds.
    2. In Group I-1, Condition 1 or Group I-4 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided that the combined delay does not exceed 30 seconds and the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
    3. ~~The egress path from any point in the building shall be permitted to pass a second delayed egress locking systems where the irreversible process of the second delayed egress locking system is initiated concurrently with the irreversible process required by Item 4 of the first delayed egress locking system.~~

6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware: **Exception:** Where *approved*, in Group I occupancies, the installation of a sign is not required where care recipients who, because of clinical needs, require restraint or containment as part of the function of the treatment area.
    6.1. For doors that swing in the direction of egress, the sign shall read: "PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."
    6.2. For doors that swing in the opposite direction of egress, the sign shall read: "PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."
    6.3. The sign shall comply with the visual character requirements in ICC A117.1.
7. Emergency lighting shall be provided on the egress side of the door.
8. The electromechanical or electromagnetic locking device shall be listed in accordance with either UL 294 or UL 1034.

Reason: The committee was concerned with proposed new Exception 3 of Item 5, and appeared to be supportive of the revisions of Item 4.

This comment removes (deletes) the proposed text of concern.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed revisions in Section 1010.2.12.1, Item 4 are intended to clarify the intent of the code.

Comment (CAH2)# 681

E63-24

IBC: 1010.3.5 (New); IFC: 1010.3.5 (New)

Proposed Change as Submitted

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2024 International Building Code

Add new text as follows:

1010.3.5 Airport Terminal Exit Lanes. Airport terminal egress from the secured airside area to the nonsecured landside area shall be permitted to be through exit lane breach control systems which comply with all of the following:

1. The exit lane breach control system is installed in accordance with the manufacturer's instructions.
2. The exit lane breach control system is approved by the building official.
3. The exit lane breach control system is accepted by the U.S. Department of Homeland Security (DHS) Transportation Security Administration (TSA).
4. The operation of the exit lane breach control system is included in the TSA-required airport security program.

2024 International Fire Code

Add new text as follows:

1010.3.5 Airport Terminal Exit Lanes. Airport terminal egress from the secured airside area to the nonsecured landside area shall be permitted to be through exit lane breach control systems which comply with all of the following:

1. The exit lane breach control system is installed in accordance with the manufacturer's instructions.
2. The exit lane breach control system is approved by the building official.
3. The exit lane breach control system is accepted by the U.S. Department of Homeland Security (DHS) Transportation Security Administration (TSA).
4. The operation of the exit lane breach control system is included in the TSA-required airport security program.

Reason: Airport exit lane breach control systems facilitate passenger movement in the terminals from secure areas to non-secure areas. Airports are installing these automated systems to improve security and remove much of the human element where arriving passengers move from the secure area of the airport to the unsecured area. The IBC is currently silent regarding requirements for airport exit lane breach control systems.

Airport exit lane breach control systems are relatively sophisticated, and not all the details as to how they work are made public (for good reasons). These systems incorporate power-operated doors, sensors, cameras, alarms, and electronic and human monitoring, all designed to detect unauthorized intruders and unauthorized objects.

Portland, Oregon airport exit lane breach control system.

This four-minute video of one manufacturer's exit lane breach control systems provides a good illustration of the functions: https://www.youtube.com/watch?v=PxMQB4ykOeo

Additional information about exit lane breach control systems is available:

https://www.assaabloyentrance.com/global/en/solutions/products/security-entrance-control/exit-lanes
https://www.hortondoors.com/additional-products/exit-breach-control/secure-exit-lane/

The TSA requires the airport's security program to include operation procedures for exit lane breach control systems.

The TSA does not "approve" the method for controlling exit lanes they no longer staff in airports—they only accept or do not accept the solution. However, the TSA can levy penalties or open a Letter of Investigation for breaches and any incidents that occur. As a result, it is in the airport's best interest to work closely with local TSA during the design and procurement stages and to update the airport security plan as appropriate.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not increase or decrease the cost of construction.
Airports are not required by this proposal to install exit lane breach control systems. This proposal provides guidance and requirements for airport exit lane breach control systems, should they be installed.

E63-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: These types of doors should be included in the code, but the requirements need further work. Items 3 and 4 could not be verified by the code official since they would not have access to airport security items. Several of the new terms used in the proposal should be defined. Should there be a minimum depth between doors? Item 2 needs to provide guidance for the code official for

access controls, connection to alarm systems, limitations for the number of occupants, etc. similar to the other special locking arrangements. (Vote: 12-2)

E63-24

Individual Consideration Agenda

Comment 1:

IBC: SECTION 202 (New), 1010.3.5; IFC: SECTION 202 (New), 1010.3.5

Proponents: John Woestman, Kellen Company, Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com) requests As Modified by Committee (AMC2)

Further modify as follows:

2024 International Building Code

Add new definition as follows:

EXIT LANE BREACH CONTROL SYSTEM. In airports, a system of doors which facilitates occupant movement in the intended direction, and provides access control to prevent wrong way movement of unauthorized persons and objects.

SECURED AIRSIDE AREA. In airports, the spaces of airport terminal buildings where passengers and personnel are authorized after having passed security screening. Passengers board airplanes from these spaces, and disembark airplanes into these spaces.

NON-SECURED LANDSIDE AREA . In airports, the spaces of airport terminal buildings open to the public.

Revise as follows:

1010.3.5 Airport terminal exit lanes. Airport terminal ~~egress~~ occupant movement from the *secured airside area* to the *non-secured landside area* shall be permitted to be through *exit lane breach control systems* which comply with ~~all of~~ the following:

1. ~~The exit~~ *Exit lane breach control* ~~*system* is~~ *systems* shall be installed in accordance with the manufacturer's instructions.
2. ~~The exit~~ *Exit lane breach control* ~~*system* is approved~~ *systems* shall be subject to approval by the building official.
3. ~~The exit lane breach control system is accepted by the U.S. Department of Homeland Security (DHS) Transportation Security Administration (TSA).~~
4. ~~The operation of the exit lane breach control system is included in the TSA-required airport security program.~~

2024 International Fire Code

Add new definition as follows:

EXIT LANE BREACH CONTROL SYSTEM. In airports, a system of doors which facilitates occupant movement in the intended direction, and provides access control to prevent wrong way movement of unauthorized persons and objects.

SECURED AIRSIDE AREA. In airports, the spaces of airport terminal buildings where passengers and personnel are authorized after having passed security screening. Passengers board airplanes from these spaces, and disembark airplanes into these spaces.

NON-SECURED LANDSIDE AREA. In airports, the spaces of airport terminal buildings open to the public.

Revise as follows:

1010.3.5 Airport terminal exit lanes. Airport terminal ~~egress~~ occupant movement from the *secured airside area* to the *non-secured landside area* shall be permitted to be through *exit lane breach control systems* which comply with ~~all of~~ the following:

1. ~~The exit~~ *Exit lane breach control* ~~*system* is~~ *systems* shall be installed in accordance with the manufacturer's instructions.
2. ~~The exit~~ *Exit lane breach control* ~~*system* is approved~~ *systems* shall be subject to approval by the building official.
3. ~~The exit lane breach control system is accepted by the U.S. Department of Homeland Security (DHS) Transportation Security Administration (TSA).~~
4. ~~The operation of the exit lane breach control system is included in the TSA-required airport security program.~~

Reason: The committee suggested provisions for these types of door systems should be in the code. In addition, the committee provided suggestions for revisions to the proposal.

Before discussing the proposed revisions to this proposal, a bit more information about these exit lane breach control systems:

Airport exit lane breach control systems facilitate occupant movement in airport terminals from secure areas (the airside areas) to non-secure areas (the landside areas). Typically, the doors in exit lane breach control systems operate just like automatic doors – sensors detect approaching people and open the door(s) for unimpeded travel through the door(s) by one or multiple people. The video in this news article shows these systems in action (at 40 sec): https://www.newschannel5.com/news/new-security-efforts-underway-at-bna-to-protect-travelers. Most important, the primary reason for exit lane breach control systems is air travel safety. These door systems are designed to stop unauthorized persons from traveling the wrong way, and are designed to thwart thrown objects and to detect abandoned objects.

Airports are installing these automated systems to improve security and remove much of the human element where arriving passengers move from the secure area of the airport to the unsecured area. The IBC is currently silent regarding requirements for airport exit lane breach control systems.

Airport exit lane breach control systems are relatively sophisticated, and not all the details as to how they work are made public (for good reasons). These systems incorporate power-operated doors, sensors, cameras, sophisticated electronic monitoring, alarms, and human monitoring, all designed to detect unauthorized intruders and unauthorized objects. Should a person attempt wrong way travel in a lane in the exit lane breach control system, the door(s) in that lane in front of the wrong way person typically close preventing further wrong way travel. Typically, exit lane breach control systems are installed with multiple lanes, and a violation in one lane does not affect the functionality of the other parallel lanes. Exit lane breach control systems are installed in a manner that prevents objects from being thrown over the top while also facilitating fire sprinkler coverage inside the lanes.

Portland, OR airport exit lane breach control systems.

Anchorage, AK airport exit lane breach control systems.

What was Items 3 & 4 are deleted per the committee reasons.
Three definitions are proposed – the committee suggested several of the new terms should be defined.
Regarding the suggestion to provide guidance for code officials for additional topics . . . in airports, exit lane breach control systems are typically installed near where TSA security screening is located. The TSA is responsible for screening essentially all persons desiring to move from the non-secure landside space of the airport to the secure airside space. Occupant flow in the other direction – from the secure space to the non-secure space – is typically routed either through a staffed exit lane (where the staff is responsible to monitor and prevent wrong way travel in the exit lane) or through an exit lane breach control system which facilitates travel in the exit direction while also preventing and blocking travel in the wrong way direction. Exit lanes, staffed or with exit lane breach control systems, are designed and sized to accommodate all occupant traffic moving from the secured space to the non-secured space of the airport terminal building. Exit lane breach control systems are typically in one of the means of egress and are complemented by numerous other means of egress from the secured space of the airport terminal. In the event of fire or smoke, the exit lane breach control system typically would need to function much as it would during non-emergency use: facilitating people movement in the intended direction while also preventing wrong way movement.

And, exit lane breach control systems in the means of egress would be required to comply with all applicable egress provisions. Similarly, exit lane breach control systems on an accessible route would be required to comply with applicable provisions for accessibility.
This four-minute video of one manufacturer's exit lane breach control systems provides a good illustration of the functions: https://www.youtube.com/watch?v=PxMQB4ykOeo

Additional information about exit lane breach control systems is available:

https://www.assaabloyentrance.com/global/en/solutions/products/security-entrance-control/exit-lanes
https://www.hortondoors.com/additional-products/exit-breach-control/secure-exit-lane/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Airports are not required by this proposal to install exit lane breach control systems. This proposal provides guidance and requirements for airport exit lane breach control systems, should they be installed.

Comment (CAH2)# 685

E65-24

IBC: 1010.5.1; IFC: [BE] 1010.5.1

Proposed Change as Submitted

Proponents: Daniel Nichols, MTA Construction and Development, MTA Construction and Development (dnichols@mnr.org)

2024 International Building Code

Revise as follows:

1010.5.1 Capacity. Each turnstile or similar device shall be credited with a capacity based on not more than a 50-*person occupant load* where all of the following provisions are met:

1. Each device shall turn free in the direction of egress travel when primary power is lost and on the manual release by ~~an employee in the area~~ a trained person in an approved method.
2. Such devices are not given credit for more than 50 percent of the required egress capacity or width.
3. Each device is not more than 39 inches (991 mm) high.
4. Each device has not less than $16^{1}/_{2}$ inches (419 mm) clear width at and below a height of 39 inches (991 mm) and not less than 22 inches (559 mm) clear width at heights above 39 inches (991 mm).

2024 International Fire Code

Revise as follows:

[BE] 1010.5.1 Capacity. Each turnstile or similar device shall be credited with a capacity based on not more than a 50-person *occupant load* where all of the following provisions are met:

1. Each device shall turn free in the direction of egress travel when primary power is lost and on the manual release by ~~an employee in the area~~ a trained person in an approved method.
2. Such devices are not given credit for more than 50 percent of the required egress capacity or width.
3. Each device is not more than 39 inches (991 mm) high.
4. Each device has not less than $16^{1}/_{2}$ inches (419 mm) clear width at and below a height of 39 inches (991 mm) and not less than 22 inches (559 mm) clear width at heights above 39 inches (991 mm).

Reason: The use of turnstiles occurs in many locations such as transportation facilities, lobby control in access-limited buildings, and amusement locations. The current language states that turnstiles need to have a manual release by an "employee in the area", but provides no reasoning for the limitation to an employee, nor to a physical dimension of "in the area".

The proposal moves towards the need for trained personnel to be able to react and have that methodology approved by the AHJ. This could be as simple as a security desk having CCTV observation ability and a remote release for a control point at a building entrance out-of-view, to a multi-lane point of entry into an amusement park with a coordinated command center. Further, the proposal does not remove or inhibit the current use of the "employee in the area" for jurisdictions that already successfully utilize the section.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This provides another option to provide manual release of turnstiles. Many turnstiles already free spin or operate in the direction of egress, so this would provide options due to changes in technology.

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved. The committee felt that E64-24 was more comprehensive. The proposed language would be difficult to enforce. (Vote: 14-0)

E65-24

Individual Consideration Agenda

Comment 1:

IBC: 1010.5.1; IFC: [BE] 1010.5.1

Proponents: Daniel Nichols, MTA Construction and Development, MTA Construction and Development (dnichols@mnr.org) requests As Modified by Committee (AMC2)

Replace as follows:

2024 International Building Code

Revise as follows:

1010.5.1 Capacity. Each turnstile or similar device shall be credited with a capacity based on not more than a 50-*person occupant load* where all of the following provisions are met:

1. Each device shall turn free in the direction of egress travel when primary power is lost and on the manual release by a ~~n employee in the area~~ person that can monitor the location and is trained in accordance with Section 406 of the International Fire Code.
2. Such devices are not given credit for more than 50 percent of the required egress capacity or width.
3. Each device is not more than 39 inches (991 mm) high.
4. Each device has not less than $16^{1}/_{2}$ inches (419 mm) clear width at and below a height of 39 inches (991 mm) and not less than 22 inches (559 mm) clear width at heights above 39 inches (991 mm).

2024 International Fire Code

Revise as follows:

[BE] 1010.5.1 Capacity. Each turnstile or similar device shall be credited with a capacity based on not more than a 50-person *occupant load* where all of the following provisions are met:

1. Each device shall turn free in the direction of egress travel when primary power is lost and on the manual release by a~~n employee in the area~~ person that can monitor the location and is trained in accordance with Section 406.
2. Such devices are not given credit for more than 50 percent of the required egress capacity or width.
3. Each device is not more than 39 inches (991 mm) high.

4. Each device has not less than $16\frac{1}{2}$ inches (419 mm) clear width at and below a height of 39 inches (991 mm) and not less than 22 inches (559 mm) clear width at heights above 39 inches (991 mm).

Reason: This comment is to further define the operator of the manual release. The current language of "employee in the area" does not provide any actual qualifications of the person, limits the person to an employee, and gives the term "area" which has no performance requirements. The proposal adds a direct link to the education required by the actual operator of the applicable fire safety, evacuation, and lockdown plans.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an operational change with no construction cost implications.

Comment (CAH2)# 439

E67-24

IBC: 1011.5.2; IFC: [BE] 1011.5.2

Proposed Change as Submitted

Proponents: Thomas Zuzik Jr, RailingCodes.com, National Ornamental & Miscellaneous Metals Association (NOMMA.org) (coderep@railingcodes.com)

2024 International Building Code

1011.5 Stair treads and risers. *Stair* treads and risers shall comply with Sections 1011.5.1 through 1011.5.5.3.

1011.5.1 Dimension reference surfaces. For the purpose of this section, all dimensions are exclusive of carpets, rugs or runners.

Revise as follows:

1011.5.2 Riser height and tread depth. *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the *nosings* of adjacent treads, ~~or~~ between the nosing of the ~~*stairway*~~ upper landing and the adjacent lower tread, and between the nosing of the bottom tread and a projected point forward on the lower landing equal to the bottom tread's depth. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's *nosing*. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair. **Exceptions:**

1. *Spiral stairways* in accordance with Section 1011.10.
2. *Stairways* connecting stepped *aisles* to cross *aisles* or concourses shall be permitted to use the riser/tread dimension in Section 1030.14.2.
3. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies not required by Chapter 11 to be *Accessible* or Type A dwelling or *sleeping units* ; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; the maximum riser height shall be $7\,^{3}/_{4}$ inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum *winder* tread depth at the walkline shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm). A *nosing* projection not less than $^{3}/_{4}$ inch (19.1 mm) but not more than $1\,^{1}/_{4}$ inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
4. See Section 503.1 of the International Existing Building Code for the replacement of existing *stairways*.
5. In Group I-3 *facilities*, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m^2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).
6. Where only a single riser is located between 2 landings, the riser height shall be measured between the upper landing's nosing and a projected point on the lower landing 11 inches (280 mm) forward of the upper landing's nosing.

2024 International Fire Code

[BE] 1011.5 Stair treads and risers. *Stair* treads and risers shall comply with Sections 1011.5.1 through 1011.5.5.3.

[BE] 1011.5.1 Dimension reference surfaces. For the purpose of this section, all dimensions are exclusive of carpets, rugs or runners.

Revise as follows:

[BE] 1011.5.2 Riser height and tread depth. *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum.

The riser height shall be measured vertically between the *nosings* of adjacent treads, ~~or~~ between the nosing of the ~~*stairway*~~ upper landing and the adjacent lower tread, and between the nosing of the bottom tread and a projected point forward on the lower landing equal to the bottom tread's depth. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's *nosing*. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair. **Exceptions:**

1. *Spiral stairways* in accordance with Section 1011.10.
2. *Stairways* connecting stepped *aisles* to cross *aisles* or concourses shall be permitted to use the riser/tread dimension in Section 1030.14.2.
3. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies not required by Chapter 11 to be *Accessible* or *Type A* dwelling or sleeping units; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; the maximum riser height shall be $7^3/_4$ inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum *winder* tread depth at the walkline shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm). A *nosing* projection not less than $^3/_4$ inch (19.1 mm) but not more than $1^1/_4$ inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
4. See Section 503.1 of the International Existing Building Code for the replacement of existing *stairways*.
5. In Group I-3 facilities, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m^2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).
6. Where only a single riser is located between 2 landings, the riser height shall be measured between the upper landing's nosing and a projected point on the lower landing 11 inches (280 mm) forward of the upper landing's nosing.

Reason: This code change is centered on clarifying where a bottom riser's, height measurement, is to be taken in conjunction with the lower landing.

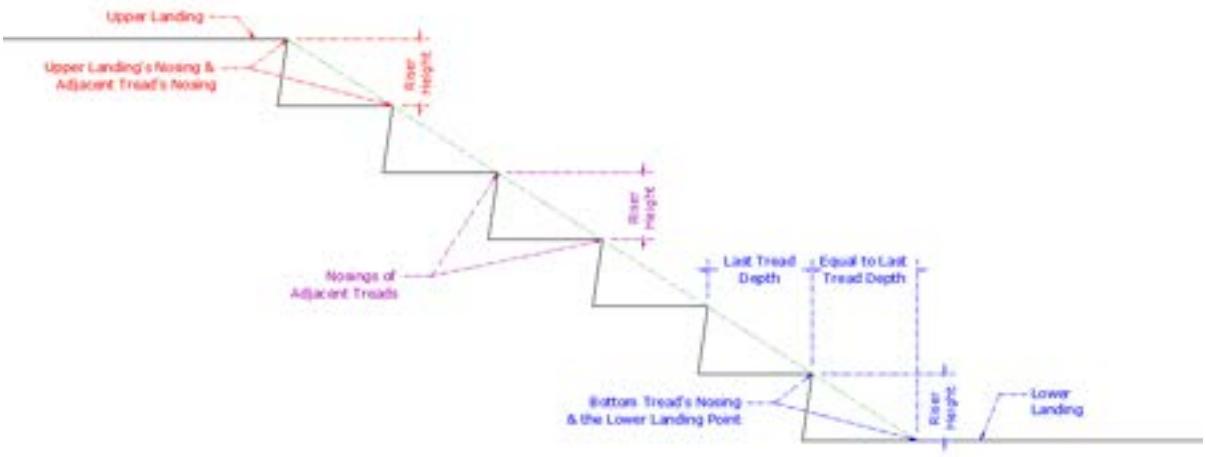
There are 3 distinct parts of a stair flight for when measuring riser heights.

1. The top landing's nosing, to the nosing of the first tread down, the adjacent tread.
2. The nosings of adjacent treads within the flight of stairs.
3. The bottom tread's nosing and the lower landing.

Currently the code is clear in that you are to measure from the upper landing's nosing to the adjacent lower tread's nosing, and to measure from the nosing of one tread to an adjacent tread within the flight, as they all have **nosings.** The confusion and or question comes in that the lower landing does not have a physical/traditional nosing point per say, as defined within the code, and as thus, many a times the bottom riser is measured directly at the bottom tread's riser and not at the same point in distance as every other riser within the flight of stairs, which are all measured to an **adjacent nosing**.

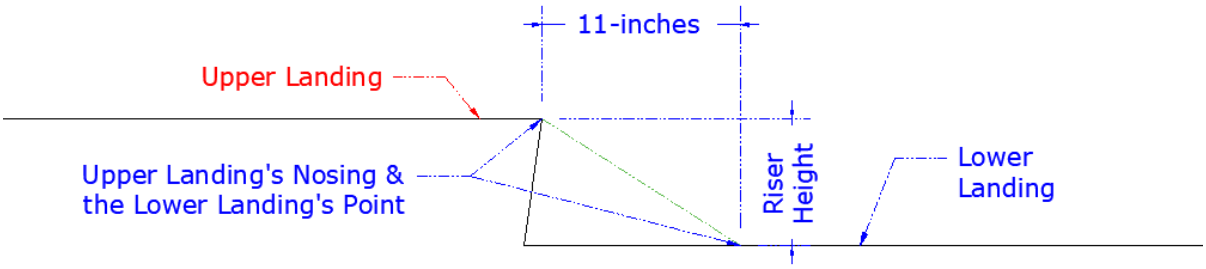
In Section 1014.7 Handrail extensions. The code requires that handrail extensions continue for one tread depth beyond the bottom tread's nosing, this is theorized to be for when descending or ascending the same area is used by the person on the stair flight. With this in our focus, this code change represents that the same theory and point justified and specified for the handrail extension, is to be used for the riser measurement on the lower landing, keeping in mind that this is the same measurement point used within the stair flight on all the other risers up to this point.

To help show a visual representation of the new text, sketch RC-01 included in this reason statement below shows the 3 distinct types of riser measurements within a flight of stairs, in conjunction with a superimposed nosing line as reference for a point of contact on the lower landing, proposed to being revised.



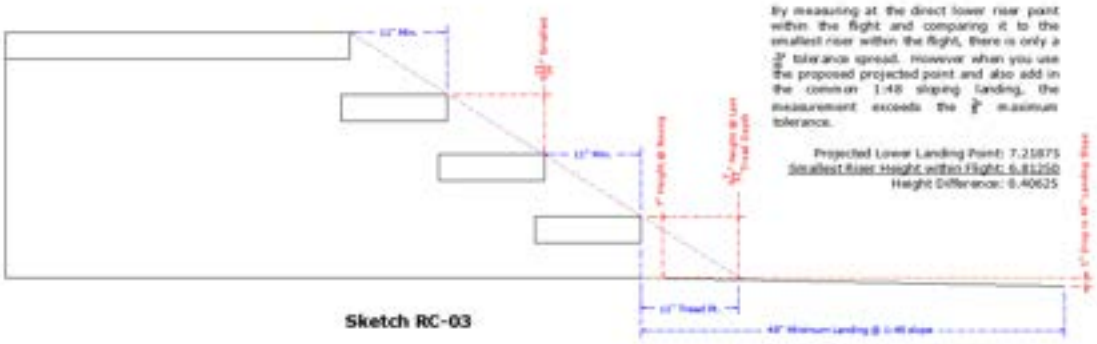
SKETCH RC-01

The second sketch RC-02 included in this reason statement is for the exception and explains the same point of measurement for when there is only one single riser between 2 landings and provides direction with the exception when there are no treads, by following the bottom tread requirement in a flight with the specified minimum tread depth of 11 inches for these specific single riser conditions.



SKETCH RC-02

Of note to keep in mind, If the smallest riser height within a flight is 6.8125", and the bottom riser height at the lower landing is 7", at the riser. And the lower landing slopes away at 1:48, 1/4" to the foot, then at the minimum 11" projected forward point you will be over the maximum 3/8" tolerance allowed per code, see sketch RC-03.



SKETCH RC-03

Bibliography:

- ICC Model 2024 IBC
  - Section 1011.7.1 Stairway walking surface.
  - Section 1014.7 Handrail extensions.
- 2010ADA

- Section 504.4 Tread surface.
- Section 505.10.
- Section 505.10.3

- ICC 2017 A117.1
  - Section 504.4 Tread surface.
  - Section 505.10.
  - Section 505.10.3

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

We believe that there are no cost increases or decrease with this code change, as it only further clarifies the measurement point of the required measurement for where the bottom riser height of a stair flight shall be taken.

E67-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This proposal is overly complicated and confusing. (Vote: 9-5)

E67-24

Individual Consideration Agenda

Comment 1:

IBC: 1011.5, 1011.5.1, 1011.5.2; IFC: [BE] 1011.5, [BE] 1011.5.1, [BE] 1011.5.2

Proponents: Thomas Zuzik Jr, RailingCodes.com, National Ornamental & Miscellaneous Metals Association (NOMMA.org) (coderep@railingcodes.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1011.5 Stair treads and risers. *Stair* treads and risers shall comply with Sections 1011.5.1 through 1011.5.5.3.

1011.5.1 Dimension reference surfaces. For the purpose of this section, all dimensions are exclusive of carpets, rugs or runners.

1011.5.2 Riser height and tread depth. *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between ~~the~~ adjacent *nosings* ~~of adjacent treads~~ within the flight, ~~between the nosing of the upper landing and the adjacent lower tread,~~ and between the ~~nosing of the~~ bottom nosing ~~tread~~ and a projected point forward on the lower landing equal to the bottom tread's depth. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's *nosing*. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair. **Exceptions:**

1. *Spiral stairways* in accordance with Section 1011.10.
2. *Stairways* connecting stepped *aisles* to cross *aisles* or concourses shall be permitted to use the riser/tread dimension in Section 1030.14.2.
3. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies not required by Chapter 11 to be *Accessible* or Type A dwelling or *sleeping units* ; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; the maximum riser height shall be $7^3/_4$ inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum *winder* tread depth at the walkline shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm). A *nosing* projection not less than $^3/_4$ inch (19.1 mm) but not more than $1^1/_4$ inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
4. See Section 503.1 of the International Existing Building Code for the replacement of existing *stairways*.
5. In Group I-3 *facilities*, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m^2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).
6. Where ~~only~~ a single riser is located between 2 landings, the riser height shall be measured between the upper landing's nosing and a projected point on the lower landing 11 inches (280 mm) forward of the ~~upper landing's~~ nosing.

2024 International Fire Code

[BE] 1011.5 Stair treads and risers. *Stair* treads and risers shall comply with Sections 1011.5.1 through 1011.5.5.3.

[BE] 1011.5.1 Dimension reference surfaces. For the purpose of this section, all dimensions are exclusive of carpets, rugs or runners.

[BE] 1011.5.2 Riser height and tread depth. *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between ~~the~~ adjacent *nosings* ~~of adjacent treads~~ within the flight, ~~between the nosing of the upper landing and the adjacent lower tread,~~ and between the ~~nosing of the~~ bottom nosing ~~tread~~ and a projected point forward on the lower landing equal to the bottom tread's depth. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's *nosing*. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair. **Exceptions:**

1. *Spiral stairways* in accordance with Section 1011.10.
2. *Stairways* connecting stepped *aisles* to cross *aisles* or concourses shall be permitted to use the riser/tread dimension in Section 1030.14.2.
3. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies not required by Chapter 11 to be *Accessible* or *Type A* dwelling or sleeping units; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; the maximum riser height shall be $7^3/_4$ inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum *winder* tread depth at the walkline shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm). A *nosing* projection not less than $^3/_4$ inch (19.1 mm) but not more than $1^1/_4$ inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
4. See Section 503.1 of the International Existing Building Code for the replacement of existing *stairways*.
5. In Group I-3 facilities, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m^2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).
6. Where ~~only~~ a single riser is located between 2 landings, the riser height shall be measured between the upper landing's nosing and a projected point on the lower landing 11 inches (280 mm) forward of the ~~upper landing's~~ nosing.

Reason: Please Review the original proposals reason statement in addition to these comments about the text modification.

- The model codes went from measuring riser heights at the risers to the now clarified point of the nosings.
  - With this productive change made by the SMA, there was one point over looked in that the lower landing never has a nosing, inline with the stair geometry.
  - As thus, there is no clarified point per code to measure the bottom nosing to the lower landing.
- This measurement issue has been tracked throughout the country by the NOMMA members reporting back to the volunteer committee that reviews and then submits code changes to clarify issues its membership sees in the field that are not on point and enforced uniformly across jurisdictions within a state, and from state to state.
- We understand that the original proposal was wording, as thus, the editing done within this proposal built on the advice of committee member comments at the CAH1 in Florida.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

We beleive that there are no cost increase with this code change, as it only further clarifies the measurement point of the required measurement for where the bottom riser height of a stair flight shall be taken.

Comment (CAH2)# 736

Comment 2:

IBC: 1011.5.2; IFC: [BE] 1011.5.2

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1011.5.2 Riser height and tread depth. *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between ~~the *nosings* of~~ adjacent ~~treads~~ nosings, the height of a single riser between landings or the lowest riser of the flight shall be measured vertically from the nosing to a point one tread depth on to the landing. ~~between the nosing of the upper landing and the adjacent lower tread, and between the nosing of the bottom tread and a projected point forward on the lower landing equal to the bottom tread's depth.~~Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's *nosing*. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair. **Exceptions:**

1. *Spiral stairways* in accordance with Section 1011.10.
2. *Stairways* connecting stepped *aisles* to cross *aisles* or concourses shall be permitted to use the riser/tread dimension in Section 1030.14.2.
3. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies not required by Chapter 11 to be *Accessible* or Type A dwelling or *sleeping units* ; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; the maximum riser height shall be $7\frac{3}{4}$ inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum *winder* tread depth at the walkline shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm). A *nosing* projection not less than $\frac{3}{4}$ inch (19.1 mm) but not more than $1\frac{1}{4}$ inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
4. See Section 503.1 of the International Existing Building Code for the replacement of existing *stairways*.

5. In Group I-3 *facilities*, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m^2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).
6. ~~Where only a single riser is located between 2 landings, the riser height shall be measured between the upper landing's nosing and a projected point on the lower landing 11 inches (280 mm) forward of the upper landing's nosing.~~

2024 International Fire Code

[BE] 1011.5.2 Riser height and tread depth. *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between ~~the *nosings* of~~ adjacent ~~treads~~ nosings, the height of a single riser between landings or the lowest riser of the flight shall be measured vertically from the nosing to a point one tread depth on to the landing. ~~between the nosing of the upper landing and the adjacent lower tread, and between the nosing of the bottom tread and a projected point forward on the lower landing equal to the bottom tread's depth.~~ Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's *nosing*. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair. **Exceptions:**

1. *Spiral stairways* in accordance with Section 1011.10.
2. *Stairways* connecting stepped *aisles* to cross *aisles* or concourses shall be permitted to use the riser/tread dimension in Section 1030.14.2.
3. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies not required by Chapter 11 to be *Accessible* or *Type A* dwelling or sleeping units; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; the maximum riser height shall be $7\frac{3}{4}$ inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum *winder* tread depth at the walkline shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm). A *nosing* projection not less than $\frac{3}{4}$ inch (19.1 mm) but not more than $1\frac{1}{4}$ inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
4. See Section 503.1 of the International Existing Building Code for the replacement of existing *stairways*.
5. In Group I-3 facilities, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m^2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).
6. ~~Where only a single riser is located between 2 landings, the riser height shall be measured between the upper landing's nosing and a projected point on the lower landing 11 inches (280 mm) forward of the upper landing's nosing.~~

Reason: This comment provides clear and concise language that meets the intent of the original proposal and assures compliant use of the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

We believe that there are no cost increases or decrease with this code change, as it only further clarifies the measurement point of the required measurement for where the bottom riser height of a stair flight shall be taken.

Comment (CAH2)# 216

E68-24

IBC: 1011.5.5.1, 1011.5.5.2; IFC: [BE] 1011.5.5.1, [BE] 1011.5.5.2

Proposed Change as Submitted

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org)

2024 International Building Code

Revise as follows:

1011.5.5.1 Nosing projection size. The nosings shall project not more than $1^{1}/_{4}$ inches (32 mm) ~~beyond~~ over the trailing edge of the tread below

Exception: When solid risers are not required, the nosing projection is permitted to exceed the maximum projection.

1011.5.5.2 Nosing projection uniformity. Nosing projections of treads within a flight of stairs and of the landing at the top of the flight shall be of uniform size~~, including the projections of the *nosings* of the floor or landing at the top of a *flight*~~.

2024 International Fire Code

Revise as follows:

[BE] 1011.5.5.1 Nosing projection size. The nosings shall project not more than $1^{1}/_{4}$ inches (32 mm) ~~beyond~~ over the trailing edge of the tread below.

Exception: When solid risers are not required, the nosing projection is permitted to exceed the maximum projection.

[BE] 1011.5.5.2 Nosing projection uniformity. Nosing projections of treads within a flight of stairs and of the landing at the top of the flight shall be of uniform size~~, including the projections of the *nosings* of the floor or landing at the top of a *flight*~~.

Reason: Nosing projection size.

Use of the preposition “over” is more accurate than “beyond”. Beyond is defined as indicating to the further side of. A tread’s nosing does not extend or project “to the further side of” the tread below but rather “over” just a small portion of the tread below. The term beyond as used here is inappropriate. Deleting beyond and adding “over the trailing edge” clarifies for enforcement the point on the tread below from which the nosing projection of the tread above can be measured.

Nosing projection uniformity.

The proposal further clarifies the requirement with more direct/concise sentence structure that will result in more consistent understanding and enforcement.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The language substitutions and changes in syntax add no technical requirements that are material to construction methodology and will neither increase or decrease the cost of construction.

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The intent of the language for the nosing projection measurements is an improvement, however, the revised text is confusing. (Vote: 8-6)

E68-24

Individual Consideration Agenda

Comment 1:

IBC: 1011.5.5.1, 1011.5.5.2; IFC: [BE] 1011.5.5.1, [BE] 1011.5.5.2

Proponents: Ashley Goodin, Technical Services, Stairbuilders and Manufacturers Association (ashley.goodin@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1011.5.5.1 Nosing projection size. The nosings shall project not more than $1\frac{1}{4}$ inches (32 mm) ~~over the trailing edge of the tread below~~ . Nosing projection shall be measured horizontally between the vertical plane of the foremost projection of the nosing and the intersection of the riser and tread below.

Exception: When solid risers are not required, the nosing projection is permitted to exceed the maximum projection.

1011.5.5.2 Nosing projection uniformity. Nosing projections of treads within a flight of stairs and of the landing at the top of the flight shall be of uniform size.

2024 International Fire Code

[BE] 1011.5.5.1 Nosing projection size. The nosings shall project not more than $1\frac{1}{4}$ inches (32 mm) ~~over the trailing edge of the tread below~~. Nosing projection shall be measured horizontally between the vertical plane of the foremost projection of the nosing and the intersection of the riser and tread below.

Exception: When solid risers are not required, the nosing projection is permitted to exceed the maximum projection.

[BE] 1011.5.5.2 Nosing projection uniformity. Nosing projections of treads within a flight of stairs and of the landing at the top of the flight shall be of uniform size.

Reason: This comment clarifies the points of measurement based on feedback received from the committee during the CAH1 hearing and the proponents intent. The text describing the measurement of the the nosing projection parallels that of the tread depth requirement that has been well understood and enforced for years...

From **1011.5.2 Riser height and tread depth.**

> ...tread depths shall be...*measured horizontally between the vertical planes of the foremost projection*... <*emphasis added*>

Your approval of this comment will clarify the code and assure consistent determination of the nosing projection size.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change proposal does not affect labor and materials, only clarifies a point of measurement for code compliance.

Comment (CAH2)# 146

E69-24

IBC: 1011.6; IFC: [BE] 1011.6

Proposed Change as Submitted

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org)

2024 International Building Code

Revise as follows:

1011.6 Stairway landings. There shall be a ~~floor or~~ landing at the top and bottom of each ~~*stairway*~~ *flight* of stairs. The width of landings, measured perpendicularly to the direction of travel of the flight served , shall be not less than the width of ~~*stairways*~~ the flight served. ~~Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less.~~ Where there is a change in direction of the stairway at the landing, the landing depth shall be not less than the smallest width of the flights served. Where there is no change in direction of the stairway at the landing, the landing depth shall be 48 inches (1219 mm) minimum. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

Exceptions:

~~2~~ 1. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.

~~3~~ 2. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

~~1~~ 3. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.

2024 International Fire Code

Revise as follows:

[BE] 1011.6 Stairway landings. There shall be a ~~floor or~~ landing at the top and bottom of each ~~*stairway*~~ *flight* of stairs. The width of landings, measured perpendicularly to the direction of travel of the flight served , shall be not less than the width of ~~*stairways*~~ the flight served. ~~Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less.~~ Where there is a change in direction of the stairway at the landing, the landing depth shall be not less than the smallest width of the flights served. Where there is no change in direction of the stairway at the landing, the landing depth shall be 48 inches (1219 mm) minimum. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

Exceptions:

~~2~~ 1. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.

~~3~~ 2. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

~~1~~ 3. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.

Reason: It is important to note here that by definition in the IBC a stairway includes the flights and landings. A landing may occur at the top or bottom of a flight or between flights of a stairway not only at the top and bottom of a stairway. Substituting *flight* for *stairway* offers the correct description using the terms as defined.

Stairway. One or more flights of stairs, either exterior or interior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another.

Flight. A continuous run of rectangular treads, winders or combination thereof from one landing to another.

A stairway may turn at any of these landing locations. The current language refers to the direction of travel but fails to provide a reference location or perspective. Width and depth reverse with ascent and descent on a 90 degree, or quarter space landing. Is the direction of travel to be considered an arc through the turn on the landing or the direction of travel across a landing adjoining two flights at a 180 degree, or half space landing. What is width and what is depth? If there are multiple flights adjoining the landing determining the direction of travel and the width or depth is confusing at best. By referencing the direction of the flight served and the change of the direction of the stairway the depth and width are more clearly understood.

The current text by the most grievous interpretation might imply that the landing may be just 48 inches in depth in situations not intended. We have corrected this anomaly by clarifying that the 48" minimum only applies to stairways that do not change direction a the landing.

The proposed language eliminates trying to distinguish width and depth axes that can reverse with ascent and descent more clearly describes the intent of the width and depth requirements.

Exception 1 has been moved to exception 3 without change because it is likely less common in terms of general use and application when compared to the other exceptions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes proposed serve to restructure and correct the technical requirements for landings to aid interpretation and enforcement without material change to the methods or costs of construction.

E69-24

Public Hearing Results (CAH1)

Errata: This proposal includes unpublished errata for IBC and IFC
The following language was shown as struck out in the 3rd sentence of the proposal. However, this language is not current text. This language will be removed from the proposal.

"~~depth of landings shall be measured in the direction of travel of the flight served and shall be not less than~~"

Committee Action: **As Submitted**

Committee Reason: This proposal clarifies the requirements for measurement of the landings. The committee was concerned that this proposal removed "floor or" that was disapproved by the committee in E48-24. (Vote: 12-2)

E69-24

Individual Consideration Agenda

Comment 1:

IBC: 1011.6; IFC: [BE] 1011.6

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1011.6 Stairway landings. There shall be a landing at the top and bottom of each *flight* of stairs. The width of landings, measured perpendicularly to the direction of travel of the *flight* served , shall be not less than the width of the flight served. Where there is a change in direction of the stairway at the landing, the landing depth shall be not less than the smallest width of the flights served. Where there is no change in direction of the stairway at the landing, the landing depth shall be 48 inches (1219 mm) minimum. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

Exceptions:

1. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
2. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.
3. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
4. Where a tread depth of less than 11 inches (279 mm) is permitted the landing depth shall be 36 inches (914 mm) minimum where there is no change in direction of the stairway at the landing.

2024 International Fire Code

[BE] 1011.6 Stairway landings. There shall be a landing at the top and bottom of each *flight* of stairs. The width of landings, measured perpendicularly to the direction of travel of the flight served , shall be not less than the width of the flight served. Where there is a change in direction of the stairway at the landing, the landing depth shall be not less than the smallest width of the flights served. Where there is no change in direction of the stairway at the landing, the landing depth shall be 48 inches (1219 mm) minimum. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

Exceptions:

Exceptions:

1. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
2. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.
3. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
4. Where a tread depth of less than 11 inches (279 mm) is permitted the landing depth shall be 36 inches (914 mm) minimum where there is no change in direction of the stairway at the landing.

Reason: Although this proposal was approved, the committee questioned an errata and implied that there was text struck out that was not part of the code. Staff has informed me that the errata in the original proposal, mentioned by the committee has been corrected as published here for comment.

It is important to point out that landing depth should best be understood as being on the same axis as tread depth. Landing width is on the same axis as the width of the stair or flight. That said it was pointed out at the hearing that an exception should be considered for stairs within residential applications and other locations where the tread depth and and resulting stride is shorter. The new exception 4 provides for the same 36 inch limit as is in the IRC and is recommended.Please approve as modified by this comment.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes proposed serve to restructure and correct the technical requirements for landings to aid interpretation and enforcement without material change to the methods or costs of construction.

Comment (CAH2)# 253

E70-24

IBC: 1011.7.1 (New), 1012.7.1 (New); IFC: 1011.7.1 (New), 1012.7.1 (New)

Proposed Change as Submitted

Proponents: Jeffrey Grove, Coffman Engineers, Coffman Engineers (jeff.grove@coffman.com)

2024 International Building Code

Add new text as follows:

1011.7.1 Stairway Supporting Construction. *Stairway* supporting construction shall have a fire resistance rating equivalent to the rating of the enclosure or separation required by Sections 1023.2 and 1027.6. **Exception:** *Stairway* supporting construction located within the fire resistance rated enclosure or exterior to the building does not require a fire resistance rating.

1012.7.1 Ramp Supporting Construction. *Ramp* supporting construction shall have a fire resistance rating equivalent to the rating of the enclosure or separation required by Sections 1023.2 and 1027.6. **Exception:** *Ramp* supporting construction located within the fire resistance rated enclosure or exterior to the building does not require a fire resistance rating.

2024 International Fire Code

Add new text as follows:

1011.7.1 Stairway Supporting Construction. *Stairway* supporting construction shall have a fire resistance rating equivalent to the rating of the enclosure or separation required by Sections 1023.2 and 1027.6. **Exception:** *Stairway* supporting construction located within the fire resistance rated enclosure or exterior to the building does not require a fire resistance rating.

1012.7.1 Ramp Supporting Construction. *Ramp* supporting construction shall have a fire resistance rating equivalent to the rating of the enclosure or separation required by Sections 1023.2 and 1027.6. **Exception:** *Ramp* supporting construction located within the fire resistance rated enclosure or exterior to the building does not require a fire resistance rating.

Reason: NOTE: These two new sections are intended to be directly following the charging sections, 1011.7 and 1012.7, respectively. The following sections remain unchanged and should follow these new sections.

There is a requirement for stairway and ramp enclosures to be constructed with fire barriers in accordance with IBC Section 1023.2. This requires the supporting construction for the enclosure to be protected to afford the required fire resistance rating of the fire barrier supported in accordance with IBC Section 707.5.1.

Stair and ramp enclosures should be supported in accordance with the fire resistance rating of the enclosure to assist in the egress of occupants and response of first responders. However, this does not currently extend to the landings and stairway/ramp construction which may extend beyond the enclosure into the building. For example, a four-story exit enclosure in a Type II-B building would be provided with a 2-hour fire resistance rating and associated supporting construction. However, if the specific landing supports extend beyond the enclosure, the associated landing supports are not required to be protected. The intent is an exit enclosure to be provided with structural fire protection and reliability and it should extend to the elements which support occupants within that enclosure that are not protected by the enclosure.

The reasoning for locating the requirement in these sections is it would be applicable to stairway and ramp construction (both interior and exterior) that have supporting construction which extends into the building and may be unprotected.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

For a single 5-story stair utilizing this design strategy quotes were received for $15,000-$32,000 to provide fireproofing to these

supporting structural members. It should be reiterated that other structural design strategies are available which would not represent a cost increase for this scenario. The cost, if present, is immediate with no significant life-cycle cost anticipated.

Estimated Immediate Cost Impact Justification (methodology and variables):

This is not considered a cost increase for all stair/ramp enclosures where stairway/ramp construction are located within the exit enclosure or in circumstances where the enclosure supporting construction is shared with the stairway/ramp. The cost impact for providing fire resistance to supporting construction of stairways/ramps that extend beyond the enclosure is dependent upon numerous factors including number/size of supporting members, method of fire protection and required fire resistance rating.

A case study was developed which may represent a cost increase as a portion of the cost impact statement. Conservatively a 5 story Type II-B (non-rated non-combustible steel building) which could be found in a Group R-2 sprinklered occupancy type building was considered. This would require a 2-hour fire rated separation for the stairway and associated supporting construction which exited the stair enclosure as identified in this proposal. The proposal team worked with a structural engineer on a structural design which would be utilized to support the stairway construction and provided this information to spray-applied fireproofing contractors for pricing.

Additional supporting cost information can be found at the FTP below:

https://files.coffmanftp.comUser name: ICC@coffmanftp.com

Password: G10G7Vw84rjq

E70-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This proposal should be addressed in Section 1023 for the stairway enclosure, not the general stairway provisions. As written, it could be read to apply to exit access stairways. There should be a separate exception for an exterior wall. The exception needs to clarify if this is for stairways totally within the enclosure, or supporting elements that come through the enclosure walls. (Vote: 14-0)

E70-24

Individual Consideration Agenda

Comment 1:

IBC: 1023.2.1 (New); IFC: [BE] 1023.2.1 (New)

Proponents: Jeffrey Grove, Coffman Engineers, Coffman Engineers (jeff.grove@coffman.com) requests As Modified by Committee (AMC2)

Replace as follows:

2024 International Building Code

Add new text as follows:

1023.2.1 Supporting construction. Structural elements that support interior exit stairways and ramps and that penetrate, or are installed within the membrane of a required fire resistance rated assembly shall be provided with a fire resistance rating not less than the enclosure.

2024 International Fire Code

Add new text as follows:

[BE] 1023.2.1 Supporting construction. Structural elements that support interior exit stairways and ramps and that penetrate, or are installed within the membrane of a required fire resistance rated assembly shall be provided with a fire resistance rating not less than the enclosure.

Reason: The previous proposed code change was located in 1011.7 and 1012.7 to address stairs and ramps (including exterior) that require a rating. However, after committee feedback this is being relocated to 1023.2.1 explicitly and reworded.
This comes into align with NFPA 101 Section 7.1.3.2.1(5):

"Structural elements, or portions thereof, that support exit components and either penetrate into a fire-resistance-rated assembly or are installed within a fire-resistance-rated wall assembly shall be protected, as a minimum, to the fire resistance rating required by 7.1.3.2.1(1) or 7.1.3.2.1(3).

Annex: It is not the intent to require the structural elements supporting outside stairs, or structural elements that penetrate within exterior walls or any other wall not required to have a fire resistance rating, to be protected by fire-resistance-rated construction."

This change brings in line the intent between the two codes that these elements need to be protected when leaving fire resistance rated enclosures.

Bibliography: NFPA 101, Life Safety Code, 2024 Edition

Cost Impact: Increase

Estimated Immediate Cost Impact:

Cost impact information unchanged from original proposal.

Estimated Immediate Cost Impact Justification (methodology and variables):

Cost impact information unchanged from original proposal.

Comment (CAH2)# 354

E71-24

IBC: 1011.7.1; IFC: [BE] 1011.7.1

Proposed Change as Submitted

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org)

2024 International Building Code

Revise as follows:

1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached. **Exceptions:**

1. ~~Openings~~ Perforations in *stair* walking surfaces shall be a size that does not permit the passage of $^1/_2$-inch-diameter (12.7 mm) sphere. Elongated ~~openings~~ perforations shall be placed so that the long dimension is perpendicular to the direction of travel.
2. Where open risers are permitted the open ends of treads that do not extend to the face of the guard infill or wall shall extend to a point not more than 2 inches (51 mm) measured horizontally from the face of the guard infill or wall.
3. ~~2~~ In Group F, H and S occupancies, other than areas of parking *structures* accessible to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1^1/_8$ inches (29 mm) cannot pass through the opening.

2024 International Fire Code

Revise as follows:

[BE] 1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than 1 unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached. **Exceptions:**

1. ~~Openings~~ Perforations in *stair* walking surfaces shall be a size that does not permit the passage of $^1/_2$-inch-diameter (12.7 mm) sphere. Elongated ~~openings~~ perforations shall be placed so that the long dimension is perpendicular to the direction of travel.
2. Where open risers are permitted the open ends of treads that do not extend to the face of the guard infill or wall shall extend to a point not more than 2 inches (51 mm) measured horizontally from the face of the guard infill or wall.
3. ~~2~~ In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1^1/_8$ inches (29 mm) cannot pass through the opening.

Reason: Although a tread has a solid surface the end of a tread often ends without actually abutting any surface. Such is the case on many open stairs or where open risers are allowed. Opening limitations in guards regulating the vertical plane are not applicable to the horizontal walking surface. This addition to the exception for openings in stair walking surfaces will provide much needed guidance for design and enforcement when the tread does not extend under the guard system or abut a wall, skirtboard, or other vertical surface. The 2 inch limit is reasoned as the maximum standoff used and is considerably smaller than the smallest of shoe sizes for children of 2 -6 months.

Common applications are pictured:

Illustration A: Glass panel is attached to the ends of treads with “standoff” hardware leaving a narrow gap between the glass

panel and the extreme end of the tread.

Illustration B: Shows the an open riser mono stringer stair with open ended treads.

In each case the exposed area is well out of the path of travel.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change provides specific technical requirements that provide clarification for enforcement of a common and highly desired design aesthetic without change to methods of construction or related costs of construction of the stair.

E71-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: There was a discussion on if the edge of the tread would be considered a walking surface that was subject to the floor walking surface requirements or not. The committee had different opinions on if the gap at the side of a tread would be a hazard for persons on the stairway using a cane or crutches. Some members felt that if the gap was away from the walkline it would not be a safety hazard. The proposal should be brought back with some of the clarifications proposed in the floor modifications. (Vote: 8-4).

E71-24

Individual Consideration Agenda

Comment 1:

IBC: 1011.7.1; IFC: [BE] 1011.7.1

Proponents: Ashley Goodin, Technical Services, Stairbuilders and Manufacturers Association (ashley.goodin@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* walking surfaces ~~treads and landings~~ shall have a solid surface. Finish floor surfaces shall be securely attached. **Exceptions:**

1. Perforations in ~~*stair*~~ stairway walking surfaces shall be a size that does not permit the passage of $^{1}/_{2}$-inch-diameter (12.7 mm) sphere. Elongated perforations shall be placed so that the long dimension is perpendicular to the direction of travel.
2. Where open risers are permitted, the open ends of stairway walking surfaces ~~treads that do not extend to the face of the guard infill or wall,~~ shall extend to a point not more than ~~2~~ 1-1/2 inches (~~51~~ 38 mm) measured horizontally from the face of the adjacent guard infill or wall.
3. In Group F, H and S occupancies, other than areas of parking *structures* accessible to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1^{1}/_{8}$ inches (29 mm) cannot pass through the opening.

2024 International Fire Code

[BE] 1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than 1 unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* walking surfaces ~~treads and landings~~ shall have a solid surface. Finish floor surfaces shall be securely attached. **Exceptions:**

1. Perforations in *stair* walking surfaces shall be a size that does not permit the passage of $^{1}/_{2}$-inch-diameter (12.7 mm) sphere. Elongated perforations shall be placed so that the long dimension is perpendicular to the direction of travel.
2. Where open risers are permitted, the stairway walking surfaces ~~open ends of treads that do not extend to the face of the guard infill or wall,~~ shall extend to a point not more than ~~2~~ 1-1/2 inches (~~51~~ 38 mm) measured horizontally from the face of the adjacent guard infill or wall.

3. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1\frac{1}{8}$ inches (29 mm) cannot pass through the opening.

Reason: The purpose of the original proposal and this comment is two-fold. The first is to clarify the orienation and size of perforations in stair tread surfaces. The second is to provide for consistent measurement and enforcement of openings as designed in "floating" tread configurations between stairways and adjacent guards.

In this conmment, feedback from the committe and others has benn considered and implemented through the following changes. The floor modifications Munsenteiger 1 has been integrated into this comment. Additionally, the floor modification Zuzik 1 has not been added, thus returning the intent and scope of the original proposal back to open riser stairs. This limits the areas where the proposed openings are allowed as open riser stairs are not allowed as an accessable means of egress. Further, comments from the committee regarding opening location and sizes relative to ambulatory aids and individuals with low vision have been taken into consideration and the opening size has been reduced to prevent accidental engagement of crutch and cane tips.

Currently, the code is silent on this measurement which leads to confusion as to whether the sphere measurement of 4" for guards from Section 1015.4 is being used. At open riser configurations such as are addressed in this comment, the 4" sphere rule also applies to the measurement between treads at the open riser. By implementing the measurement of 1-1//2" as proposed in this comment, both safety and clarity are added to the code in reducing the limitation from 4" to 1-1/2", thus reducing the opportunities for objects such as cane tips, crutches, or limbs to pass through the openings. Further, as the opening in question is located away from the walkline and below and away from the handrail further reduces the risk of accidental engagement of ambulatory aids or limbs in this space. As written, this proposed change increases safety for users and provides clarity for enforcement, therefore it should be considered for adoption within the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change does not add any additional materials or labor to the cost of construction, only clarifies a tolerance for enforcement.

Comment (CAH2)# 430

Comment 2:

IBC: 1011.7.1; IFC: [BE] 1011.7.1

Proponents: Thomas Zuzik Jr, RailingCodes.com, National Ornamental & Miscellaneous Metals Association (NOMMA.org) (coderep@railingcodes.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached. **Exceptions:**

1. Perforations in *stair* walking surfaces shall be a size that does not permit the passage of $\frac{1}{2}$-inch-diameter (12.7 mm) sphere. Elongated perforations shall be placed so that the long dimension is perpendicular to the direction of travel.
2. Where ~~open risers are permitted~~ the open ends of treads ~~that~~ do not extend to the face of the guard infill or wall .the tread shall extend to a point not more than 2 inches (51 mm) measured horizontally from the face of the guard infill or wall.

3. In Group F, H and S occupancies, other than areas of parking *structures* accessible to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1\,^{1}/_{8}$ inches (29 mm) cannot pass through the opening.

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[BE] 1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than 1 unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached. **Exceptions:**

1. Perforations in *stair* walking surfaces shall be a size that does not permit the passage of $^{1}/_{2}$-inch-diameter (12.7 mm) sphere. Elongated perforations shall be placed so that the long dimension is perpendicular to the direction of travel.
2. Where ~~open risers are permitted~~ the open ends of treads ~~that~~ do not extend to the face of the guard infill or wall <u>,the tread</u> shall extend to a point not more than 2 inches (51 mm) measured horizontally from the face of the guard infill or wall.
3. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of $1\,^{1}/_{8}$ inches (29 mm) cannot pass through the opening.

Reason: One of the most miss interpreted enforcements in the field is when inspectors apply walking surface opening limits in place of the guard opening limits.

The edge of the walking surface is defined by were it stops. The protection for someone accidentally falling off an open sided walking surface is done by the requirement within the code with a guard.

The code does not require open sided walking surfaces to extend within a 1/2" of the guard infill or wall currently, as thus, when the 1/2" floor opening limit is applied by inspectors for were the code specifies the 4" sphere opening limit, it is over reaching and not the intent of the code.

The original proposal looked at addressing this by compromising with a 2" limit, however, the proposal was only for when the stair flight has open risers, but not for open sided treads? This comment brings to light to the committee that it should not matter if the stair flight has open risers or not, but rather if it has open sided treads for it's walking surface, and not enclosed by a stringer.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is already a guard or wall being constructed for these stair flights, as thus the cost is not seen for reducing the offset distance to the guard's infill or wall.

Comment (CAH2)# 746

E73-24

IBC: 1011.7.2 (New), 1011.7.2.1 (New), 1011.7.2.2 (New); IFC: 1011.7.2 (New), 1011.7.2.1 (New), 1011.7.2.2 (New)

Proposed Change as Submitted

Proponents: Nancy Clanton, Clanton & Associates, Inc, Clanton & Associates, Inc. (nancy@clantonassociates.com); Brittany Lynch, Clanton & Associates, Clanton & Associates (brittany@clantonassociates.com); Eunice Noell-Waggoner, President, Center of Design for an Aging Society, IES Lighting for Seniors and the Visually Impaired Committee (eunice@centerofdesign.org); Jonathan McHugh, McHugh Energy Consultants Inc., California Investor Owned Utilities (jon@mchughenergy.com); Harold Jepsen, Legrand (harold.jepsen@legrand.com)

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Add new text as follows:

1011.7.2 Markings on stairways. Egress path markings shall be provided on interior and exterior stairways in accordance with Sections 1011.7.2.1 and 1011.7.2.2. **Exceptions:**

1. Stairways within individual dwelling units.
2. Stairways with stripes complying with Section 1025.

1011.7.2.1 Steps. A solid and continuous stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Stripes shall be a solid color having a visual contrast of dark-on-light or light-on dark from the remainder of the tread or landing surface. Stripes have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 3 inches (76 mm). The leading edge of the stripe shall be placed not more than ½ inch (12.7 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than 1/2 inch (12.7 mm) down the vertical face of the step. The stripe shall be of material that is at least as slip resistant as the other tread surface.

1011.7.2.2 Landings. The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.

2024 International Fire Code

Add new text as follows:

1011.7.2 Markings on stairways. Egress path markings shall be provided on interior and exterior stairways in accordance with Sections 1011.7.2.1 and1011.7.2.2. **Exceptions:**

1. Stairways within individual dwelling units.
2. Stairways with stripes complying with Section 1025.

1011.7.2.1 Steps. A solid and continuous stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Stripes shall be a solid color having a visual contrast of dark-on-light or light-on dark from the remainder of the tread or landing surface. Stripes have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 3 inches (76 mm). The leading edge of the stripe shall be placed not more than ½ inch (12.7 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than 1/2 inch (12.7 mm) down the vertical face of the step. The stripe shall be of material that is at least as slip resistant as the other tread surface.

1011.7.2.2 Landings. The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.

Reason: From Cohen and Pauls (2006) they cite the following statistics about stair safety. *"According to the National Public Services Research Institute, in 1995, it was estimated that stair-related injuries in the United States were associated with comprehensive costs of $50 billion, including $4.7 billion in medical costs, $7.1 billion in productivity losses, and $38.1 billion in quality of life losses (T. Miller, Personal Communication. 1998). Even the smallest of these component costs is astonishing relative to annual stair construction costs in the United States; these are only approximately $5 billion. With the possible exception of products, such as handguns, tobacco and illegal drugs, this 10-to-l ratio of injury costs to product production costs is extraordinary."*

Cohen and Pauls also note that increasing quantity of lighting alone is not sufficient to incease the visibility of the edge of the stair tread. *"In addition to lighting, there are other important factors in visibility of steps, including careful choice of stairway covering materials to avoid patterns that tend to camouflage the step nosings and the critical leading edges of treads. and to use highly contrasting tread markings."*

The Illuminating Engineering Society's Recommended Practice for Lighting and the Visual Environment for Older Adults and the Visually Impaired (IES-RP-28-20) notes the following concerning the use of reflectance contrast for increasing visibility: *Value contrast should be a design consideration in the selection of finishes for corridors, stairs, lobbies and spaces that become part of the path of egress. Contrast helps to define the space and the elements within the space, e.g., doorways, changes of floor level or direction, and obstructions such as columns, to increase visibility and the occupant's confidence. Everyone's sight benefits from value contrast in low-light conditions, regardless of age or visual acuity.*

The IES also recommends that *"All stairs should have clearly marked edge strips, staircase borders, and handrails to meet the needs of older people and persons with low vision."*

Similar to what has been recommended by Cohen and Pauls and the Illuminating Engineering Society, this proposal would increase the safety of stairways by increasing the reflectance contrast (and thus the luminance contrast) by requiring colored stripes on the nosing or leading edges of stairs. The difference in reflectance between the edge stripe and the rest of the stair tread will to increase the visibility of the edge of the stair. These colored stripes would be one to two inches wide on the edge of nosing the stair. This proposal is written the same format as the requirement as IBC *Section 1011.5.4.1 Nonuniform height risers*. However the distinguishing difference between stripes on nonuniform height risers and those proposed for all other stairs is "nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight."

The description of the marking stripes are written to be in alignment with ANSI/ICC 117.1 Accessibility Standard Section 504.6 "Visual Contrast". Addtionally this proposal modifies both Section 1011.5.4.1 and 1011.7.1 on the geometrical description of the contrasting marking stripe. Originally the stripe is defined as being one to two inches wide, this proposal more clearly defines the stripes as being one to two inches in depth and having a width that extends the width of the stair tread.

Bibliography: ANSI/IES RP-28-20. *Recommended Practice: Lighting and the Visual Environment for Older Adults and the Visually Impaired.* Illuminating Engineering Society. New York.

Cohen, Harvey and Pauls, Jake. *Warnings and Markings for Stairs and Pedestrian Terrain*. **Handbook on Warnings.** In: Michael Wogalter (Ed.),Lawrence Erlbaum, Inc., 2006, pp. 711-722.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

The lowest cost method for adding a stripe to stairs is painting a stripe. However to provide conservatively high estimate we have used the cost of adding a metal nosing strip to the tread of each stair and on the nosing of the landing above a stair. From estimates of costs published on the internet the costs of aluminum stair nosing are $6 to $21 per linear foot. https://kofflersales.com/product/metal-stair-nosing Similar costs are found on Grainger's and Lowes websites.

Using a medium costs of $12.50/linear foot, the material cost of adding an aluminum nosing to a 4 foot wide tread is $50/stair. According

one home improvement website, “A beginner can install a nosing on a tread in 15 to 30 minutes.” https://www.thespruce.com/installing-a-stair-nosing-strip-1822570 According to the US Bureau of Labor Statistics, the Mean Labor wage for carpenter, US average May 2022 is $ 27.99/hr https://www.bls.gov/oes/current/oes472031.htm Thus the labor cost is $14 per step to install a $50 nosing strip for a total installed cost of $64/stair tread. With 50% overhead and profit for carpenters (2020 RS Means), total cost is $96 per installed 4 foot wide nosing. For a 12 foot tall story, with 6 inch risers per step, there are 24 nosings with an installed cost of 24 x $96 = $2,304 per story.

This cost for nosings is compared against the cost adding stairs per story. In the Economics of Egress Alternatives and Life-Safety Costs, NIST Special Publication 1109. September 2010. Gaithersburg, Maryland (https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication1109.pdf) describes the costs of adding an additional exit stair to a 13 story prototypical building as follows: “The baseline value for the life-cycle costs of installing an additional exit stair in Building 2 ranges from $1.5 million for the 44 in (112 cm) stair width to $2.4 million for the 66 in (168 cm) stair width.” The cost per story of this added exit stair is $1.5 Million/ 12 = $125,000 per story. The fractional cost of adding aluminum stair nosings strips is $2,300/$125,000 = 1.8

Estimated Immediate Cost Impact Justification (methodology and variables):

Adding striping to stairs increases the cost of stairs by 1.8%. However, this cost is offset by the societal savings associated with avoiding trip and fall hazards on stairways.

Estimated Life Cycle Cost Impact:

In Cohen and Pauls, Warnings and Markings for Stairs and Pedestrian Terrain (see bibliography), they estimate that the ratio of the cost of annual injuries on stairs to the annual cost of stair construction is 10 to one. The annual construction rate of nonresidential buildings is 1.3% (table B7 of the US EIA 2012 Commercial Buildings Energy Consumption Survey). Thus the annual value of injuries on stairs are 10 x 0.013 = 13% of the value of the stock of all stairs. Assuming that metal nosing lasts at least 10 years, the ratio of the value of injuries on stairs over 10 years to cost of the stairs is 10 x 13% = 130% of the value of the stairs. As described in the cost impact statement, a conservatively high estimate of the cost of stair striping is 1.8% of total stair cost. Thus, the ratio of the cost of stair striping to the cost of injuries on stairs is 1.8%/130% = 1.4%. If stair striping reduces injuries on stairs, by 1.4% this will pay for the added cost of striping stairs by adding an aluminum nosing that is conspicuously different than the reflectance of the rest of the stair tread. Given the mechanisms of how falls are induced on stairs, we expect that stair striping will reduce the percentage of falls significantly more than 1.4%.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

If the striping reduces falls in stairs by any amount greater than 1.4%, life cycle cost is decreased.

In Cohen and Pauls, Warnings and Markings for Stairs and Pedestrian Terrain, they identify three factors to stair safety.

1. visibility of the stair flight and its individual steps, especially when viewed in descent;

2. adequacy and uniformity of step dimensions in relation to human gait; and

3. availability of reachable, graspable handrails that also provide accurate visual cues about the presence and location of steps.

Items 2 is addressed by IBC Section 1011.5. Item 3 is addressed by IBC section 1011.11. Visibility is only partially addressed by illuminance requirements in IBC Section 1008. Critical to visibility of steps is the luminance contrast of the tread edge; luminance contrast is the ratio of reflected light from the stair edge as compared to other surfaces on the stair. When stairs are uniformly illuminated, luminance contrast is a function of reflectance contrast of the stair edge from the surrounding tread and riser. Increasing illuminance without adjusting the ratios of surface reflectances of stair edge from its surroundings does not increase luminance contrast because with increasing illuminance, the luminance of both the stair edge and its surroundings will both rise proportionately and thus the ratio of the stair edge to its surroundings have not changed. We expect that lack of reflectance contrast is a significant cause of falls on stairs and thus addressing this issue will result in substantially more savings associated with avoided injuries and deaths than its first cost. Reducing stairway falls by only 1.4% will pay for the cost of the stair striping. See the calculations below for the rationale.

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: While contrast on stairways is important, the proposed requirements are not clear. The committee felt that the language was not clear enough to apply consistently and correctly in the field. The terms 'steps' is not defined in the code - this should be 'treads'. The requirements for the treads and landings should be in Sections 1011.5 and 1011.6. The application of this to "interior and exterior stairways" would include to all convenience stairways (exit access), as well as stairways in the exit discharge - this is over reaching. Are there any studies that have taken into consideration stairway continuity and handrails to address the safety concerns brought up by the proponents? What would be an acceptable material for the stripes? How would you verify contrast on stairways that were not a solid color? See also E74-24. (Vote: 13-1)

E73-24

Individual Consideration Agenda

Comment 1:

IBC: 1011.5, 1011.5.4.1, 1011.7.2, 1011.7.2.1, 1011.7.2.2, 1011.6, 1011.6.1 (New); IFC: [BE] 1011.5, [BE] 1011.5.4.1, 1011.7.2, 1011.7.2.1, 1011.7.2.2, [BE] 1011.6, [BE] 1011.6.1 (New)

Proponents: Jonathan McHugh, McHugh Energy Consultants Inc., California Investor Owned Utilities (jon@mchughenergy.com); Eunice Noell-Waggoner, Center of Design for an Aging Society, IES Lighting for Seniors and the Visually Impaired Committee (eunice@centerofdesign.org); Koni Sims, ACB Board of Director, American Council of the Blind (ACB), Visually Impaired/Low Vision (koni.l.sims@gmail.com) requests As Modified by Committee (AMC2)

Modify as follows:

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1011.5 Stair treads and risers. *Stair* treads and risers shall comply with Sections 1011.5.1 through ~~1011.5.5.3~~ 1011.5.6.

1011.5.4.1 Nonuniform height risers. Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of *stair* width. The *nosings* at such nonuniform height risers shall have a distinctive marking stripe, different from any other *nosing* marking provided on the *stair flight*. The distinctive marking stripe shall be visible in descent of the *stair*. Marking stripes shall have a width of not less than 1 inch (25 mm) but not more than 2 inches (51 mm).

Revise as follows:

~~**1011.7.2 Markings on stairways .** Egress path markings shall be provided on interior and exterior stairways in accordance with Sections 1011.7.2.1 and 1011.7.2.2.~~

~~**Exceptions:**~~

1. ~~Stairways within individual dwelling units.~~

~~2. Stairways with stripes complying with Section 1025.~~

~~**1011.7.2.1**~~ **1105.6** ~~**Steps**~~ **Marking stripes on tread nosings.** For interior exit stairways and exterior exit stairways, the leading 1 to 2 inches (25 to 51 mm) of every tread nosing shall have a marking stripe of a solid color that is lighter or darker than the remainder of the tread. The marking stripe shall be durable and shall extend from one side of the tread to the other side of each tread.~~A solid and continuous stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Stripes shall be a solid color having a visual contrast of dark on light or light on dark from the remainder of the tread or landing surface. Stripes have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 3 inches (76 mm). The leading edge of the stripe shall be placed not more than ½ inch (12.7 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than 1/2 inch (12.7 mm) down the vertical face of the step. The stripe shall be of material that is at least as slip resistant as the other tread surface.~~

Exceptions:

1. Portions of treads with distinctive marking stripes complying with Section 1011.5.4.1.
2. Stairways with stripes complying with Section 1025.

Delete without substitution:

~~**1011.7.2.2 Landings.** The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.~~

1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

1011.6.1 Marking stripes on landing nosings. For *interior exit stairways* and *exterior exit stairways*, the nosing of all landings shall have a marking stripe complying with Section 1011.5.6.

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[BE] 1011.5 Stair treads and risers. *Stair* treads and risers shall comply with Sections 1011.5.1 through ~~1011.5.5.3~~ 1011.5.6.

[BE] 1011.5.4.1 Nonuniform height risers. Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed 1 unit vertical in 12 units horizontal (8-percent slope) of *stair* width. The nosings at such nonuniform height risers shall have a distinctive marking stripe, different from any other *nosing* marking provided on the *stair flight*. The distinctive marking stripe shall be visible in descent of the *stair*. Marking stripes shall have a width of not less than 1 inch (25 mm) but not more than 2 inches (51 mm).

~~**1011.7.2 Markings on stairways .** Egress path markings shall be provided on interior and exterior stairways in accordance with Sections 1011.7.2.1 and1011.7.2.2.~~

~~**Exceptions:**~~

1. ~~Stairways within individual dwelling units.~~
2. ~~Stairways with stripes complying with Section 1025.~~

Revise as follows:

[BE] ~~**1011.7.2.1**~~ **1011.5.6** ~~**Steps**~~ **Marking stripes on tread nosings.** For interior exit stairways and exterior exit stairways, the leading 1 to 2 inches (25 to 51 mm) of every tread nosing shall have a marking stripe of a solid color that is lighter or darker color than the remainder of the tread. The marking stripe shall be durable and shall extend from one side of the tread to the other side of each tread.~~A solid and continuous stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Stripes shall be a solid color having a visual contrast of dark on light or light on dark from the remainder of the tread or landing surface. Stripes have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 3 inches (76 mm). The leading edge of the stripe shall be placed not more than ½ inch (12.7 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than 1/2 inch (12.7 mm) down the vertical face of the step. The stripe shall be of material that is at least as slip resistant as the other tread surface~~.

Exceptions:

1. Portions of treads with distinctive marking stripes complying with Section 1011.5.4.1.
2. Stairways with stripes complying with Section 1025.

Delete without substitution:

~~**1011.7.2.2 Landings.** The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.~~

[BE] 1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

[BE] 1011.6.1 Marking stripes on landing nosings. For *interior exit stairways* and *exterior exit stairways*, the nosing of all landings shall have a marking stripe complying with Section 1011.5.6.

Reason: This modified proposal attempts to include a fundamental safety feature into stairways, striping that delineates the edge of the nosing of the landing and the nosing of the stair tread. This is an extremely inexpensive features that is valuable for people with excellent vision but especially important for the visually impaired -- something that occurs to almost all with age. Many people wear bifocals designed for reading. This same feature creates a blurred view of edge of the tread or landing, whereas a contrasting marking is still visible and is not distorted. (See Reference for Herren et al. 2009).

The committee's comments were extremely helpful and the following responses describe how this revised proposal addressed these comments:

Comment: More clarity desired The terms 'steps' is not defined in the code - this should be 'treads'. The requirements for the treads and landings should be in Sections 1011.5 and 1011.6.

Response: This recommendation was followed by moving the requirements to Section 1011.5.6 "Marking stripes on tread nosings" and Section 1011.6.1 "Marking stripes on landing nosings."

Comment: The application of this to "interior and exterior stairways" would include to all convenience stairways (exit access), as well as stairways in the exit discharge - this is over reaching.

Response: As an initial proposal that addresses visibility of stairs we agree that this proposal should be limited to the areas with the greatest potential for significant injury. As a result, this modification to the proposal would limit the requirement for stripes on the nosing of treads and landings to interior exit stairways and exterior exit stairways. This scope is relatively easy to enforce as the building official can readily identify what ways are protected and does not have to parse whether the stairway is designated as accessible or not. In addition to protecting the visually impaired, this proposal is protective of the general population who also fall on stairs. With this reduced scope less exceptions are necessary.

Comment: What would be an acceptable material for the stripes? How would you verify contrast on stairways that were not a solid color? See also E74-24.

Response: This proposal asks that the stripe be durable and qualitatively have a contrast of light-on- dark or dark-on- light without a quantitative criteria. This qualitative light-on- dark or dark-on- light visual contrast criteria is the same as what is in Section 504.6 "Visual Contrast" in ICC A117.1-2017. The modified proposal to E74-24 discusses quantitative reflectance ratios that result in visual contrast that would also comply with the updates approved by the accessibility committee for ICC A117.1-2025.

Comment: Are there any studies that have taken into consideration stairway continuity and handrails to address the safety concerns brought up by the proponents? What would be an acceptable material for the stripes?

Response: The safety system for stairs is to have enough luminance contrast to detect the edge of the stair and also to have a handrail to catch oneself. Stair striping is like having good brakes before relying on the airbag of a car or the handrail to break one's fall. The original proposal provided a number of research studies on contrast and visibility and falls. A more recent study is from 2011 "Stepping characteristics and Centre of Mass control during stair descent: Effects of age, fall risk and visual factors," they concluded that "high stair edge contrast has a beneficial effect on balance control in older adults." **Comment:** How would you verify contrast on stairways that were not a solid color?

Response: Proposal 73 only asks for light on dark contrast without a specifying criteria. Though this criteria is qualitative, a building official can easily make the judgement call if there is no marking stripe at all. Installing white or yellow stripes on stairs are a pretty safe selection for most stairs even those that have patterned treads. Note that change in scope to interior exit stairways and exterior exit stairways reduces the likelihood that the stairs will be patterned.

Bibliography: Doerte Zietz, Leif Johannsen, & Mark Hollands. 2011. *Stepping characteristics and Centre of Mass control during stair descent: Effects of age, fall risk and visual factors*, **Gait & Posture.** Volume 34, Issue 2 , June 2011, pp. 279-284. https://doi.org/10.1016/j.gaitpost.2011.05.017

Mark J Haran et al. 2009. *Preventing falls in older multfocal glasses wearers by providing single-lens distance glasses: the protocol for the VISIBLE randomised controlled trial.* **BMC Geriatrics** 2009, 9:10 doi:10.1186/1471-2318-9-10

ICC A117.1-2025 *Standard for Accessible and Usable Buildings and Facilities* as approved by the ICC A117.1 development committee. Section 505.9. Note that this section used to be Section 504.6 "Visual contrast".

Cost Impact: Increase

Estimated Immediate Cost Impact:

See original cost estimate from original proposal, approximately $2,300 per story or approximately 1.8% of the cost of the stair.

Estimated Immediate Cost Impact Justification (methodology and variables):

See original cost justification from original proposal. Estimate is that injuries have a value of 13% of the cost of the stair per year. Breakeven cost is if striping reduces injuries by 1.4%

Estimated Life Cycle Cost Impact:

See original cost-effectiveness justification from original proposal. Breakeven cost is if striping reduces injuries by 1.4%

Estimated Life Cycle Cost Impact Justification (methodology and variables):

See original cost-effectiveness justification from original proposal.

Comment (CAH2)# 643

E74-24

IBC: 1011.7.2 (New), 1011.7.2.1 (New), 1011.7.2.2 (New), 1011.7.2.3 (New), ASTM Chapter 35 (New); IFC: 1011.7.2 (New), 1011.7.2.1 (New), 1011.7.2.2 (New), 1011.7.2.3 (New), ASTM Chapter 80 (New)

Proposed Change as Submitted

Proponents: Eunice Noell-Waggoner, Center of Design for an Aging Society, IES Lighting for Seniors and the Visually Impaired Committee (eunice@centerofdesign.org); Jonathan McHugh, McHugh Energy Consultants Inc., California Investor Owned Utilities (jon@mchughenergy.com); Nancy Clanton, Clanton & Associates, Inc, Clanton & Associates, Inc. (nancy@clantonassociates.com)

2024 International Building Code

Add new text as follows:

1011.7.2 Markings on stairways. Egress path markings shall be provided on interior and exterior stairways in accordance with Sections 1011.7.2.1 through 1011.7.2.3. **Exceptions:**

1. Stairways within individual dwelling units.
2. Stairways with stripes complying with Section 1025.

1011.7.2.1 Steps. A solid and continuous stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Stripes shall be a solid color having a visual contrast of dark-on-light or light-on dark from the remainder of the tread or landing surface. Stripes have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 3 inches (76 mm). The leading edge of the stripe shall be placed not more than ½ inch (12.7 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than 1/2 inch (12.7 mm) down the vertical face of the step. The stripe shall be of material that is at least as slip resistant as the other tread surface.

1011.7.2.2 Landings. The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.

1011.7.2.3 Light reflectance. The stripe light reflectance value (LRV) and the tread surface LRV shall be determined in accordance with ASTM E1331. The stripe LRV shall comply with one of the following:

1. Stripe LRV shall be no less than stair tread LRV plus 65.
2. Stripe LRV shall be no greater than stair tread LRV minus 65.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

E1331-15 (2019)	Standard Test Method for Reflectance Factor and Color by Spectrophotometry Using Hemispherical Geometry

2024 International Fire Code

Add new text as follows:

1011.7.2 Markings on stairways. Egress path markings shall be provided on interior and exterior stairways in accordance with Sections 1011.7.2.1 through 1011.7.2.3. **Exceptions:**

1. Stairways within individual dwelling units.
2. Stairways with stripes complying with Section 1025.

1011.7.2.1 Steps. A solid and continuous stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Stripes shall be a solid color having a visual contrast of dark-on-light or light-on dark from the remainder of the tread or landing surface. Stripes have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 3 inches (76 mm). The leading edge of the stripe shall be placed not more than ½ inch (12.7 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than 1/2 inch (12.7 mm) down the vertical face of the step. The stripe shall be of material that is at least as slip resistant as the other tread surface.

1011.7.2.2 Landings. The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.

1011.7.2.3 Light reflectance. The stripe light reflectance value (LRV) and the tread surface LRV shall be determined in accordance with ASTM E1331. The stripe LRV shall comply with one of the following:

1. Stripe LRV shall be no less than stair tread LRV plus 65.
2. Stripe LRV shall be no greater than stair tread LRV minus 65.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

E 1331-15	ASTM E1331-15 (2019) Standard Test Method for Reflectance Factor and Color by Spectrophotometry Using Hemispherical Geometry

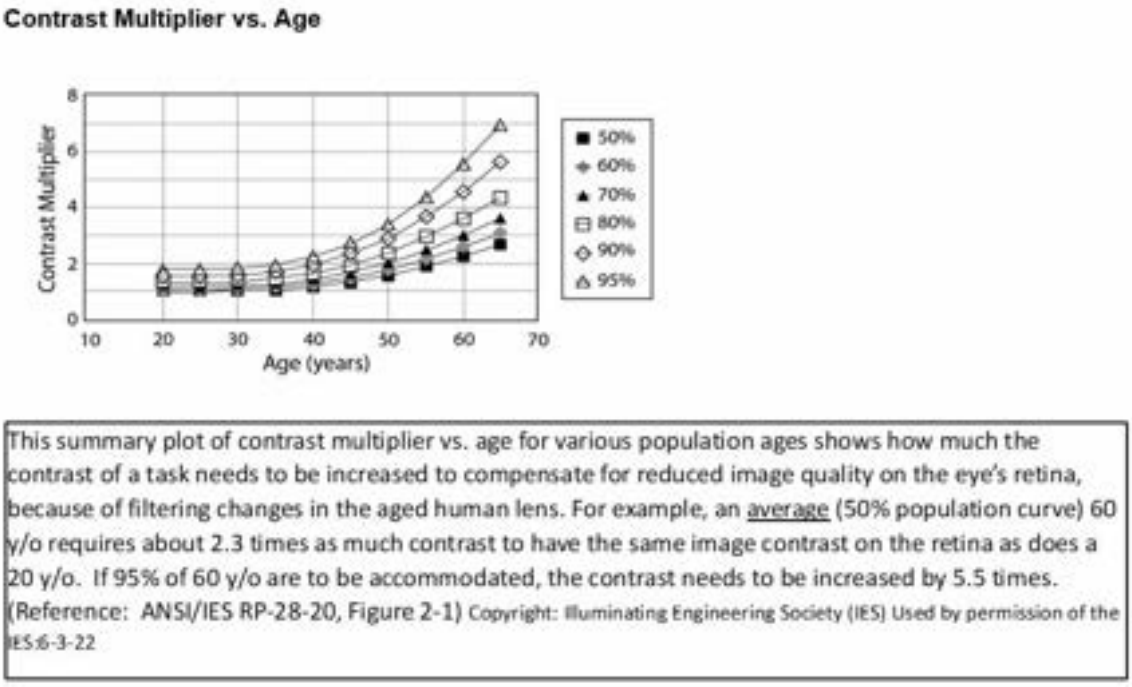
Reason: The Importance of Contrast on Stairs

Expanding Baby Boom Cohort: (Official Website of the U.S. Government, Report No. P25-1141)

- By 2029 20% of the US population will be over age 65.
- By 2056 the US population 65+will be larger than the population under 18 years.
- Why aren't building codes keeping pace with the requirement for our aging population?

Age-Related Vision Changes: Sensory loss is the most common aspect of aging; however, perception problems (e.g. vision and hearing) are not easily recognized by others or addressed in the built environment.

- **Low Vision is prevalent in the older population** and increases dramatically at the age of 70. Defined as 20/60 in the better seeing eye, and cannot be corrected with glasses, contact lenses, medicine, or surgery. (National Eye Institute, Low Vision 2010)
- **We see by visual contrast** and as people age, they experience a loss of contrast sensitivity.
- **Contrast sensitivity, not visual acuity, is associated with gait and fall related risk factors in older adults.** Research article: Duggan et al (2017) Time to refocus assessment of vision in older adults? Contrast sensitivity, but not visual acuity is associated with the gait of older adults. Journal of Gerontology :Medical Sciences doi: 10.1093/geona/glx21



This summary plot of contrast multiplier vs. age for various population ages shows how much the contrast of a task needs to be increased to compensate for reduced image quality on the eye's retina, because of filtering changes in the aged human lens. For example, an average (50% population curve) 60 y/o requires about 2.3 times as much contrast to have the same image contrast on the retina as does a 20 y/o. If 95% of 60 y/o are to be accommodated, the contrast needs to be increased by 5.5 times. (Reference: ANSI/IES RP-28-20, Figure 2-1)

Falls and stair negotiation in older people and their relationship with vision The prevalence and morbidity of falls (NIH National Library of Medicine, National Center for Biotechnology Information). Falls are a common and very serious problem for older adults, with approximately one-third of community-dwelling, healthy adults aged 65 years and over falling at least once per year, and with up to half of these people experiencing multiple falls. Annual falls rates increase to about 50% in people aged 85 years and over. Approximately 25% of falls result in an injury ranging from minor bruising to hip fracture. Hip fractures are a particularly severe consequence of falling, with the 1-year mortality rate following hip fracture being about 25%. In addition, 80% of surveyed older women suggested that they would rather be dead than experience the loss of independence and quality of life that results from a hip fracture and subsequent admission to a nursing home. Falls and hip fractures are mentioned as a contributing factor in 40% of admissions to long-term nursing and residential home care. Furthermore, even non-injurious falls have significant consequences, as they can lead to a fear of falling, which, in turn, results in a self-imposed restriction of functional activity, decreased mobility and independence, social isolation, deteriorating health, depression and reduced quality of life. **Incidences of falling in older people have been consistently linked to problems with step or stair negotiation.** Changes in visual acuity may be more associated with falls than the actual level of visual acuity, and other aspects of vision (such as visual field assessments, contrast sensitivity and stereoacuity are likely to be more important risk factors than visual acuity for falls.

According to CDC data, 38.6% of senior falls occur on level ground, but a significant 5.5% of all senior falls occur on stairs or steps.

Falls in Older Adults - Older People's Health Issues Merck Manuals https://www.merckmanuals.com › home › falls-in-older-...After a fall, injuries are common and tend to be more severe as people age. Over half of all falls result in at least a slight injury, such as a bruise, sprained ligament, or strained muscle. More serious injuries include broken bones, torn ligaments, deep cuts, and damage to organs such as the kidney or the liver.

The information cited in Cohen and Pauls (2006) is still valuable. The information provided above is focus on age-related changes to vision and the risk factor for falls on stairs due to these changes.

Contrast at the edge of stair treads defines where to safely step and helps prevent falls. Cohen and Paul also note that increasing quantity of lighting alone is not sufficient to increase the visibility of the edge of the stair tread. "In addition to lighting, there are other important factors in visibility of steps, including careful choice of stairway covering materials to avoid patterns that tend to camouflage the step nosings and the critical leading edges of treads. **and to use highly contrasting tread markings.**"

The Illuminating Engineering Society's Recommended Practice for Lighting and the Visual Environment for Older Adults and the Visually Impaired (IES-RP-28-20) notes the following concerning the use of reflectance contrast for increasing visibility: Value contrast should be

a design consideration in the selection of finishes for corridors, stairs, lobbies and spaces that become part of the path of egress. Contrast helps to define the space and the elements within the space, e.g., doorways, changes of floor level or direction, and obstructions such as columns, to increase visibility and the occupant's confidence. Everyone's sight benefits from value contrast in low-light conditions, regardless of age or visual acuity.The

IES also recommends that "*All stairs should have clearly marked edge strips, staircase borders, and handrails to meet the needs of older people and persons with low vision*."

Similar to what has been recommended by Cohen and Pauls and the Illuminating Engineering Society, this proposal would increase the safety of stairways by increasing the visual contrast (and thus the luminance contrast) by requiring contrast stripes on the nosing or leading edges of stairs. The difference in reflectance between the edge stripe and the rest of the stair tread will increase the visibility of the edge of the stair. These contrasting stripes would be one to two inches wide on the edge of nosing the stair but would allow 3" wide nosing on concrete stairs to provide adequate attachment to the tread. This proposal is written the same format as the requirement as IBC Section 1011.5.4.1 Nonuniform height risers. However the distinguishing difference between stripes on nonuniform height risers and those proposed for all other stairs is "nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight."

The description of the marking stripes are written to be in alignment with ANSI/ICC 117.1 Accessibility Standard Section 504.6 "Visual Contrast". Additionally this proposal modifies both Section 1011.5.4.1 and 1011.7.1 on the geometrical description of the contrasting marking stripe. Originally the stripe is defined as being one to two inches wide, this proposal more clearly defines the stripes as being one to two inches in depth and having a width that extends the width of the stair tread.

Bibliography: United State Government Report #P25-1141)
National Eye Institute, Low Vision 2010.

Journal of Gerontology Medical Sciences Research Article: doi: 10.1093/geona/glx21.

CDC ,Older Adult Falls Data | Fall Prevention | Injury Center | CDC

ANSI/IES RP-28-20. Recommended Practice: Lighting and the Visual Environment for Older Adults and the Visually Impaired. Illuminating Engineering Society. New York.

NIH National Library of Medicine, National Center for Biotechnology Information.

CDC data: Significant number of falls for Seniors occurred on stairs and steps.

Falls in Older Adults - Older People's Health Issues Merck Manuals https://www.merckmanuals.com › home › falls-in-older-.

Cohen, Harvey and Pauls, Jake. Warnings and Markings for Stairs and Pedestrian Terrain. Handbook on Warnings. In: Michael Wogalter (Ed.),Lawrence Erlbaum, Inc., 2006, pp. 711-722.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

The lowest cost method for adding a stripe to stairs is painting a stripe. However to provide conservatively high estimate we have used the cost of adding a metal nosing strip to the tread of each stair and on the nosing of the landing above a stair. From estimates of costs published on the internet the costs of aluminum stair nosing are $6 to $21 per linear foot. https://kofflersales.com/product/metal-stair-nosing Similar costs are found on Grainger's and Lowes websites.

Using a medium costs of $12.50/linear foot, the material cost of adding an aluminum nosing to a 4 foot wide tread is $50/stair. According

one home improvement website, “A beginner can install a nosing on a tread in 15 to 30 minutes.” https://www.thespruce.com/installing-a-stair-nosing-strip-1822570 According to the US Bureau of Labor Statistics, the Mean Labor wage for carpenter, US average May 2022 is $ 27.99/hr https://www.bls.gov/oes/current/oes472031.htm Thus the labor cost is $14 per step to install a $50 nosing strip for a total installed cost of $64/stair tread. With 50% overhead and profit for carpenters (2020 RS Means), total cost is $96 per installed 4 foot wide nosing. For a 12 foot tall story, with 6 inch risers per step, there are 24 nosings with an installed cost of 24 x $96 = $2,304 per story.

Estimated Immediate Cost Impact Justification (methodology and variables):

Adding striping to stairs increases the cost of stairs by 1.8%. However, this cost is offset by the societal savings associated with avoiding trip and fall hazards on stairways.

Estimated Life Cycle Cost Impact:

Overall life cycle impact is negative meaning that society has an overall benefit from the increased visibility of change of level in stairs.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

In Cohen and Pauls Warnings and Markings for Stairs and Pedestrian Terrain (see bibliography), they cite that "Stair-related injuries alone were estimated to have a societal cost of nearly 50 billion dollars in 1995."

E74-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: Same reasons as E73-24. In addition, the width of the stripes should be a maximum of 2 inches. There were several issues brought up during the testimony regarding testing - how and where do you take the measurements? Can interpretations be based on plans, or is the only option to field verify? Direction must be provided for the code official. ASTM E1331-15 does not specifically address contrast. This is not the right standard. This is already addressed in Section 1025.4. (Vote: 13-1)

E74-24

Individual Consideration Agenda

Comment 1:

IBC: 1011.5, 1011.5.4.1, 1011.7.2, 1011.7.2.1, 1011.7.2.3, 1011.5.6.1.1 (New), 1011.7.2.2, 1011.6, 1011.6.1 (New), ASTM Chapter 35; IFC: [BE] 1011.5, [BE] 1011.5.4.1, 1011.7.2, 1011.7.2.1, 1011.7.2.3, [BE] 1011.5.6.1.1 (New), 1011.7.2.2, [BE] 1011.6, 1011.6.1 (New), ASTM Chapter 80

Proponents: Jonathan McHugh, McHugh Energy Consultants Inc., California Investor Owned Utilities (jon@mchughenergy.com); Eunice Noell-Waggoner, Center of Design for an Aging Society, IES Lighting for Seniors and the Visually Impaired Committee (eunice@centerofdesign.org); Koni Sims, ACB Board of Director, American Council of the Blind (ACB), Visually Impaired/Low Vision (koni.l.sims@gmail.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1011.5 Stair treads and risers. *Stair* treads and risers shall comply with Sections 1011.5.1 through ~~1011.5.5.3~~ 1011.5.6.

1011.5.4.1 Nonuniform height risers. Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of *stair* width. The *nosings* at such nonuniform height risers shall have a distinctive marking stripe, different from any other *nosing* marking provided on the *stair flight*. The distinctive marking stripe shall be visible in descent of the *stair*. Marking stripes shall have a width of not less than 1 inch (25 mm) but not more than 2 inches (51 mm).

~~**1011.7.2 Markings on stairways .** Egress path markings shall be provided on interior and exterior stairways in accordance with Sections 1011.7.2.1 through 1011.7.2.3.~~

~~**Exceptions:**~~

1. ~~Stairways within individual dwelling units.~~
2. ~~Stairways with stripes complying with Section 1025.~~

~~**1011.7.2.1**~~ **1011.5.6** ~~**Steps**~~ **Marking stripes on tread nosings.** For *interior exit stairways* and *exterior exit stairways*, the leading 1 to 2 inches (25 to 51 mm) of every tread *nosing* shall have a marking stripe of a solid color that is lighter or darker than the remainder of the tread. The marking stripe shall be durable and shall extend from one side of the tread to the other side of each tread.~~A solid and continuous stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Stripes shall be a solid color having a visual contrast of dark on light or light on dark from the remainder of the tread or landing surface. Stripes have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 3 inches (76 mm). The leading edge of the stripe shall be placed not more than ½ inch (12.7 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than 1/2 inch (12.7 mm) down the vertical face of the step. The stripe shall be of material that is at least as slip resistant as the other tread surface.~~

Exceptions:

1. Portions of treads with distinctive marking stripes complying with Section 1011.5.4.1.
2. Stairways with stripes complying with Section 1025.

Revise as follows:

~~**1011.7.2.3**~~ **1011.5.6.1 Light reflectance value.** The average light reflectance value (LRV) of the lighter surface shall be no less than 50, and the average LRV of the darker surface shall be no greater than 35% of the average LRV of the lighter surface. The marking stripe light reflectance value (LRV) and the tread and landing surface LRV shall be the percent light reflectance value measured ~~determined~~ in accordance with ASTM E1331. For field measurements including those in a mock-up of a sample tread or landing, the reported LRV or CIE Y value measured by a colorimeter shall also be an allowed method of determining LRV.~~The stripe LRV shall comply with one of the following:~~

1. ~~Stripe LRV shall be no less than stair tread LRV plus 65.~~
2. ~~Stripe LRV shall be no greater than stair tread LRV minus 65.~~

Exceptions:

1. Treads and landings where the LRV of a background material cannot be accurately measured, such as a natural material, and where the marking stripe is lighter or darker than the remainder of the tread and landing.
2. Where the marking stripe is yellow that approximates traffic yellow.

Add new text as follows:

1011.5.6.1.1 Compliance. Compliance for the light reflectance value (LRV) shall be determined by at least one of the following:

1. Documentation provided by the manufacturer based on information from the supplier of the material.

2. Documentation of compliance by a testing agency.

3. Field measurement including mock-up.

~~**1011.7.2.2 Landings.** The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.~~

1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

Add new text as follows:

1011.6.1 Marking stripes on landing nosings. For *interior exit stairways* and *exterior exit stairways*, the *nosing* of all landings shall have a marking stripe complying with Section 1011.5.6.

ASTM

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2024 International Fire Code

[BE] 1011.5 Stair treads and risers. *Stair* treads and risers shall comply with Sections 1011.5.1 through ~~1011.5.5.3~~ 1011.5.6.

[BE] 1011.5.4.1 Nonuniform height risers. Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed 1 unit vertical in 12 units horizontal (8-percent slope) of *stair* width. The nosings at such nonuniform height risers shall have a distinctive marking stripe, different from any other *nosing* marking provided on the *stair flight*. The distinctive marking stripe shall be visible in descent of the *stair*. Marking stripes shall have a width of not less than 1 inch (25 mm) but not more than 2 inches (51 mm).

Revise as follows:

~~**[BE] 1011.7.2 Markings on stairways.** Egress path markings shall be provided on interior and exterior stairways in accordance with Sections 1011.7.2.1 through 1011.7.2.3.~~

~~**Exceptions:**~~

1. ~~Stairways within individual dwelling units.~~
2. ~~Stairways with stripes complying with Section 1025.~~

[BE] ~~**1011.7.2.1**~~ **1011.5.6** ~~**Steps**~~ **Marking stripes on tread nosing.** For *interior exit stairways* and *exterior exit stairways*, the leading 1 to 2 inches (25 to 51 mm) of every tread *nosing* shall have a marking stripe of a solid color that is lighter or darker than the remainder of the tread. The marking stripe shall be durable and shall extend from one side of the tread to the other side of each tread.~~A solid and continuous stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Stripes shall be a solid color having a visual contrast of dark on light or light on dark from the remainder of the tread or landing surface. Stripes have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 3 inches (76 mm). The leading edge of the stripe shall be placed not more than ½ inch (12.7 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than 1/2 inch (12.7 mm) down the vertical face of the step. The stripe shall be of material that is at least as slip resistant as the other tread surface.~~

Exceptions:

1. Portions of treads with distinctive marking stripes complying with Section 1011.5.4.1.
2. Stairways with stripes complying with Section 1025.

Revise as follows:

[BE] ~~**1011.7.2.3**~~ **1011.5.6.1 Light reflectance value.** The average light reflectance value (LRV) of the lighter surface shall be no less than 50, and the average LRV of the darker surface shall be no greater than 35% of the average LRV of the lighter surface. The marking stripe light reflectance value (LRV) and the tread and landing surface LRV shall be the percent light reflectance value measured ~~determined~~ in accordance with ASTM E1331. For field measurements including those in a mock-up of a sample tread or landing, the reported LRV or CIE Y value measured by a colorimeter shall also be an allowed method of determining LRV~~The stripe LRV shall comply with one of the following:~~

1. ~~Stripe LRV shall be no less than stair tread LRV plus 65.~~
2. ~~Stripe LRV shall be no greater than stair tread LRV minus 65.~~

Exceptions:

1. Treads and landings where the LRV of a background material cannot be accurately measured, such as a natural material, and where the marking stripe is lighter or darker than the remainder of the tread and landing.
2. Where the marking stripe is yellow that approximates traffic yellow.

Add new text as follows:

[BE] 1011.5.6.1.1 Compliance. Compliance for the light reflectance value (LRV) shall be determined by at least one of the following:

1. Documentation provided by the manufacturer based on information from the supplier of the material.
2. Documentation of compliance by a testing agency.
3. Field measurement including mock-up.

~~**[BE] 1011.7.2.2 Landings.** The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.~~

[BE] 1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into the required width of a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces. **Exceptions:**

1. Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1030.
2. Where curved *stairways* of constant radius have intermediate landings, the landing depth shall be measured horizontally between the intersection of the walkline of the lower *flight* at the landing *nosing* and the intersection of the walkline of the upper *flight* at the *nosing* of the lowest tread of the upper *flight*.
3. Where a landing turns 90 degrees (1.57 rad) or more, the minimum landing depth in accordance with this section shall not be required where the landing provided is not less than that described by an arc with a radius equal to the width of the *flight* served.

Add new text as follows:

1011.6.1 Marking stripes on landing nosings. For *interior exit stairways* and *exterior exit stairways*, the *nosing* of all landings shall have a marking stripe complying with Section 1011.5.6.

ASTM

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E 1331-15	ASTM E1331-15 (2019) Standard Test Method for Reflectance Factor and Color by Spectrophotometry Using Hemispherical Geometry

Reason: This proposal quantifies the required reflectance of a marking stripe that delineates the edge or nosing of the stair tread and the nosing of landings above stairs so that there is enough visual contrast between the edge of these surfaces and the surfaces themselves. These stripes are critical in preventing falls which has significant impact on fatalities and injury. The original proposal details the significant societal costs associated with falls on stairs.Recognizing the risk associated with not striping stairs and landings, the following countries have requirements for contrasting striping on stairs with specific reflectance requirements to create visual contrast between the leading edge of stairs and the rest of the treads and landings:
Great Britain
Germany
Australia

The reflectances required by this proposal result in luminance differences between the stripe and the background surface that have a Weber Contrast Ratio of 65%. The ICC A117.1 committee determined this 65% minimum Weber contrast to be protective against fall and trip hazards similar what was recommended by ISO 21542:2021. Weber contrast is a function of the relative light reflectance value (LRV) of the tread and the contrasting stripe.

Additionally, the ISO requires that the lighter surface have a LRV between100 and 50 (percent values) to maintain discrimination for the visual task as there is less discrimination between having dark and very dark colors. In ISO 21542:2021, they reference CIE Y which is directly equivalent to LRV. The ICC A117.1 committee has used the Weber Contrast Ratio formula as follows:

$$Cw = (Rlight - Rdark)/Rlight$$

Where,
Cw = Weber contrast ratio
Rdark = reflectance value of darker surface (lower reflectance)
Rlight = reflectance value of lighter surface (higher reflectances)

For simplicity we have used the ratio of reflectances of the stripe and the background. Rearranging the terms in the Weber formula results in a much simpler equation for determining the maximum ratio of the darker (lower) reflectance to the lighter (higher) reflectance.

Cw = (Rlight – Rdark)/Rlight = 1- Rdark/Rlight

1-Cw = Rdark/Rlight

Where

If Cw (Weber contrast) is required to be greater than 65%, then 1- Cw must be less than 35%.

As a result the ratio of the darker colored surface shall be less than 35% of the reflectance of the lighter colored surface. This LRV ratio in conjunction with the requirement that the LRV of the lighter (higher reflectance) surface be greater than 50 forms the basis of the light reflectance requirements in Section 1011.5.6.1

This proposal makes use of ASTM E1331-2015 which a repeatable method for measuring reflectances of paints, and surface reflectance. It also addresses how to measure high gloss (exclude specular component) versus low gloss (include specular component) surfaces. During the code action hearing, stakeholders asked how this standard would be enforced. This proposal added a compliance section to identify the many methods of showing compliance including manufacturer's documentation of LRV and on-site measurements. For laboratory settings that would be used to define product properties the ASTM test method makes for an accurate measurement of light reflectance value (LRV). However in updating this proposal we identified that this was limiting in terms of the inexpensive handheld products that would be appropriate for on-site measurements including those measurements that are on-site at a mock-up of the tread or landing and marking stripe. Thus for these on-site measurements, the allowable test methods were expanded to allow the use of relatively inexpensive colorimeters without an internal integrating sphere to measure the light reflectance value. Portable colorimeters are frequently used for color matching of paints to a preexisting surface and many provide the direct measurement of LRV or "CIE Y," the CIE luminance value in the CIE XYZ color space. Both LRV and CIE Y are equivalent.

This proposal also allows the use of a traffic yellow marking stripe in lieu of a marking stripe with a defined LRV relative to the tread or landing. Prior research conducted by the US Department of Transportation "Detectable Warning Surfaces: Color Contrast and Reflectance" found that high luminance contrast was more readily detected by people with visual impairment but they also found that safety yellow was most frequently chosen as "most visually detectable." The ICC A117.1 Committee has recommended that in most cases SAE AMS-STD-595A, Color ID 33538 International Yellow (also known as traffic yellow) be the required color for detectable sources in Section 705.3. "Contrast" in A117.1-2025 as this color "provides a high level of conspicuity for a given level of luminance contrast." There are already many products that meet this color specification and it is a recognized color for warning pedestrians of curb ramps and travelers the edge of rail platforms and the like. This specification has been in the California Building code in Chapter 11B Section 11B-705.1.1.3.1 as the primary method of complying with the detectable surfaces requirement as follows: "Detectable warning surfaces shall be yellow and approximate 33538 of SAE AMSSTD-595A.". In the SAE standard, color ID 33538 is listed as having CIELAB color coordinates of L* = 72.9, a* = 22.93, b* =72.42 when measured under a D65 illuminant and is listed as any of the following color names: Yellow International, Traffic Yellow, or ANA 614. This proposal is making use of the commonly recognized paint color name Traffic Yellow.

As an exception, the marking stripe being yellow and approximating the color of traffic yellow removes compliance uncertainty associated with the proposed requirements when tread reflectance is not known in advance. A stripe closely approximating traffic yellow can always be used regardless of the tread or landing surface background reflectance. This addresses variegated stairs, concrete stairs where the surface reflectance might very depending upon the concrete mix or how the surface is finished. However for designers not wishing to use a yellow stripe they can select a marking stripe with a light reflectance value relative to the reflectance of the tread as required in section 1011.5.6.1. Commenters had also brought up the concern of the feasibility of placing a colored stripe on stair treads made out of metal grating. The requirement allows a stripe between 1 and 2 inches wide. We found many metal stair treads that have at least a 1" solid sheet metal nosing on the front edge of the tread. In the committee's reason statement there were some very useful questions that are answered below:

Comment: The width of the stripes should be a maximum of 2 inches.

Reply: Agreed, this is change is in the introductory phrase to revised Section 1011.7.2 (Visual Contrast between Striping and Stairway Treads and Landings) "The leading 1 to 2 inches (25 to 51 mm) of every tread and landing shall be a stripe of a solid color with a visual contrast…"

Comment: There were several issues brought up during the testimony regarding testing - how and where do you take the measurements? Can interpretations be based on plans, or is the only option to field verify? Direction must be provided for the code official.

Reply: In response to this comment, the proposal was modified to add Section 1105.6.1.1 (Compliance) which describes the three ways one can show compliance: manufacturer's data, test data or field measurement (including mock-ups).

Comment: ASTM E1331-15 does not specifically address contrast. This is not the right standard. This is already addressed in Section 1025.4.
Reply: Section 1025.4 addresses self-luminous and photoluminescent materials. Self luminous materials are materials that emit light (such as tritium) and photoluminescent materials are those that store physical changes from absorbed light and re-emit light over time. This proposal is addressing the reflectance value of stripes that rely on illumination to instantaneously provide varying amounts of luminance contrast based on the reflectance of the stripe and the background surface. The newly defined contrast requirements in A117.1 are based on the Weber contrast relationship between the marking stripe reflectance and its background. This proposal only describes reflectance requirements without introducing the more complex equations associated with Weber Contrast. ASTM E1331-15 does not directly address contrast; it is a test method for measuring reflectance. In modifying this proposal, we have not introduced the term contrast as compliance is solely based on the ratio of reflectances of the marking stripe and the tread or landing surface.

Comment to Proposal 73: How would you verify contrast on stairways that were not a solid color?
Reply: Proposal 74 has specific average reflectance criteria and addresses this issue in four ways:
1. If the variability does not have much spatial distribution (i.e. granite with light and dark flecks but the overall color is relatively uniform), the measurement port of the reflectometer provides the needed averaging.
2. If the variability is large with large elements of dark and light, averaging is accomplished by measuring multiple locations and averaging the results.
3. The proposal E74-24 as modified specifically exempts “Treads and landings where the LRV of a background material cannot be accurately measured, such as a natural material, and where the marking stripe is lighter or darker than the remainder of the tread and landing.”
4. Also is exempted is "Where the marking stripe is yellow that approximates traffic yellow."

Note that all methods of compliance require the presence of a marking stripe, the last two do not require a measurement of reflectance contrast.

During the initial code action hearing on this proposal some commenters asked the question concerning how this would be enforced. The most common method would be for the manufacturers of stair striping and stair treads to provide light reflectance values (LRV) of these products and designer would provide these values as part of their submittal. The manufacturer could test the materials themselves or could have a test lab take the measurements. These measurements are simple and inexpensive. In some cases the data is not readily available from the manufacturer, a mock-up could be constructed, and the designer could ask for pre-approval from the AHJ based on the mock-up. Occasionally it might be required to take a site measurement. A small handheld colorimeter that reports either LRV or CIE Y values can be used to take the measurements.

Bibliography: BS 8493:2008+A1:2010 *Light reflectance value (LRV) of a surface. Method of test*. British Standards Institution

BS 8300-1: 2018 *Design of an accessible and inclusive built environment Part 1: External environment — Code of practice.* British Standards Institution

ICC A117.1-2025 *Standard for Accessible and Usable Buildings and Facilities* as approved by the ICC A117.1 development committee. International Code Council Country Club Hills, Illinois. **Section 505.9**. Note that this section used to be Section 504.6 “Visual contrast”.

ICC A117.1-2025 *Standard for Accessible and Usable Buildings and Facilities* as approved by the ICC A117.1 development committee.International Code Council Country Club Hills, Illinois. **Section 705** Detectable Warning Surfaces and Section 705.3 “Contrast.”

ISO 21542:2021(E) Building construction — *Accessibility and usability of the built environment.* International Standards Organization Geneva, Switzerland

US Department of Transportation. 1994. Detectable Warning Surfaces: Color Contrast and Reflectance. Final Report September 1994. DOT-VNTSC-FTA-94-5. https://accessforblind.org/publications/USDOT/dws-ccr%20(downloaded%20from%20dot%20site).pdf

Cost Impact: Increase

Estimated Immediate Cost Impact:

See the orginal discussion of building cost versus avoided injuries

Estimated Immediate Cost Impact Justification (methodology and variables):

See the orginal discussion of building cost versus avoided injuries

Comment (CAH2)# 691

E78-24

IBC: 1013.6, 1013.6.1, 1013.6.2 (New), FIGURE 1013.6.2 (New), 1013.6.2.1 (New), 1013.6.3 (New), 1013.6.2, 1013.6.3; IFC: [BE] 1013.6, [BE] 1013.6.1, 1013.6.2 (New), FIGURE 1013.6.2 (New), 1013.6.2.1 (New), 1013.6.3 (New), [BE] 1013.6.2, [BE] 1013.6.3

Proposed Change as Submitted

Proponents: Scott Brody, None (sbrody96@gmail.com)

2024 International Building Code

Revise as follows:

1013.6 Externally illuminated exit signs. Externally illuminated exit signs shall comply with Sections 1013.6.1 through ~~1013.6.3~~ 1013.6.5.

1013.6.1 ~~Graphics~~ Exit text. Every textual exit sign and directional exit sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than $^{3}/_{4}$ inch (19.1 mm) wide. The word “EXIT” shall have letters having a width not less than 2 inches (51 mm) wide, except the letter “I,” and the minimum spacing between letters shall be not less than $^{3}/_{8}$ inch (9.5 mm). Signs larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height.The word “EXIT” shall be in high contrast with the background and shall be clearly discernible when the means of exit sign illumination is or is not energized. If a chevron directional indicator is provided as part of the exit sign, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.Exit text shall be permitted to be displayed in multiple languages. In these situations, and in jurisdictions utilizing non-Latin scripts, the size of text, and its placement with respect to directional indicators, shall be *approved*.

Add new text as follows:

1013.6.2 Exit symbols. Graphical symbol exit signs shall be based on Figure 1013.6.2 and the symbol shall be a minimum of 5.91 inches (150 mm) high.

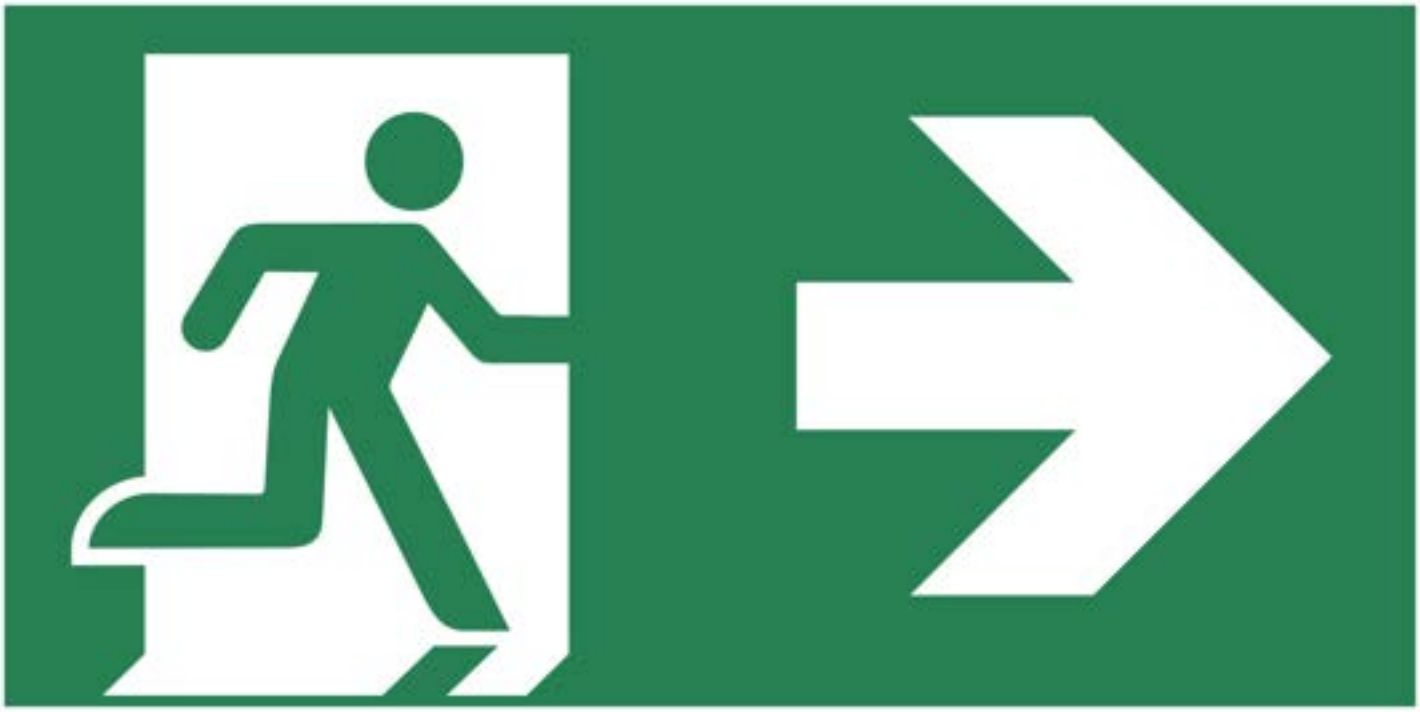


FIGURE 1013.6.2 Graphic exit symbol

1013.6.2.1 Detail proportions and color requirements. The proportions of the graphic exit symbol, and the size and positioning of any arrow, shall be in accordance with UL 924. The color of the doorway and arrow shall be white. The background and person moving through the doorway shall be green.

1013.6.3 Textual and graphic symbol exit signs. Exit signs shall include the graphic symbol or a combination of the text and graphic symbol. Where text and symbol are both provide they shall be displayed simultaneously. The text shall not obstruct the symbol or arrow. The exit text and symbols shall be on one sign or two adjacent signs.

Revise as follows:

~~**1013.6.2**~~ **1013.6.4 Exit sign illumination.** The face of an exit sign illuminated from an external source shall have an intensity of not less than 5 footcandles (54 lux).

~~**1013.6.3**~~ **1013.6.5 Power source.** Exit signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the *emergency power system* shall be in accordance with Chapter 27. Group I-2, Condition 2 exit sign illumination shall not be provided by unit equipment batteries only. **Exception:** *Approved* exit sign illumination types that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.

2024 International Fire Code

Revise as follows:

[BE] 1013.6 Externally illuminated exit signs. Externally illuminated exit signs shall comply with Sections 1013.6.1 through ~~1013.6.3~~ 1013.6.5.

[BE] 1013.6.1 ~~Graphics~~ Exit text. Every textual exit sign and directional exit sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than $^3/_4$ inch (19.1 mm) wide. The word “EXIT” shall have letters having a width not less than 2 inches (51 mm) wide, except the letter “I,” and the minimum spacing between letters shall be not less than $^3/_8$ inch (9.5 mm). Signs larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height.The word “EXIT” shall be in high contrast with the background and shall be clearly discernible when the means of exit sign illumination is or is not energized. If a chevron directional indicator is provided as part of the exit sign, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.Exit text shall be permitted to be displayed in multiple languages. In these situations, and in jurisdictions utilizing non-Latin scripts, the size of text, and its placement with respect to directional indicators, shall be *approved*.

Add new text as follows:

1013.6.2 Exit symbols. Graphical symbol exit signs shall be based on Figure 1013.6.2 and the symbol shall be a minimum of 5.91 inches (150 mm) high.

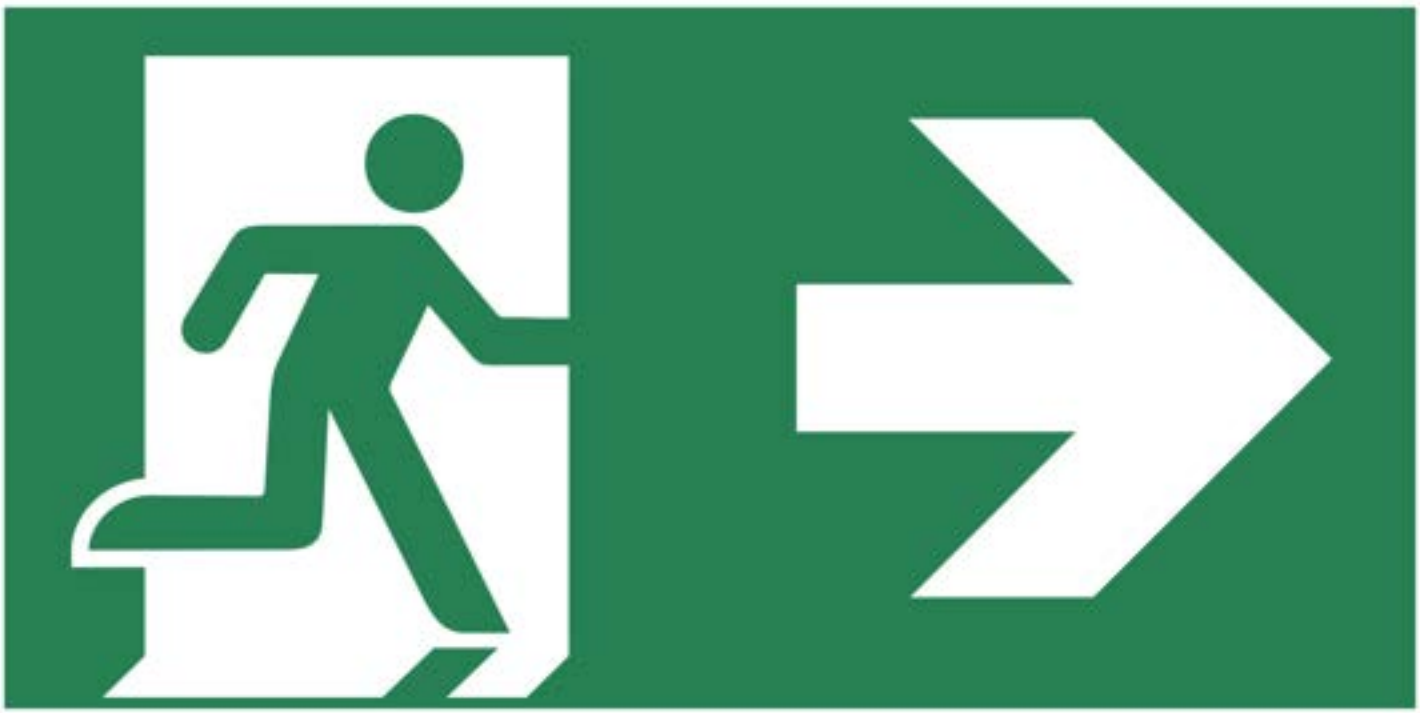


FIGURE 1013.6.2 Graphic exit symbol

1013.6.2.1 Detail proportions and color requirements. The proportions of the graphic exit symbol, and the size and positioning of any arrow, shall be in accordance with UL 924. The color of the doorway and arrow shall be white. The background and person moving through the doorway shall be green.

1013.6.3 Textual and graphic symbol exit signs. Exit signs shall include the graphic symbol or a combination of the text and graphic symbol. Where text and symbol are both provide they shall be displayed simultaneously. The text shall not obstruct the symbol or arrow. The exit text and symbols shall be on one sign or two adjacent signs.

Revise as follows:

[BE] ~~1013.6.2~~ 1013.6.4 Exit sign illumination. The face of an exit sign illuminated from an external source shall have an intensity of not less than 5 footcandles (54 lux).

[BE] ~~1013.6.3~~ 1013.6.5 Power source. Exit signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Section 1203. Group I-2, Condition 2 exit sign illumination shall not be provided by unit equipment batteries only. **Exception:** *Approved* exit sign illumination types that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.

Reason: Fixes violations of Code Council Policy #49-21, because the current language:

- Precludes the code from being adopted in certain situations internationally.
- Conflicts with International Law: World Trade Organization Technical Barriers to Trade Agreement Article 2.4

Improves safety because:

o The human brain is better at recalling information when it is presented visually.

o Symbols have faster glance recognition versus words.

o Foreigners, small children, and people with certain disabilities can better understand symbolic communication.

o People in nations using the I-codes will gain exposure to the exit symbol used in most of the world, thus they will be better prepared for emergencies while traveling abroad.

o The ISO arrow is far more legible at a distance vs the tiny chevron directional indicator referenced in the current code.

o Large ISO-type arrows can be more clearly X'd out on dynamic exit signs, which may be coming in the future.

o The proposed language also encourages and incentivizes placing door numbers on signs, which make it easier for emergency services to know what door to arrive at, without the caller having to go outside, look for a door number, and potentially get locked out.

My proposal thus takes advantage of the benefits of symbols, while providing reasonable options for supplemental text to support symbol learning where this type of exit sign has not yet been introduced (mainly the US).

Bibliography: See attachment for bibliography and further justification.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

An example of the cost of an exit sign is $20. The total cost for the building is dependent on the number of exit signs required. If you can save even a small amount on each sign, that could be a significant savings for the building.

Estimated Immediate Cost Impact Justification (methodology and variables):

Because this change provides increased flexibility, it is expected costs will be lower in some cases. This is especially true for prefabricated structures, for example jet bridges, which would not have to be imported with separate exit signs for the US market.

For ordinary externally illuminated exit signs, there is potential for cost savings because customers will be able to shop on the global marketplace for ISO signs, vs the smaller market for text signs. This could result in even higher savings in non-English speaking places using this code, because there may be a limited number of manufacturers selling signs in languages with few speakers.

For exit text and symbol signs, the costs would depend on what the AHJ requires. For example, if the AHJ only mandates small exit text, a label could be placed on top of the sign, which could cost in the range of cents more per sign. If the AHJ requires larger text, the sign could wind up larger than the existing standard. Since many sign producers charge based on the surface area of the sign, costs could be expected to be higher than existing norms. However, there would still be 0$ required cost to the builder since they retain the option to continue using text only signs. In the event custom information is added to the sign, such as door numbers, this would be expected to be more expensive than the current sign configuration. It would also generally require larger signs. Since this is only being proposed as an option, it would result in no additional cost if the building owner did not wish to exercise such rights.

Because of the multitude of factors impacting safety, and various conditions in different nations, it is not possible to definitively quantify the safety costs vs benefits of ISO exit signs, vs the current IFC standard.

Since most exit signs are internally illuminated, and these changes apply only to externally illuminated signs, the overall cost impact can be expected to be limited.

Attached Files

- **10382 Exit sign code change narrative without vessels.pdf**
  https://www.cdpaccess.com/proposal/10382/30651/files/download/4773/

E78-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: As written the pictogram is required. This should allow for this the pictogram as an option and/or an exit only sign so that people can get used to this type of exit sign. This is only included under externally illuminated exit signage - what about internally illuminated exit signage. The cost impact indicates this a cost savings, but requiring additional signage would be a cost increase. (Vote: 14-0)

E78-24

Individual Consideration Agenda

Comment 1:

IBC: 1013.6.2, FIGURE 1013.6.2, 1013.6.2.1, 1013.6.3; IFC: 1013.6.2, FIGURE 1013.6.2, 1013.6.2.1, 1013.6.3

Proponents: Scott Brody, Self (sbrody96@gmail.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1013.6.2 Exit symbols. Graphical symbol exit signs shall be based on Figure 1013.6.2 and the symbol shall be a minimum of 5.91 inches (150 mm) high.

FIGURE 1013.6.2 ~~GRAPHIC~~ INTERNATIONAL EXIT SYMBOL

1013.6.2.1 Detail proportions and color requirements. The proportions of the graphic exit symbol, and the size and positioning of any

arrow, shall be in accordance with UL 924. The color of the doorway and arrow shall be white. The background and person moving through the doorway shall be green.

1013.6.3 Textual and graphic symbol exit signs. Exit signs shall include the text, the graphic symbol or a combination of the text and graphic symbol. Where a combination of text and symbol is used, the text shall be permitted to be reduced in size. Where text and symbol are both provided, the ~~they shall be displayed simultaneously. The~~ text shall not obstruct the symbol or arrow.
The exit text and symbols shall be on one sign or two adjacent signs.

2024 International Fire Code

[BE] 1013.6.2 Exit symbols. Graphical symbol exit signs shall be based on Figure 1013.6.2 and the symbol shall be a minimum of 5.91 inches (150 mm) high.

[BE] FIGURE 1013.6.2 ~~GRAPHIC~~ INTERNATIONAL EXIT SYMBOL

[BE] 1013.6.2.1 Detail proportions and color requirements. The proportions of the graphic exit symbol, and the size and positioning of any arrow, shall be in accordance with UL 924. The color of the doorway and arrow shall be white. The background and person moving through the doorway shall be green.

[BE] 1013.6.3 Textual and graphic symbol exit signs. Exit signs shall include the text, the graphic symbol or a combination of the text and graphic symbol. Where a combination of text and symbol is used, the text shall be permitted to be reduced in size. Where text and symbol are both provided, the ~~they shall be displayed simultaneously. The~~ text shall not obstruct the symbol or arrow.
The exit text and symbols shall be on one sign or two adjacent signs.

Reason: I intended this proposal to only give the option of using symbol exit signs, not require them. There appears to have been an oversight during post submission processing that may have caused the proposal to read differently.

Externally Illuminated Exit Signs

My latest proposal included within this comment offers the option to use either the word or symbol. Dual symbol text signs should be especially useful for education in places where symbol exit signs are not currently widespread

Pursuant to ICC Code Council Policy CP 49-21, code changes should consider international adoption needs, not just the US.

Internally Illuminated Exit Signs

To reiterate what was stated in my narrative, symbol exit signs are already permitted for internally illuminated signs under the I-codes. Therefore, no changes are proposed regarding internally illuminated signs. To be specific, the I-codes require internally illuminated exit signs conform to ANSI/UL 924. This was updated to include a symbol option in recent years. UL's addition of the symbol option is consistent with requirements that ANSI accredited standards consider relevant international symbol standards, pursuant to WTO trade treaty requirements.

Bibliography: Same sources as origional.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Same as original.

Estimated Immediate Cost Impact Justification (methodology and variables):

Same as original.

Comment (CAH2)# 802

E79-24

IBC: 1014.4, 1014.5; IFC: [BE] 1014.4, [BE] 1014.5

Proposed Change as Submitted

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org)

2024 International Building Code

Revise as follows:

1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability. ~~**Exception**~~ **Exceptions:**

1. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.
2. Where handrails are provided along walking surfaces with slopes not steeper than 1:20, *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.

1014.4.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm) and minimum cross-sectional dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1014.4.2 Type II. *Handrails* with a perimeter greater than $6\frac{1}{4}$ inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of $\frac{3}{4}$ inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of not less than $\frac{5}{16}$ inch (8 mm) within $\frac{7}{8}$ inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than $\frac{3}{8}$ inch (10 mm) to a level that is not less than $1\frac{3}{4}$ inches (45 mm) below the tallest portion of the profile. The width of the *handrail* above the recess shall be not less than $1\frac{1}{4}$ inches (32 mm) to not greater than $2\frac{3}{4}$ inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

Revise as follows:

1014.5 Continuity. Handrail gripping surfaces shall be continuous, without interruption by newel posts or other obstructions. **Exceptions:**

1. Within a *dwelling* unit that is not an *Accessible unit* or *Type A unit*, the continuity of handrail gripping surfaces is allowed to be interrupted by a newel post at a turn or landing.
2. Within a *dwelling unit*, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. ~~Handrail brackets or balusters~~ Supports attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within $1\frac{1}{2}$ inches (38 mm) of the bottom of ~~the~~ Type I *handrails* shall not be considered obstructions. For each $\frac{1}{2}$ inch (12.7 mm) of additional handrail perimeter dimension of Type I handrails above 4 inches (102 mm), the vertical clearance dimension of $1\frac{1}{2}$ inches (38 mm) shall be permitted to be reduced by $\frac{1}{8}$ inch (3.2 mm). The entire length of Type II handrails shall be permitted to be obstructed provided any horizontal projection of the supports beyond the sides of the handrail are below the required recess.
4. ~~Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the handrail gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper *guards*.~~
4 ~~5~~. *Handrails* serving stepped *aisles* or ramped *aisles* are permitted to be discontinuous in accordance with Section 1030.16.1.

2024 International Fire Code

Revise as follows:

[BE] 1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability. **Exception Exceptions:**

1. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.
2. Where handrails are provided along walking surfaces with slopes not steeper than 1:20, *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.

[BE] 1014.4.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\,^{1}/_{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\,^{1}/_{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\,^{1}/_{4}$ inches (57 mm) and minimum cross-sectional dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

[BE] 1014.4.2 Type II. *Handrails* with a perimeter greater than $6\,^{1}/_{4}$ inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of $^{3}/_{4}$ inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of not less than $^{5}/_{16}$ inch (8 mm) within $^{7}/_{8}$ inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than $^{3}/_{8}$ inch (10 mm) to a level that is not less than $1\,^{3}/_{4}$ inches (45 mm) below the tallest portion of the profile. The width of the *handrail* above the recess shall be not less than $1\,^{1}/_{4}$ inches (32 mm) to not greater than $2\,^{3}/_{4}$ inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

Revise as follows:

[BE] 1014.5 Continuity. Handrail gripping surfaces shall be continuous, without interruption by newel posts or other obstructions. **Exceptions:**

1. Within a *dwelling* unit that is not an *Accessible unit* or *Type A unit*, the continuity of handrail gripping surfaces is allowed to be interrupted by a newel post at a turn or landing.
2. Within a *dwelling unit*, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. ~~Handrail brackets or balusters~~ Supports attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within $1\,^{1}/_{2}$ inches (38 mm) of the bottom of ~~the~~ Type I *handrails* shall not be considered obstructions. For each $^{1}/_{2}$ inch (12.7 mm) of additional handrail perimeter dimension of Type I handrails above 4 inches (102 mm), the vertical clearance dimension of $1\,^{1}/_{2}$ inches (38 mm) shall be permitted to be reduced by $^{1}/_{8}$ inch (3.2 mm). The entire length of Type II handrails shall be permitted to be obstructed provided any horizontal projection of the supports beyond the sides of the handrail are below the required recess.
4. ~~Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the handrail gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper *guards*.~~
4 ~~5~~. *Handrails* serving stepped *aisles* or ramped *aisles* are permitted to be discontinuous in accordance with Section 1030.16.1.

Reason: Overview:

This proposal offers changes to both **1014.5 Continuity** and **1014.4 Handrail graspability** to provide a gripping surface at in hallways of Health Care and Nursing Facilities where it is currently not required by the code.

Although handrails are not required the code allows for imposters to be provided at critical locations where they are needed. Crash rails and bumper guards are in fact used as handrails and relied upon by the occupants of hospitals, nursing homes and health care facilities for the functions of guidance and support as defined in the I-Codes. They are common in hallways throughout these facilities where the slope is not steeper than 1:20. These elements are typically larger, more visible and inviting to the occupants that are most frequently in

need of mobility aids. The code offers no provision for a graspable surface but instead, in the absence of such, elicits a deceptive invitation to potential accident by default. These crash rails and bumper guards are typically taller in vertical dimension and larger in perimeter restricting access to the bottom of the rail to attain a grasp. Consequently, the current exception 4 to handrail continuity eliminates any graspable surface by allowing the entire bottom of the rail to be completely obstructed. The option to completely obstruct the bottom of the handrail has been justified as being critical to cost effective installation of the needed crash rails and bumper guards.

Handrail Graspability:

The new exception 2 to handrail graspability is added to ensure that although not required, where handrails are provided along horizontal walking surfaces that are sloped less than 1:20, a functional gripping surface is provided. Although handrails are not required at these locations, they are in fact used as handrails as defined in the I-Codes:

> **Handrail.** A horizontal or slopping rail intended for grasping by the hand for guidance or support.

Exception 2 provides for the use of Type II handrails that have been in the I-Codes for more than 20 years. Type II handrails provide a power span grip surface that is equivalent to 2-inch diameter Type I handrail, been in the I-codes for more than 20 years. Type II handrails have the distinct advantage of a continuous gripping surface that is not interrupted by supports that cause the typical grip and release hand-hopping at each support that is prevalent when trying to maintain continuous contact with the bottom gripping surface critical to the functionality of Type I handrails.

Continuity:

Changes to Exception 3…

Handrails are often supported by elements that may be panels or other objects not best described as brackets or balusters and the substitution of the general term “supports” clarifies the intent of the requirement. Currently exception 3 is worded to address the limitations of small perimeter handrails that require access to the bottom of the handrail to gain a functional grip. This should only apply to Type I handrails that must rely upon grasping the bottom of the handrail. We have inserted specific references to Type I profiles.

Type II handrails are larger in perimeter and have specific recesses designed to provide grip surfaces that need not rely on grasping the bottom of the handrail. They are not dependent upon wrapping the fingers around the bottom surface of the handrail. The new sentence inserted at the end of exception 3 clearly recognizes the unique difference between Type I and Type II handrails. Type II handrails provide an uninterrupted gripping surface not attainable with Type I gripping surfaces that are interrupted by supports attached to the bottom of the handrail.

Changes to Exception 4

Exception 4 has been deleted to assure that where provided the rail that is used as a handrail provides no less than the functionality of a Type II handrail. The design of a Type II gripping surface can easily permit obstruction of the surface below the graspable recesses and allow for the rail to also function as a crash rail or bumper guard that needs to be larger in height and perimeter prohibiting use of a Type I gripping surface as a reasonable or cost-effective solution. However, if desired this proposal does not restrict the use of Type I handrails. This change will provide for the safety of occupants without an increase in the cost of construction. Rail profiles are molded of wood or extruded from other materials. The cost is not affected by the change of profile and will not affect the cost of installation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Handrails shapes are extruded or moulded in a lineal process where the shape does not affect cost other than the difference in material. Less material would be used in an extrusion to create the required recesses of Type II profiles. Wood mouldings would use the same amount of material but remove more when shaped to create the required recesses.

E79-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: Since this is a non-required handrail, this should not be an exception under required handrails, and it can be any size or shape - so this section would not apply. This is over reaching when applied to all occupancies. If this is a concern for health care facilities, it should be a requirement limited to those occupancies. (Vote: 14-0)

E79-24

Individual Consideration Agenda

Comment 1:

IBC: 1014.4, 1014.4.1, 1014.4.2, 1014.5; IFC: [BE] 1014.4, [BE] 1014.4.1, [BE] 1014.4.2, [BE] 1014.5

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability.
~~**Exceptions**~~ **Exception:**

1. ~~1.~~ In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.
2. ~~2. Where handrails are provided along walking surfaces with slopes not steeper than 1:20, *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.~~

1014.4.1 Type I gripping surface. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm) and minimum cross-sectional dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1014.4.2 Type II gripping surface. *Handrails* with a perimeter greater than $6\frac{1}{4}$ inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of $\frac{3}{4}$ inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of not less than $\frac{5}{16}$ inch (8 mm) within $\frac{7}{8}$ inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than $\frac{3}{8}$ inch (10 mm) to a level that is not less than $1\frac{3}{4}$ inches (45 mm) below the tallest portion of the profile. The width of the *handrail* above the recess shall be not less than $1\frac{1}{4}$ inches (32 mm) to not greater than $2\frac{3}{4}$ inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1014.5 Continuity. Handrail gripping surfaces shall be continuous along their length, without interruption by ~~newel~~ posts or other obstructions along their tops or sides. The bottoms of handrails shall not be obstructed for more than 20 percent of their length within $1\frac{1}{2}$ inches (38 mm) minimum below the bottom of the handrail gripping surface. **Exceptions:**

1. Within a *dwelling* unit that is not an *Accessible unit* or *Type A unit*, the continuity of handrail gripping surfaces is allowed to be interrupted by a newel post at a turn or landing.

2. Within a *dwelling unit*, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.

3. Supports attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within $1\frac{1}{2}$ inches (38 mm) of the bottom of ~~Type I~~ the *handrails* ~~s~~ shall not be considered obstructions. For each $\frac{1}{2}$ inch (12.7 mm) of additional handrail perimeter dimension of ~~Type I~~ the handrail ~~s~~ above 4 inches (102 mm), the vertical clearance dimension of $1\frac{1}{2}$ inches (38 mm) shall be permitted to be reduced by $\frac{1}{8}$ inch (3.2 mm). ~~The entire length of Type II handrails shall be permitted to be obstructed provided any horizontal projection of the supports beyond the sides of the handrail are below the required recess.~~

4. Where Type II handrails are provided, the portion of the handrail below the gripping surface specified in Section 1014.4.2 shall be permitted to be obstructed along its entire length.

5. Where crash rails or bumper guards with integral handrails are provided at slopes not steeper than 1:20 a Type II gripping surface shall be permitted.

6 ~~4~~. *Handrails* serving stepped *aisles* or ramped *aisles* are permitted to be discontinuous in accordance with Section 1030.16.1.

2024 International Fire Code

[BE] 1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability.
~~**Exceptions**~~ **Exception:**

~~1.~~ In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.

~~2. Where handrails are provided along walking surfaces with slopes not steeper than 1:20, *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.~~

[BE] 1014.4.1 Type I gripping surface. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm) and minimum cross-sectional dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

[BE] 1014.4.2 Type II gripping surface
. *Handrails* with a perimeter greater than $6\frac{1}{4}$ inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of $\frac{3}{4}$ inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of not less than $\frac{5}{16}$ inch (8 mm) within $\frac{7}{8}$ inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than $\frac{3}{8}$ inch (10 mm) to a level that is not less than $1\frac{3}{4}$ inches (45 mm) below the tallest portion of the profile. The width of the *handrail* above the recess shall be not less than $1\frac{1}{4}$ inches (32 mm) to not greater than $2\frac{3}{4}$ inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

[BE] 1014.5 Continuity. Handrail gripping surfaces shall be continuous along their length, without interruption by ~~newel~~ posts or other obstructions along their tops or sides. The bottoms of handrails shall not be obstructed for more than 20 percent of their length within $1\frac{1}{2}$ inches (38 mm) minimum below the bottom of the handrail gripping surface.

Exceptions:

1. Within a *dwelling* unit that is not an *Accessible unit* or *Type A unit*, the continuity of handrail gripping surfaces is allowed to be interrupted by a newel post at a turn or landing.

2. Within a *dwelling unit*, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.

3. Supports attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within $1\frac{1}{2}$ inches (38 mm) of the bottom of ~~Type I~~ the *handrail~~s~~* shall not be considered obstructions. For each $\frac{1}{2}$ inch (12.7 mm) of additional handrail perimeter dimension of ~~Type I~~ the handrail ~~s~~ above 4 inches (102 mm), the vertical clearance dimension of $1\frac{1}{2}$ inches (38 mm) shall be permitted to be reduced by $\frac{1}{8}$ inch (3.2 mm). ~~The entire length of Type II handrails shall be permitted to be obstructed provided any horizontal projection of the supports beyond the sides of the handrail are below the required recess.~~

4. Where Type II handrails are provided, the portion of the handrail below the gripping surface specified in Section 1014.4.2 shall be permitted to be obstructed along its entire length.

5. Where crash rails or bumper guards with integral handrails are provided at slopes not steeper than 1:20 a Type II gripping surface shall be permitted.

6 ~~4~~. *Handrails* serving stepped *aisles* or ramped *aisles* are permitted to be discontinuous in accordance with Section 1030.16.1.

Reason: This comment is similar to our comment for E82 in that it addresses the issue of handrail graspability and continuity but leaves clearance alone. The clearance at handrail supports remains under continuity. Although this original proposal was disapproved, committee testimony requested us to bring it back if we could restructure the intent without conflict with the "required handrails" called for under 1014.4 Handrail graspability. This comment eliminates exception 2 to 1014.4, as originally proposed, and more appropriately addresses the original intent as an one of obstruction to the gripping surface that is required to be continuous under 1014.5 Continuity and offers new exceptions thereto.

Type I and Type II are each a descriptive of a handrail gripping surface. We have added "gripping surface" to the titles of 1014.4.1 and 1014.4.2. to correlate with the charging statement of 1014.5 (shown below) and aid understanding.

> 1014.5 Continuity. *Handrail* **gripping surfaces** shall be continuous, without interruptions by newel posts or other obstructions.**<emphasis added>**

Language approved in E82 similar to that in A117.1, i.e. <sic> 20% of the length, has been added to clarify obstructions where the bottom of the handrail is a critical element of the gripping surface.

Exception 2 to handrail graspability and the language added to exception #3 of continuity in the original proposal has been deleted and restated as new and unique exceptions 4 and 5 to continuity.

This comment achieves the intent of the proponent to provide reasonable gripping surfaces at crash rails and bumper guards increasing life safety at a sorely needed location. It clarifies the gripping surface requirements of the two types of handrail profiles recognized in the code and provides a better understanding of how they are affected by obstructions.

We will ask to hear this issue following our comment to E82 that actually offers further refinement by addressing issues of obstruction that are better included under clearance than continuity. However this comment stands alone as offering a significant improvement when approved.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Handrails shapes are extruded or moulded in a lineal process where the shape does not affect cost other than the difference in material. Less material would be used in an extrusion to create the required recesses of Type II profiles. Wood mouldings would use the same amount of material but remove more when shaped to create the required recesses.

Comment (CAH2)# 130

E80-24

IBC: 1014.4.1; IFC: [BE] 1014.4.1

Proposed Change as Submitted

Proponents: Thomas Zuzik Jr, RailingCodes.com, National Ornamental & Miscellaneous Metals Association (NOMMA.org) (coderep@railingcodes.com)

2024 International Building Code

1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability.

Exception: In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accesso to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.

Revise as follows:

1014.4.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm) and a minimum ~~cross-sectional~~ horizontal widthdimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

2024 International Fire Code

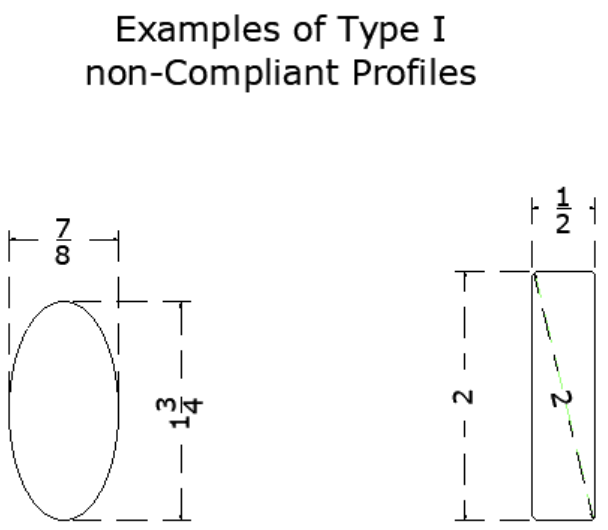
[BE] 1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability.

Exception: In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accesso to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.

Revise as follows:

[BE] 1014.4.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm) and a minimum ~~cross-sectional~~ horizontal width dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

Reason: In the 2012 model IBC, section 1012.3.1 Type I. handrails added the new clarifying text of "and minimum cross-sectional dimension of 1-inch (25mm).", to the end of the existing 2 1/4-inch maximum cross-sectional, text. This new minimum cross section dimension of 1-inch was added to specifically to limit the use of thinner Type I handrail profiles being installed in a vertical direction as shown in Sketch RC-02 below.

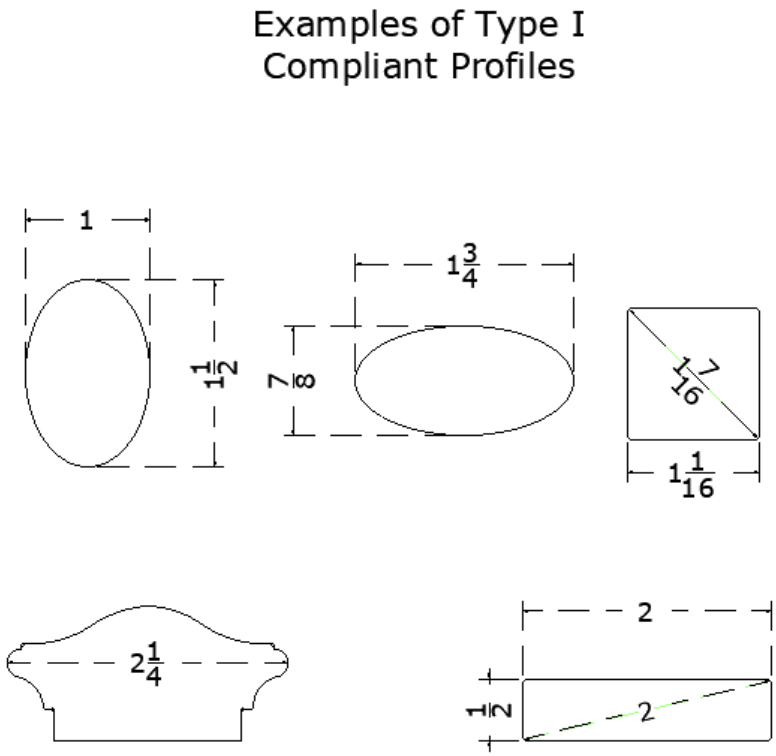


SKETCH RC-02

Of late a limited number of AHJ have been interpreting the minimum limit to be a 2nd dimensional measurement for both horizontal and vertical.

When the author of this proposed modification to clarify the minimum 1-inch dimension was on the hearing floor and testified in favor of E98-09/10, for the addition of the 1-inch minimum width, it was in support to prevent thinner width vertical handrail profiles, from being installed, not to add a 2nd vertical height dimensional requirement, that a limited number of AHJ are now questioning if applies.

Sketch RC-01 shows a group of compliant Type I handrail profiles, of which 2 of the profiles when turned vertical would not comply as depicted in Sketch RC-02 above.



SKETCH RC-01

The proposed deletion of term cross-sectional and replacement with the term horizontal, this author believes eliminates the new arising questions about the minimum and better aligns with what this author believes was the intent of the minimum dimension.

To better explain this point, the following quote is from the original proposal E98-09/10 reason statement.

- "Try doing a chin up or pull up on a 1-1/2" diameter tube versus a 3/8" x 2" steel bar having the 2 inch dimension oriented vertically."

Additionally, since the addition of the new text in the 2012 model IBC, the ICC A117.1 has published the 2017 edition with no addition to the text for a minimum cross-sectional, nor was a proposal submitted for this minimum to be added in the current A117.1 cycle started in 2022.

Bibliography:

- ICC Model 2009 IBC
  - Section 1012.3.1 Type I. Handrails
- ICC Model 2012 IBC
  - Section 1012.3.1 Type I. Handrails
- ICC Model 2024 IBC
  - Section 1014.4.1 Type I. Handrails
- ICC A117.1
  - Section 505.7 Cross section. Handrails
  - Section 505.7.2 Noncircular cross sections.
- 2010 ADA Standard
  - Section 505.7 Cross section. Handrails
  - Section 505.7.2 Noncircular cross sections.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact to the built environment with this code change, as this proposal is cleaning up terminology for required elements of the code for Type I handrails.

E80-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The text provides clarity, but a graphic should be included. This allows for thin horizontal flat rails - this would not be comfortably grasped, so this should also be addressed. See E81-24. (Vote: 14-0).

E80-24

Individual Consideration Agenda

Comment 1:

IBC: 1014.4, 1014.4.1; IFC: [BE] 1014.4, [BE] 1014.4.1

Proponents: Thomas Zuzik Jr, RailingCodes.com, National Ornamental & Miscellaneous Metals Association (NOMMA.org) (coderep@railingcodes.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability.

Exception: In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accesso to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.

1014.4.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm) and a minimum horizontal width ~~dimension~~ of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

2024 International Fire Code

[BE] 1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability.

Exception: In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accesso to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.

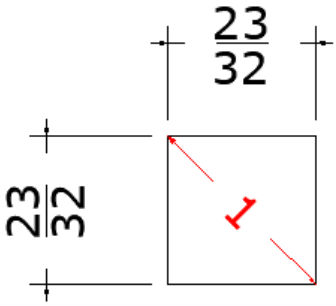
[BE] 1014.4.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm) and a minimum horizontal width ~~dimension~~ of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

Reason: We would ask that you review the original proposal's reason statement in addition to these additional comments.

- During the CAH1 in Florida this past April, committee members suggested that figures of handrail profiles be added into the code. Upon reviewing the large task that would need to be done to include all types of type 1 handrail profiles, we believe these diagrams would be best left for the commentary document and NOMMA would work with ICC staff on these figures for the commentary.
- Additional committee members questioned small edge heights and gripping.
  - "This allows for thin horizontal flat rails - this would not be comfortably grasped, so this should also be addressed."
  - The current wording in the IBC already allows these profiles, however they are normally kicked for bad design. Additionally the IRC, A117.1 & 2010ADA do not address the minimum cross section currently in the IBC and the intent of the proposal was not a rewrite on handrail geometry to restrict a profile, but to clarify that the minimum cross section wording was intended as a width.

    To further explain with a minimum perimeter requirement of 4-inches for type 1 handrails, having a minimum cross section of 1-inch reduces the profile to be under the 4-inch minimum perimeter, as thus, logic tells us the intent was for a minimum width, side to side.

    See figure below showing a 1-inch cross section produces a profile less than 4-inches in perimeter.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The requirement is already within the code, this proposal is editorial for the clarification.

Comment (CAH2)# 751

E81-24

IBC: 1014.4.1; IFC: [BE] 1014.4.1

Proposed Change as Submitted

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org)

2024 International Building Code

Revise as follows:

1014.4.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of not less than $1^1/_4$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6^1/_4$ inches (160 mm) with a maximum cross-sectional dimension of $2^1/_4$ inches (57 mm). The minimum horizontal cross section shall be 1 inch (25 mm) and a the height of the maximum vertical cross-section shall be not less than of 5/8 inch (16 mm) ~~and minimum cross-sectional dimension of 1 inch (25 mm)~~. Edges shall have a minimum radius of 0.01 inch (0.25 mm).

2024 International Fire Code

Revise as follows:

[BE] 1014.4.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of not less than $1^1/_4$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6^1/_4$ inches (160 mm) with a maximum cross-sectional dimension of $2^1/_4$ inches (57 mm). The minimum horizontal cross section shall be 1 inch (25 mm) and a the height of the maximum vertical cross-section shall be not less than of 5/8 inch (16 mm) ~~and minimum cross-sectional dimension of 1 inch (25 mm)~~. Edges shall have a minimum radius of 0.01 inch (0.25 mm).

Reason: The current text related to non-circular profiles is being interpreted such that the handrail profile must comply with both the maximum cross-section and minimum cross section regardless of the orientation of the handrail. This was not the intent of the original proposal E98-09/10, included here, as approved for inclusion in the 2012 IBC. The intent was to eliminate the possible use of thin profiles in the vertical orientation.

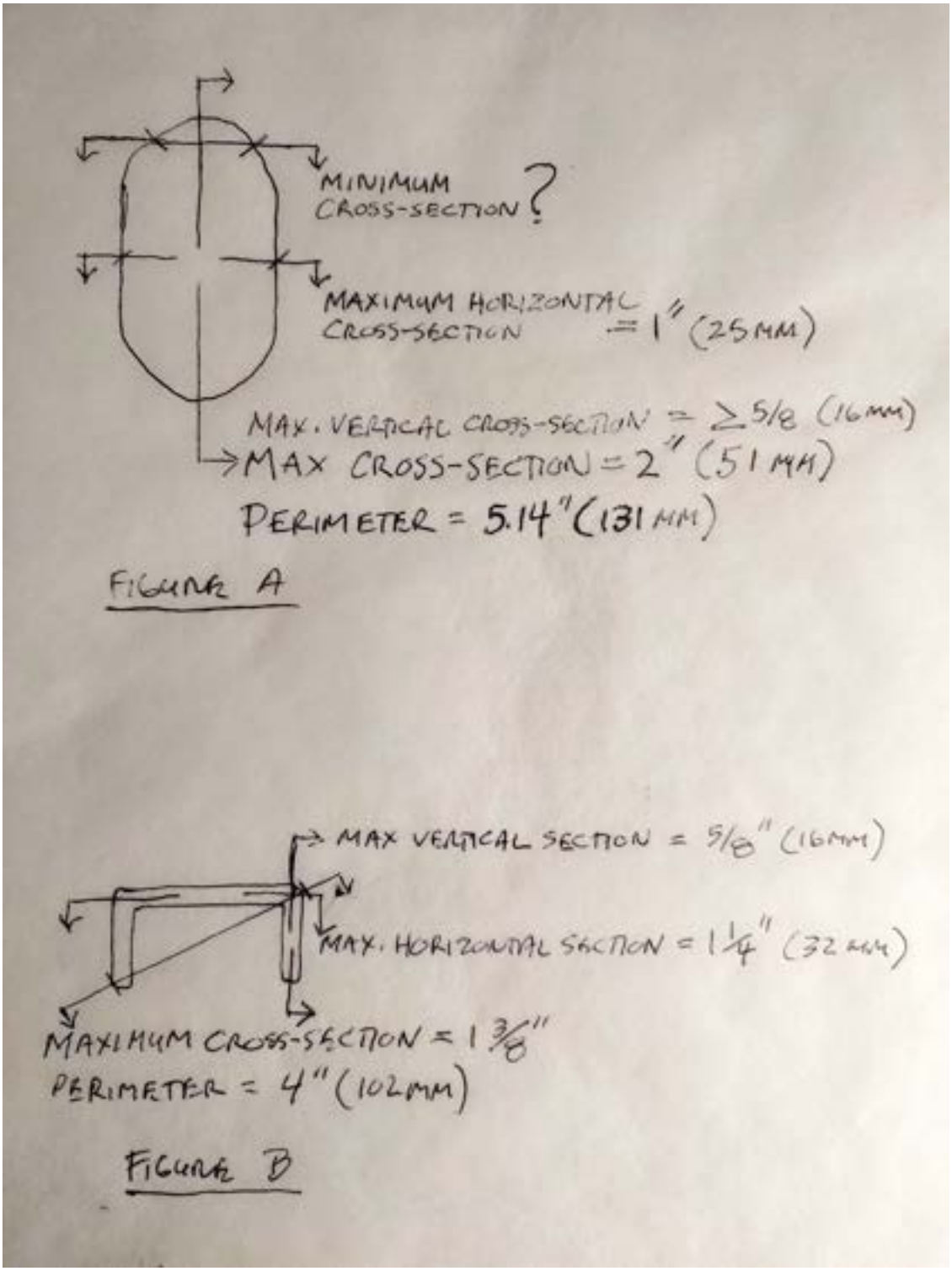
A minimum cross section can be determined at any point in any direction. Consider shapes with large corner radii, ovals, or elliptical sections. Such profiles in both the horizontal and vertical orientation provide suitable access to the bottom of the rail to attain graspability. However, the minimum cross section could be taken at the narrow end of an ellipse or oval as in Figure A. An oval with a 1 inch maximum horizontal cross-section would have a minimum cross-section of far less than an inch at any either end and be reason to reject one of the most graspable non-circular Type I handrail profiles.

Requiring the maximum vertical cross-section to be not less than 5/8 inch restricts thin profiles that would be objectionable when transverse pressure is applied but allows for common channels as in Figure B and traditional metal profiles with long accepted functionality.

The intent of the proponent of E98-09/10 would have been more aptly served had the cross-section language been limited to the horizontal cross-section and a vertical cross-section as proposed here. These dimensions combined with the perimeter range of 4 – 6 ¼ inches and the maximum cross-section provide the necessary controls essential to graspability of Type I non-circular profiles without inhibiting freedom of design.

The 1-inch minimum cross section was never proposed for the IRC where Type II profiles are prominent. Type II rails have the advantage of graspable recesses located to engage the finger and thumb in a power span grip that does not require access to the bottom of the handrail. This is especially important where the handrail typically serves as the top of the guard and is often supported by balusters/guard in-fill, more than just brackets that interrupt the bottom surface. By providing a minimum width for a Type I non-circular profile the supports at the bottom of the handrail may be less objectionable which is a serious issue with any Type one profiles causing hand hoping rather than a continuous grasp.

This change is essential to correct an anomaly in the interpretation of the graspability of non-circular type I handrail profiles.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides additional technical requirements to better regulate the shape of Type I handrails however the added requirements have no material affect upon the cost of construction.

Attached Files

- **E98 - 09-10 Type 1 code change.pdf**
  https://www.cdpaccess.com/proposal/9669/29918/files/download/4115/

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: Same reasons as E80-24. (Vote: 14-0)

E81-24

Individual Consideration Agenda

Comment 1:

IBC: 1014.4.1; IFC: [BE] 1014.4.1

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Revise as follows:

1014.4.1 Type I gripping surface. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shallcomply with all of the following:
~~have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm). The minimum horizontal cross section shall be 1 inch (25 mm) and a the height of the maximum vertical cross-section shall be not less than of 5/8 inch (16 mm) . Edges shall have a minimum radius of 0.01 inch (0.25 mm).~~

1. A minimum perimeter of 4 inches (102 mm).
2. A maximum perimeter of $6\frac{1}{4}$ inches (160 mm)
3. A maximum cross-section of $2\frac{1}{4}$ inches (57 mm).
4. A minimum width of 1 inch (25 mm)
5. A minimum thickness of $\frac{1}{2}$ inch (13 mm)
6. Edges shall have a minimum radius of .01 inch (0.25 mm)

2024 International Fire Code

[BE] 1014.4.1 Type I gripping surface. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shallcomply with all of the following:
~~have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-~~

~~sectional dimension of $2^{+}/_{4}$ inches (57 mm). The minimum horizontal cross section shall be 1 inch (25 mm) and a the height of the maximum vertical cross-section shall be not less than of 5/8 inch (16 mm) . Edges shall have a minimum radius of 0.01 inch (0.25 mm).~~

1. A minimum perimeter of 4 inches (102 mm).
2. A maximum perimeter of $6^{1}/_{4}$ inches (160 mm)
3. A maximum cross-section of $2^{1}/_{4}$ inches (57 mm).
4. A minimum width of 1 inch (25 mm)
5. A minimum thickness of $^{1}/_{2}$ inch (13 mm)
6. Edges shall have a minimum radius of .01 inch (0.25 mm)

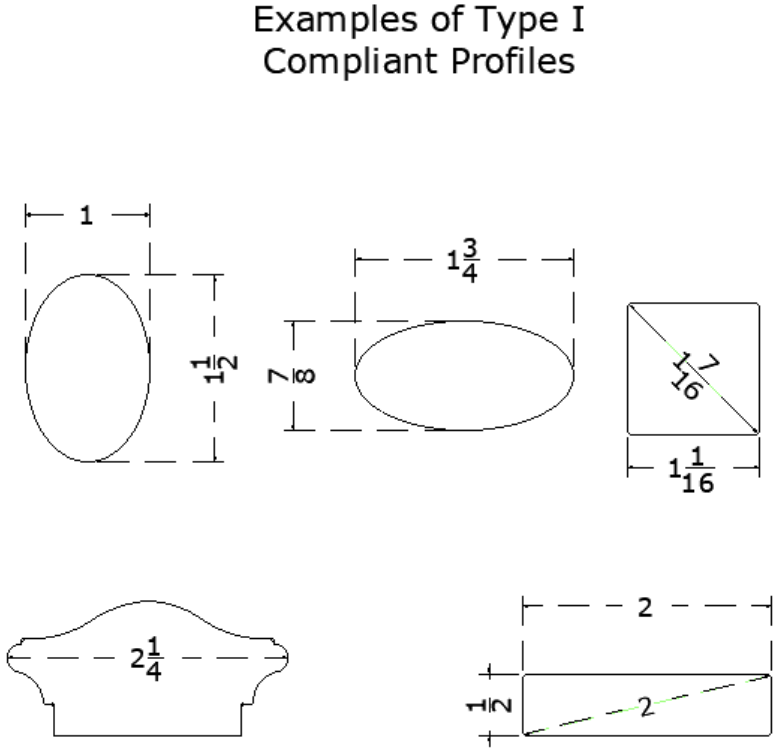
Reason: Collaboration with others from the first hearing as suggested by the Egress committee has resulted in concurrence on this modification. Specifically this eliminates the misunderstood minimum cross-section for non-circular handrail sections replacing it with a minimum width and a minimum thickness of $^{1}/_{2}$ inch rather than the $^{5}/_{8}$ inch originally proposed. To address the question raised as to how to measure the height we have changed the term to thickness which is a more common descriptive used in the trades.

Similar to our comment in E79 Type I and Type II are each a descriptive of the handrail gripping surface referred to in the 1014.5 Continuity. We have added "gripping surface" to the title of 1014.4.1 (shown below) to correlate with the charging statement of 1014.5 and aid understanding.

> 1014.5 Continuity. *Handrail* **gripping surfaces** shall be continuous, without interruptions by newel posts or other obstructions.**<emphasis added>**

Finally we have restructured the requirement to provide a very clear list of the required dimensions that classify the Type I gripping surface dimensions of non-circular handrails as it is much easier to understand than trying to include them in a sentence.

The picture below represents compliant non-circular Type I handrail profiles clearly identified by this comment.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides additional technical requirements to better regulate the shape of Type I handrails however the added requirements have no material affect upon the cost of construction.

Comment (CAH2)# 132

E82-24

IBC: 1014.5, 1014.6, 1014.8; IFC: [BE] 1014.5, [BE] 1014.6, BE] 1014.8

Proposed Change as Submitted

Proponents: Thomas Zuzik Jr, RailingCodes.com, National Ornamental & Miscellaneous Metals Association (NOMMA.org) (coderep@railingcodes.com)

2024 International Building Code

Revise as follows:

~~1014.8~~1014.5 **Clearance.** Clear space between a *handrail* and a wall or other surface shall be not less than $1^1/_2$ inches (38 mm). A *handrail* and a wall or other surface adjacent to the *handrail* shall be free of any sharp or abrasive elements. **Exceptions:**

1. A decrease in the clearance due to the curvature or angle of handrail returns shall be allowed.
2. Mounting flanges not more than $^1/_2$-inch (12.7 mm) in thickness at the returned ends of handrails shall be allowed.

~~1014.5~~ 1014.6 **Continuity.** Handrail gripping surfaces shall be continuous~~, without interruption by newel posts or other obstructions.~~ along their length and shall not be obstructed along their tops or sides. Horizontal projections shall occur $1^1/_2$ inches (38 mm) minimum below the bottom of the handrail's gripping surface and the bottoms of required handrails shall not be obstructed for more than 20 percent of their length, within $1^1/_2$ inches (38 mm) below the bottom of the handrail's gripping surface.

Exceptions:

1. Within a *dwelling* unit that is not an *Accessible unit* or *Type A unit*, the continuity of handrail gripping surfaces is allowed to be interrupted by a newel post at a turn or landing.
2. Within a *dwelling unit*, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. ~~Handrail brackets or balusters attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within $1^1/_2$ inches (38 mm) of the bottom of the *handrail* shall not be considered obstructions.~~ For each $^1/_2$ inch (12.7 mm) of additional handrail perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of $1^1/_2$ inches (38 mm), on the bottom of handrail gripping surfaces, shall be permitted to be reduced by $^1/_8$ inch (3.2 mm).
4. Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the handrail gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper *guards*.
5. *Handrails* serving stepped *aisles* or ramped *aisles* are permitted to be discontinuous in accordance with Section 1030.16.1.

1014.7 Handrail extensions. *Handrails* shall return to a wall, *guard* or the walking surface or shall be continuous to the *handrail* of an adjacent *flight* of stairs or ramp run. Where *handrails* are not continuous between *flights*, the *handrails* shall extend horizontally not less than 12 inches (305 mm) beyond the top landing nosing and continue to slope for the depth of one tread beyond the bottom tread nosing. At *ramps* where *handrails* are not continuous between runs, the *handrails* shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of ramp runs. The extensions of *handrails* shall be in the same direction of the *flights* of stairs at stairways and the ramp runs at *ramps* and shall extend the required minimum length before any change in direction or decrease in the clearance required by Section 1014.5 or 1014.8 . **Exceptions:**

1. *Handrails* within a *dwelling unit* that is not required to be accessible need extend only from the top riser to the bottom riser.
2. *Handrails* serving *aisles* in rooms or spaces used for assembly purposes are permitted to comply with the handrail extensions in accordance with Section 1030.16.
3. *Handrails* for *alternating tread devices* and ships ladders are permitted to terminate at a location vertically above the top and bottom risers. *Handrails* for *alternating tread devices* are not required to be continuous between *flights* or to extend beyond the top or bottom risers.

Revise as follows:

~~1014.6~~ 1014.8 **Fittings.** *Handrails* shall not rotate within their fittings.

2024 International Fire Code

Revise as follows:

[BE] ~~1014.8~~1014.5 **Clearance.** Clear space between a *handrail* and a wall or other surface shall be not less than $1\frac{1}{2}$ inches (38 mm). A *handrail* and a wall or other surface adjacent to the *handrail* shall be free of any sharp or abrasive elements.

Exceptions:

1. A decrease in the clearance due to the curvature or angle of handrail returns shall be allowed.
2. Mounting flanges not more than $\frac{1}{2}$-inch (12.7 mm) in thickness at the returned ends of handrails shall be allowed.

[BE] ~~1014.5~~ 1014.6 **Continuity.** Handrail gripping surfaces shall be continuous~~, without interruption by newel posts or other obstructions.~~ along their length and shall not be obstructed along their tops or sides. Horizontal projections shall occur $1\frac{1}{2}$ inches (38 mm) minimum below the bottom of the handrail's gripping surface and the bottoms of required handrails shall not be obstructed for more than 20 percent of their length, within $1\frac{1}{2}$ inches (38 mm) below the bottom of the handrail's gripping surface. **Exceptions:**

1. Within a dwelling unit that is not an Accessible unit or Type A unit, the continuity of handrail gripping surfaces is allowed to be interrupted by a newel post at a turn or landing.
2. Within a *dwelling unit*, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. ~~Handrail brackets or balusters attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within $1\frac{1}{2}$ inches (38 mm) of the bottom of the *handrail* shall not be considered obstructions.~~ For each $\frac{1}{2}$ inch (12.7 mm) of additional handrail perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of $1\frac{1}{2}$ inches (38 mm),on the bottom of handrail gripping surfaces, shall be permitted to be reduced by $\frac{1}{8}$ inch (3.2 mm).
4. Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the handrail gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper guards.
5. *Handrails* serving stepped *aisles* or ramped *aisles* are permitted to be discontinuous in accordance with Section 1030.16.1.

[BE] 1014.7 Handrail extensions. Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent *flight* of stairs or *ramp* run. Where handrails are not continuous between *flights*, the handrails shall extend horizontally not less than 12 inches (305 mm) beyond the top landing nosing and continue to slope for the depth of one tread beyond the bottom tread nosing. At *ramps* where handrails are not continuous between runs, the handrails shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of *ramp* runs. The extensions of handrails shall be in the same direction of the *flights* of stairs at stairways and the *ramp* runs at *ramps* and shall extend the required minimum length before any change in direction or decrease in the clearance required by Section 1014.5 or 1014.8. **Exceptions:**

1. *Handrails* within a *dwelling unit* that is not required to be accessible need extend only from the top riser to the bottom riser.
2. *Handrails* serving *aisles* in rooms or spaces used for assembly purposes are permitted to comply with the handrail extensions in accordance with Section 1030.16.
3. *Handrails* for *alternating tread devices* and ship's ladders are permitted to terminate at a location vertically above the top and bottom risers. *Handrails* for *alternating tread devices* are not required to be continuous between *flights* or to extend beyond the top or bottom risers.

Revise as follows:

[BE] ~~1014.6~~ 1014.8 **Fittings.** *Handrails* shall not rotate within their fittings.

Reason: This code change proposal is first reorganizing the order of some of the handrail Sections to be more in common with the flow of use and enforcement.

- Section 1014.8 Clearance is moved up in order and renumbered to 1014.5.
- Section 1014.6 Fittings is moved down in the order and renumbered to 1014.8. Section
- Section 1014.5 Continuity is moved down one in the order and renumbered to 1014.6.

Next the renumbered Section 1014.6 Continuity, has been revised to better clarify within the code the following requirements.

- The first sentence has been edited to be clearer and align with the text in ICC 2017 A117.1 Section 505.6 gripping surfaces, and also aligns with the clear text within the 2010ADA for obstructions on the top and sides of the handrail profile.
- This code change brings a known requirement currently buried in the text to light and clearly establishes the minimum $1^1/_2$ inch vertical clearance that the code requires between the underside of the handrails gripping surface and any projections to either side of the handrail.
- The new conditional text for the 20% obstruction limit is a long-standing requirement within both the 2010ADA and the ANSI & ICC's A117.1 current and prior additions. As thus, the adding of this conditional text is in line with standard handrail fabrication requirements already being followed for more than a few decades.
    - What the text brings to the IBC is a uniformity between the 2 long-standing standards and the base building code.
- By incorporating the 20% obstruction language into the main text of 1014.6 Continuity, the first sentence in exception 3 can be removed, as it is no longer needed for brackets or balusters.
- The new additional text proposed in the second sentence of exception 3, better clarifies the allowed decrease for both the bracket projections from the sides and the distance for the 20% stipulation.

This code change proposal better aligns the text of the IBC with how handrails are required to be fabricated and installed on projects.

Bibliography:

- ICC model 2024 International Building Code (IBC)
    - Section 1014 Handrails
- ICC 2017 A117.1 Accessible and Usable Buildings and Facilities
    - Section 505 Handrails
- 2010ADA - ADA Standards for Accessible Design (https://ada.gov/)
    - Section 505 Handrails

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

At first glance this proposal may seem like it has a cost affect on construction, however the majority of the proposal is all editorial in nature with clarifications on requirements already within the scope of the code and or required within the ICC's A117.1 standard and the Federal 2010ADA requirements.

E82-24

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: Moving this text from an exception to the mandatory requirements is appropriate. There was a suggestion to add 'where provided'. (Vote: 9-3)

E82-24

Individual Consideration Agenda

Comment 1:

IBC: 1014.4, 1014.4.1, 1014.4.2, 1014.6, 1014.5, 1014.7, 1014.8; IFC: [BE] 1014.4, [BE] 1014.4.1, [BE] 1014.4.2, [BE] 1014.6, [BE] 1014.5 , [BE] 1014.7, [BE] 1014.8

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability.

Exception: In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accesso to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.

1014.4.1 Type I gripping surface. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm) and minimum cross-sectional dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1014.4.2 Type II gripping surface. *Handrails* with a perimeter greater than $6\frac{1}{4}$ inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of $\frac{3}{4}$ inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of not less than $\frac{5}{16}$ inch (8 mm) within $\frac{7}{8}$ inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than $\frac{3}{8}$ inch (10 mm) to a level that is not less than $1\frac{3}{4}$ inches (45 mm) below the tallest portion of the profile. The width of the *handrail* above the recess shall be not less than $1\frac{1}{4}$ inches (32 mm) to not greater than $2\frac{3}{4}$ inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

Revise as follows:

~~**1014.6**~~ **1014.5 Continuity.** Handrail gripping surfaces shall be continuous along their length~~ and shall not be obstructed~~ without interruptions by posts or other obstructions along their tops or sides. ~~Horizontal projections shall occur $1\frac{1}{2}$ inches (38 mm) minimum below the bottom of the handrail's gripping surface and the~~ The bottoms of ~~required~~ handrails shall not be obstructed for more than 20 percent of their length, within $1\frac{1}{2}$ inches (38 mm) below the bottom of the handrail's gripping surface.

Exceptions:

1. Within a *dwelling* unit that is not an *Accessible unit* or *Type A unit*, the continuity of handrail gripping surfaces is allowed to be interrupted by a newel post at a turn or landing.
2. Within a *dwelling unit*, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. Supports in accordance with Section 1014.6. ~~For each $\frac{1}{2}$ inch (12.7 mm) of additional handrail perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of $1\frac{1}{2}$ inches (38 mm),on the bottom of handrail gripping surfaces, shall be permitted to be reduced by $\frac{1}{8}$ inch (3.2 mm).~~
4. ~~Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the handrail gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper *guards.*~~ Where crash rails or bumper guards with integral handrails are provided at slopes not steeper than 1:20 a Type II gripping surface shall be permitted.
5. Where Type II handrails are provided in accordance with Section 1014.6, the portion of the handrail below the gripping surface specified in Section 1014.4.2 shall be permitted to be obstructed along its entire length.

~~5~~ 6. *Handrails* serving stepped *aisles* or ramped *aisles* are permitted to be discontinuous in accordance with Section 1030.16.1.

~~**1014.5**~~ **1014.6 Clearance.** Clear space between a *handrail* and a wall or other surface shall be not less than $1\frac{1}{2}$ inches (38 mm). Horizontal projections of supports beyond the sides of handrails shall occur $1\frac{1}{2}$ inches (38 mm) minimum below the bottom of the handrails gripping surface. A *handrail* and a wall or other surface adjacent to the *handrail* shall be free of any sharp or abrasive elements. **Exceptions:**

1. A decrease in the clearance due to the curvature or angle of handrail returns shall be allowed.
2. Mounting flanges not more than $\frac{1}{2}$-inch (12.7 mm) in thickness at the returned ends of handrails shall be allowed.
3. For each $\frac{1}{2}$ inch (12.7 mm) of additional handrail perimeter dimension above 4 inches (102 mm) , the vertical clearance dimension of $1\frac{1}{2}$ inches (38 mm) from the bottom of the handrail gripping surface shall be permitted to be reduced by $\frac{1}{8}$ inch (3.2 mm).

1014.7 Handrail extensions. *Handrails* shall return to a wall, *guard* or the walking surface or shall be continuous to the *handrail* of an adjacent *flight* of stairs or ramp run. Where *handrails* are not continuous between *flights*, the *handrails* shall extend horizontally not less than 12 inches (305 mm) beyond the top landing nosing and continue to slope for the depth of one tread beyond the bottom tread nosing. At *ramps* where *handrails* are not continuous between runs, the *handrails* shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of ramp runs. The extensions of *handrails* shall be in the same direction of the *flights* of stairs at stairways and the ramp runs at *ramps* and shall extend the required minimum length before any change in direction or decrease in the clearance required by Section 1014.5 or 1014.8 . **Exceptions:**

1. *Handrails* within a *dwelling unit* that is not required to be accessible need extend only from the top riser to the bottom riser.
2. *Handrails* serving *aisles* in rooms or spaces used for assembly purposes are permitted to comply with the handrail extensions in accordance with Section 1030.16.
3. *Handrails* for *alternating tread devices* and ships ladders are permitted to terminate at a location vertically above the top and bottom risers. *Handrails* for *alternating tread devices* are not required to be continuous between *flights* or to extend beyond the top or bottom risers.

1014.8 Fittings. *Handrails* shall not rotate within their fittings.

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[BE] 1014.4 Handrail graspability. Required *handrails* shall comply with Section 1014.4.1 or shall provide equivalent graspability.

Exception: In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accesso to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; *handrails* shall be Type I in accordance with Section 1014.4.1, Type II in accordance with Section 1014.4.2 or shall provide equivalent graspability.

[BE] 1014.4.1 Type I gripping surface. *Handrails* with a circular cross section shall have an outside diameter of not less than $1\frac{1}{4}$ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than $6\frac{1}{4}$ inches (160 mm) with a maximum cross-sectional dimension of $2\frac{1}{4}$ inches (57 mm) and minimum cross-sectional dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

[BE] 1014.4.2 Type II gripping surface. *Handrails* with a perimeter greater than $6\frac{1}{4}$ inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of $\frac{3}{4}$ inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of not less than $\frac{5}{16}$ inch (8 mm) within $\frac{7}{8}$ inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than $\frac{3}{8}$ inch (10 mm) to a level that is not less than $1\frac{3}{4}$ inches (45 mm) below the tallest portion of the profile. The width of the *handrail* above the recess shall be not less than $1\frac{1}{4}$ inches (32 mm) to not greater than $2\frac{3}{4}$ inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

[BE] ~~**1014.6**~~ **1014.5 Continuity.** Handrail gripping surfaces shall be continuous along their length~~ and shall not be obstructed~~ without interruptions by posts or other obstructions along their tops or sides. ~~Horizontal projections shall occur 1 1/2 inches (38 mm) minimum below the bottom of the handrail's gripping surface and the~~ The bottoms of ~~required~~ handrails shall not be obstructed for more than 20 percent of their length, within $1\frac{1}{2}$ inches (38 mm) below the bottom of the handrail's gripping surface. **Exceptions:**

1. Within a dwelling unit that is not an Accessible unit or Type A unit, the continuity of handrail gripping surfaces is allowed to be interrupted by a newel post at a turn or landing.
2. Within a *dwelling unit*, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. Supports in accordance with Section 1014.6. ~~For each 1/2 inch (12.7 mm) of additional handrail perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of 1 1/2 inches (38 mm),on the bottom of handrail gripping surfaces, shall be permitted to be reduced by 1/8 inch (3.2 mm).~~
4. ~~Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the handrail gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper *guards.*~~ Where crash rails or bumper guards with integral handrails are provided at slopes not steeper than 1:20 a Type II gripping surface shall be permitted.
5. Where Type II handrails are provided in accordance with Section 1014.6, the portion of the handrail below the gripping surface specified in Section 1014.4.2 shall be permitted to be obstructed along its entire length.

~~5~~ 6. *Handrails* serving stepped *aisles* or ramped *aisles* are permitted to be discontinuous in accordance with Section 1030.16.1.

[BE] ~~**1014.5**~~ **1014.6 Clearance.** Clear space between a *handrail* and a wall or other surface shall be not less than $1\frac{1}{2}$ inches (38 mm). Horizontal projections of supports beyond the sides of handrails shall occur $1\frac{1}{2}$ inches (38 mm) minimum below the bottom of the handrails gripping surface. A *handrail* and a wall or other surface adjacent to the *handrail* shall be free of any sharp or abrasive elements.

Exceptions:

1. A decrease in the clearance due to the curvature or angle of handrail returns shall be allowed.
2. Mounting flanges not more than $\frac{1}{2}$-inch (12.7 mm) in thickness at the returned ends of handrails shall be allowed.
3. For each $\frac{1}{2}$ inch (12.7 mm) of additional handrail perimeter dimension above 4 inches (102 mm) , the vertical clearance dimension of $1\frac{1}{2}$ inches (38 mm) from the bottom of the handrail gripping surface shall be permitted to be reduced by $\frac{1}{8}$ inch (3.2 mm).

[BE] 1014.7 Handrail extensions. Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent *flight* of stairs or *ramp* run. Where handrails are not continuous between *flights*, the handrails shall extend horizontally not less than 12 inches (305 mm) beyond the top landing nosing and continue to slope for the depth of one tread beyond the bottom tread nosing. At *ramps* where handrails are not continuous between runs, the handrails shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of *ramp* runs. The extensions of handrails shall be in the same direction of the *flights* of stairs at stairways and the *ramp* runs at *ramps* and shall extend the required minimum length before any change in direction or decrease in the clearance required by Section 1014.5 or 1014.8. **Exceptions:**

1. *Handrails* within a *dwelling unit* that is not required to be accessible need extend only from the top riser to the bottom riser.
2. *Handrails* serving *aisles* in rooms or spaces used for assembly purposes are permitted to comply with the handrail extensions in accordance with Section 1030.16.
3. *Handrails* for *alternating tread devices* and ship's ladders are permitted to terminate at a location vertically above the top and bottom risers. *Handrails* for *alternating tread devices* are not required to be continuous between *flights* or to extend beyond the top or bottom risers.

[BE] 1014.8 Fittings. *Handrails* shall not rotate within their fittings.

Reason: The original proposal was approved because it moves what should be a requirement from the exception however it moves it to the wrong location. In thorough review of this proposal it seemed that issues of clearance at handrails and handrail continuity are still confused. Currently requirements for clearance are stated under both Continuity and Clearance. This modification meets the intent of the original proposal but moves the requirement describing "vertical clearance" where it should be into Clearance, newly located as 1014.6. This puts all the clearance requirements in one section and clarifies the Continuity section which need simply state the requirement for a continuous handrail.This comment is similar to our comment for E79 in that it addresses the issue of handrail graspability and continuity but also includes clearance. Although this original proposal was approved, we have restructured the requirements for clearance, continuity and graspabilty and hope E79 will be heard following this comment. this comment more appropriately addresses the original intent as an one of obstruction to the gripping surface that is required to be continuous under 1014.5 Continuity and offers new exceptions thereto.

Type I and Type II are each a descriptive of a handrail gripping surface. We have added "gripping surface" to the titles of 1014.4.1 and 1014.4.2. to correlate with the charging statement of 1014.5 (shown below) and aid understanding.

> 1014.5 Continuity. *Handrail* **gripping surfaces** shall be continuous, without interruptions by newel posts or other obstructions.**<emphasis added>**

The language similar to that in A117.1, i.e. <sic> 20% of the length..., approved in CAH1 remains and clarifies obstructions allowed where the bottom of the handrail is a critical element of the gripping surface.

Exception 3 to continuity now simply needs to reference clearance. Exception 4 is revised as in E79 to clarify that a Type II gripping surface can be provided rather than the current exception that allows no gripping surface at all.

Exception 5 recognizes that a Type II gripping surface has graspable recesses and that obstructions below the gripping surface that comply with 1014.6 Clearance are not restricted.

This comment achieves the intent of the proponent to provide reasonable gripping surfaces at crash rails and bumper guards increasing life safety at a sorely needed location. It clarifies the gripping surface requirements of the two types of handrail profiles recognized in the code and provides a better understanding of how they are affected by obstructions. Finally it gathers all the handrail clearance requirements and exceptions in one section titled clearance.
This comment offers a complete and thorough restructuring that will significantly improve consistent interpretation and enforcement.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

At first glance this proposal may seem like it has a cost affect on construction, however the majority of the proposal is all editorial in nature with clarifications on requirements already within the scope of the code and or required within the ICC's A117.1 standard and the Federal 2010ADA requirements.

Comment (CAH2)# 64

E86-24

IBC: 1014.10; IFC: [BE] 1014.10

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

1014.10 Intermediate handrails. *Stairways* with a required width of greater than 60 inches, shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a *handrail*. On monumental *stairs*, where intermediate handrails are required, *handrails* shall be located along the most direct path of egress travel.

2024 International Fire Code

Revise as follows:

[BE] 1014.10 Intermediate handrails. *Stairways* with a required width of greater than 60 inches, shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a *handrail*. On monumental *stairs*, where intermediate handrails are required, *handrails* shall be located along the most direct path of egress travel.

Reason: The intermediate handrail requirement can be inadvertently read to require an intermediate handrail every 5', or to require a center handrail with a center door. This is a clarification for where they would be required. This is not a technical change.

Where there is sufficient distance for occupants to navigate to the sides of a monumental stairway the most direct path of egress, the centerline of the door to the exit, may not be the natural path.

This modification gives guidance to the building official to allow intermediate handrails to be installed in the correct locations.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification for the requirements for a central handrail on wider stairways.

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: While some of the committee felt that this was a clarification, where the handrail overlaps the required stairway

width, the stairway can be wider than 60" and a person could still be within 30" of a handrail. The confusion is a misinterpretation of the difference between provided stairway width and required stairway width. See also E87-24. (Vote: 9-5)

E86-24

Individual Consideration Agenda

Comment 1:

IBC: 1014.10; IFC: [BE] 1014.10

Proponents: Shane Nilles, Self (snilles@awc.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1014.10 Intermediate handrails. *Stairways* with a required width of greater than ~~60~~ 88inches~~,~~ shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a *handrail*. On monumental *stairs*, where intermediate handrails are required, *handrails* shall be located along the most direct path of egress travel.

2024 International Fire Code

[BE] 1014.10 Intermediate handrails. *Stairways* with a required width of greater than ~~60~~88 inches~~,~~ shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a *handrail*. On monumental *stairs*, where intermediate handrails are required, *handrails* shall be located along the most direct path of egress travel.

Reason: The original proposal obstructs the usable width of a stairway by reducing the width by which a stairway would be required to be provided with an intermediate handrail. Because the current code relies on the distance to the handrail as the location that all portions of the required egress width must be within 30" of, and the allowance for a handrail to project up to 4.5" into the stair, the current code could have a stair with a required egress width up to 69" wide without an intermediate handrail. The proposal reduces that by making the required width of the stair the trigger with no consideration for handrail projection, meaning that the trigger for an intermediate handrail would be reduced by 9". This is a technical change and therefore the original proposal was mischaracterized as being a clarification only.

The unintended benefit of the proposal is that it highlighted the issue with the current code as written. Because of the effective current code requirement to provide an intermediate handrail at 70" of required stair width, the stair is obstructed by the handrail in a manner that actually makes the actual occupant capacity of the stair reduced as opposed to a 69" wide stair. A handrail is supposed to enhance the safety of a stair, not reduce the time of egress for the occupants, so this issue with the current code should be addressed.

The proposed revision per this comment addresses both the original proponent's intent of clarifying when the 1st intermediate handrail is required, as well as fixes the unintended hazard by not requiring the intermediate handrail until the required egress width exceeds 88 inches. The provided figures illustrate the issues with the original proposal, the current code, and the appropriate solution provided by this comment:

Figure 1. Shows the minimum current code width of a stair, and the resulting minimum width between handrails. This illustrates how the original proposal would result in the usable widths of the stair serving 305 occupants (Figure 2) to be less than what is required for a stair serving <50 occupants. It also shows that this comment meets the usable widths of a stair serving 440 occupants (Figure 3) as what is provided for a stair serving 50>220 occupants.

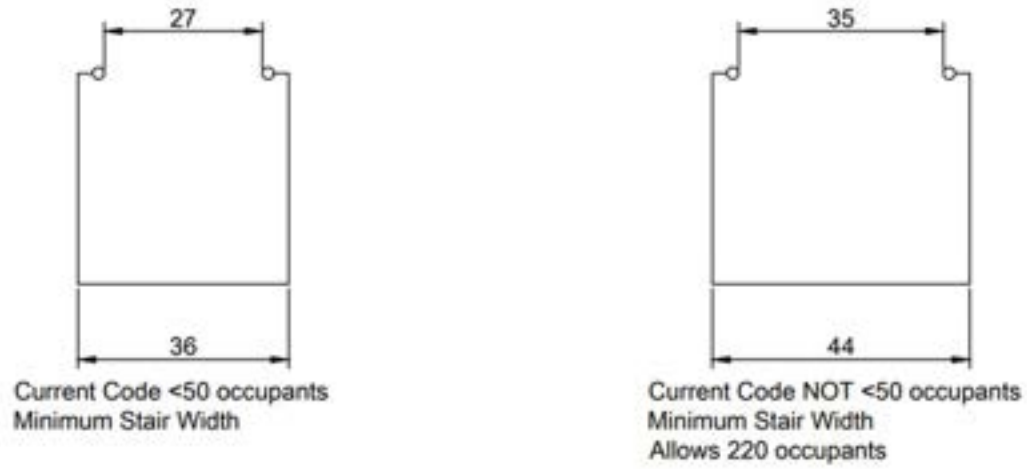


Figure 2. Shows a) the width of stair requiring an intermediate handrail per the original proposal, b) the width of stair requiring an intermediate handrail per the current code, and c) the ability to have 3 occupants within the width of a stair not requiring an intermediate handrail per the current code, that would be prohibited by the original proposal as it would require the handrail thereby obstructing the middle of the stair.

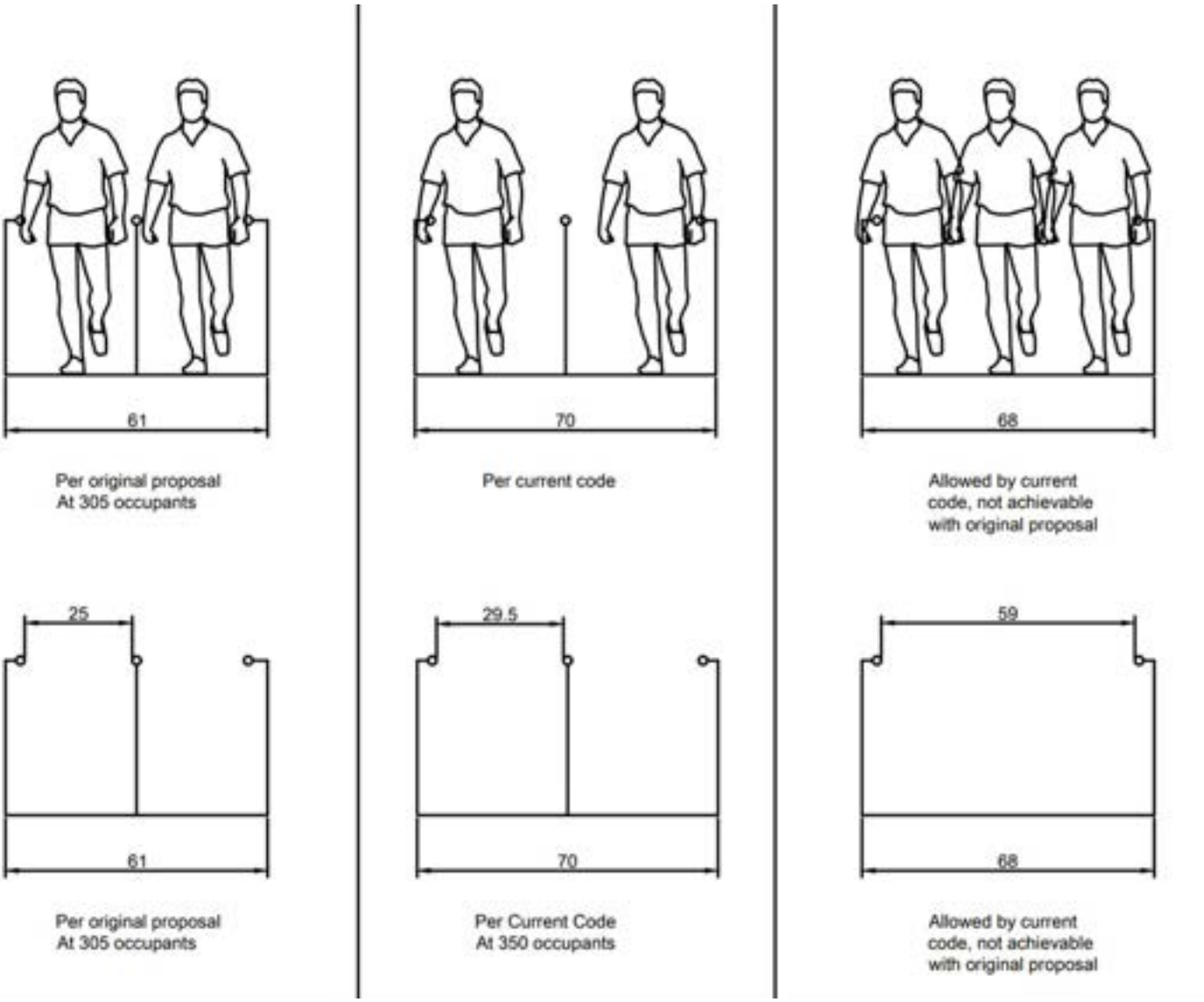
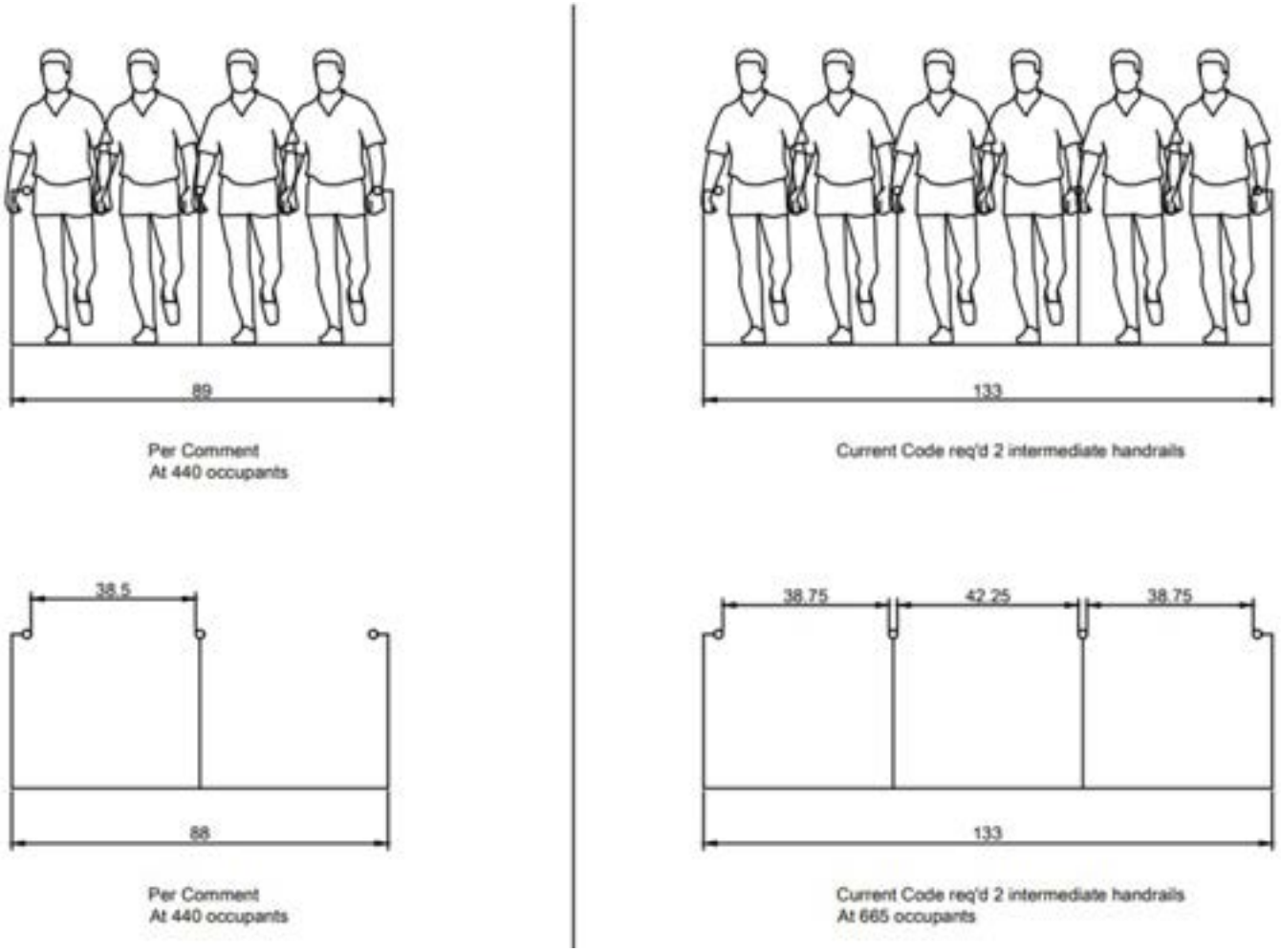


Figure 3. Shows a) the width of a stair requiring an intermediate handrail per this comment and the ability to have 2 occupants use the stair on both sides of the intermediate handrail and b) the width of a stair requiring two intermediate handrails per the current code to

illustrate that this comment properly aligns with how the code intends to require intermediate handrails at widths still providing the ability to have 2 occupants on all sides of the intermediate handrail(s).



Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0 - Decrease in cost of construction

Estimated Immediate Cost Impact Justification (methodology and variables):

The proposed comment will allow for a wider stairway before requiring an intermediate handrail. This will allow for savings by eliminating the cost to fabricate/install the intermediate handrail for stairs with a required egress width between 69" and 88".

Comment (CAH2)# 485

Comment 2:

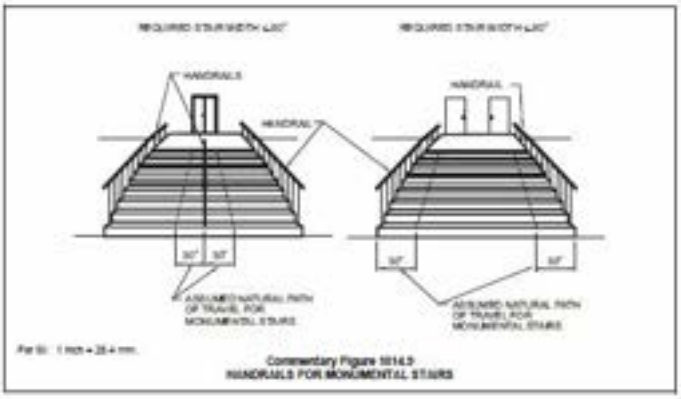
Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Submitted

Reason: We believe this proposal was disapproved based on incorrect testimony. Examples were given stating a center handrail was not required until 69", but that is assuming handrail projections. Other proponents thought a center handrail was required on a 44 inch wide stairway. This misunderstanding is why this change is needed.

The proposal uses the required width of 60 inches as the starting point for this requirement. Handrails do not have to project into the required width of the stairway - it is an option (Section 1014.3). If you had handrails that did protrude 4-1/2" and a double center handrail (Se3ction 1014.9), the required width could be wider than 60" and meet the required reach to a handrail of 30". Below are the relevant sections and a picture from the IBC commentary illustrating Section 1014.9.

1014.3 Lateral location. Handrails **located outward from the edge of the walking surface** of flights of stairways, ramps, stepped aisles and ramped aisles shall be located 6 inches (152.4 mm) or less measured horizontally from the edge of the walking surface. Handrails projecting into the width of the walking surface shall comply with Section 1014.9.

1014.9 Projections. On ramps and on ramped aisles that are part of an accessible route, the clear width between handrails shall be36 inches (914 mm) minimum. **Projections into the required width** of aisles, stairways and ramps at each side shall not exceed 41/2inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above the minimum head-room height required in Section 1011.3. **Projections due to intermediate handrails** shall not constitute a reduction in the egress width. Where a pair of intermediate handrails are provided within the stairway width without a walking surface between the pair of intermediate handrails and the distance between the pair of intermediate handrails is greater than 6inches (152 mm), the available egress width shall be reduced by the distance between the closest edges of each such intermediate pair of handrails that is greater than 6 inches (152 mm).



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Comment (CAH2)# 222

E87-24

IBC: 1014.10; IFC: [BE] 1014.10

Proposed Change as Submitted

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org)

2024 International Building Code

Revise as follows:

1014.10 Intermediate handrails. *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a *handrail*. Where intermediate *handrails* are required on ~~On monumental~~ *stairs* in excess of the required width or required capacity, *handrails* shall be located along the most direct path of egress travel.

2024 International Fire Code

Revise as follows:

[BE] 1014.10 Intermediate handrails. *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a *handrail*.Where intermediate *handrails* are required on ~~On monumental~~ *stairs*in excess of the required width or required capacity, *handrails* shall be located along the most direct path of egress travel.

Reason: What is a monumental stair? Ask different people and the answers will be varied. “Monumental stair” is not a defined term and interpretation is inconsistent. A search of the IBC shows that **1014.9** is the only place where the term “monumental stairs” is used so it would seem that a better description of the intent of the requirement would be more reasonable than adding a definition for a term that is used in a solitary requirement.

The intent of this requirement is to provide for handrails that are within the reach of the users on wider stairs. The intent of the second sentence of this requirement is to assure that functional intermediate handrails are provided for stairways that are designed with an aesthetic of exaggerated width in proportion to the required width /egress capacity.

Eliminating the vague and often misunderstood term of “Monumental” and inserting text to describe the condition will allow for consistent interpretation and enforcement.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The substitution language replaces a misunderstood term that lacks clear definition without technical change to the intent of the code. The change is of no consequence to the methods or cost of construction.

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The term monumental stairways is commonly understood. The proponent should review the submitted modification and work with the proponents of E86-24. (Vote: 13-1)

E87-24

Individual Consideration Agenda

Comment 1:

IBC: SECTION 202 (New), 1014.10; IFC: SECTION 202 (New), [BE] 1014.10

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Add new definition as follows:

MONUMENTAL STAIRWAY . A stairway that exceeds the minimum required width and capacity such that at least one intermediate handrail is required.

1014.10 Intermediate handrails. *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a *handrail*. On monumental stairways ~~Where intermediate *handrails* are required on *stairs in excess of the required width or required capacity*~~, *handrails* shall be located along the most direct path of egress travel.

2024 International Fire Code

Add new definition as follows:

[BE] MONUMENTAL STAIRWAY . A stairway that exceeds the minimum required width and capacity such that at least one intermediate handrail is required.

[BE] 1014.10 Intermediate handrails. *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a *handrail*. On monumental stairways ~~Where intermediate *handrails* are required on *stairs in excess of the required width or required capacity*~~, *handrails* shall be located along the most direct path of egress travel.

Reason: Based upon the committee's action and the confusing testimony it seems prudent to offer a definition though the original proposal sought not to do so. This comment allows the current code text to remain for those who know one when they see one. For those who do not know when they see one, i.e. most users of the code other than code officials, a definition has been provided for a term that is obscure at best and used only once in the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The substitution language replaces a misunderstood term that lacks clear definition without technical change to the intent of the code.

The change is of no consequence to the methods or cost of construction.

Comment (CAH2)# 176

E89-24

IBC: 1015.2; IFC: [BE] 1015.2

Proposed Change as Submitted

Proponents: John Grenier, National Council of Structural Engineers' Associations (NCSEA) (jgrenier@greniereng.com)

2024 International Building Code

Revise as follows:

1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, *equipment platforms*, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side, ~~and~~ at the perimeter of occupiable roofs, and at walking surfaces near retaining walls in accordance with Section 1807.2.5. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9.

Exceptions: *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of *stages* and raised *platforms*, including *stairs* leading up to the *stage* and raised *platforms*.
3. On raised *stage* and *platform* floor areas, such as runways, *ramps* and side *stages* used for entertainment or presentations.
4. At vertical openings in the performance area of *stages* and *platforms*.
5. At elevated walking surfaces appurtenant to *stages* and *platforms* for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.
8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.
9. Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where *approved guards* are present at the perimeter of the roof.
10. At portions of an *occupiable roof* where an *approved* barrier is provided.

2024 International Fire Code

Revise as follows:

[BE] 1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, equipment platforms, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side, ~~and~~ at the perimeter of *occupiable roofs*, and at walking surfaces near retaining walls in accordance with Section 1807.2.5 of the International Building Code. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9 of the International Building Code.

Exception: *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of stages and raised platforms, including *stairs* leading up to the stage and raised platforms.
3. On raised stage and platform floor areas, such as runways, *ramps* and side stages used for entertainment or presentations.
4. At vertical openings in the performance area of stages and platforms.

5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.
8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.
9. Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where approved guards are present at the perimeter of the roof.
10. At portions of an *occupiable roof* where an *approved* barrier is provided.

Reason: 1. To clarify that walls and retaining walls associated with a building or a site, also require Guards to protect against falls.

2. Section **1807.2.5 Guards** was added to the 2024 IBC via code change proposal S157-22. The proposed new language in Section 1015.2 will be a pointer to that section.

3. The 2021 IBC Commentary states "Where one or more sides of a walking surface are open to the floor level or grade below, a guard system must be provided to minimize the possibility of occupants accidentally falling to the surface below". The pointer to section 1807.2.5 is important to eliminate potential confusion and possible misunderstanding that walls and retaining walls are not governed by the IBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The requirement for guards at retaining walls is in Section 1807.2.5, so this is just pointing to that guard requirement.

E89-24

Public Hearing Results (CAH1)

Committee Action: **As Modified by Committee (AMC1)**

Committee Modification:
2024 International Building Code

1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, *equipment platforms*, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side, at the perimeter of occupiable roofs, and at ~~walking surfaces near~~ retaining walls in accordance with Section 1807.2.5. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9.

Exceptions: *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of *stages* and raised *platforms*, including *stairs* leading up to the *stage* and raised *platforms*.
3. On raised *stage* and *platform* floor areas, such as runways, *ramps* and side *stages* used for entertainment or presentations.
4. At vertical openings in the performance area of *stages* and *platforms*.

5. At elevated walking surfaces appurtenant to *stages* and *platforms* for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.
8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.
9. Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where *approved guards* are present at the perimeter of the roof.
10. At portions of an *occupiable roof* where an *approved* barrier is provided.

2024 International Fire Code

[BE] 1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, equipment platforms, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side, at the perimeter of *occupiable roofs*, and at ~~walking surfaces near~~ retaining walls in accordance with Section 1807.2.5 of the International Building Code. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9 of the International Building Code.

Exception: *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of stages and raised platforms, including *stairs* leading up to the stage and raised platforms.
3. On raised stage and platform floor areas, such as runways, *ramps* and side stages used for entertainment or presentations.
4. At vertical openings in the performance area of stages and platforms.
5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.
8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.
9. Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where approved guards are present at the perimeter of the roof.
10. At portions of an *occupiable roof* where an *approved* barrier is provided.

Committee Reason: The modification removed subjective language. The requirement should be in the guards section, not in Section 1807.2.5, however, until this gets relocated, the proposal added a necessary pointer for guards on retaining walls. (Vote: 12-2)

E89-24

Individual Consideration Agenda

Comment 1:

IBC: 1015.2, 1807.2.5, 1807.2.5.1, 1807.2.5.2, 1807.2.5.3; IFC: [BE] 1015.2

Proponents: John Grenier, National Council of Structural Engineers' Associations (NCSEA), NCSEA (jgrenier@greniereng.com)

requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, *equipment platforms*, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side, and at the perimeter of occupiable roofs~~, and at retaining walls in accordance with Section 1807.2.5~~. Guards shall be located at retaining walls having an upper grade level that is more than 30 inches (762 mm) measured vertically above the lower grade level at any point within 36 inches (914 mm) horizontally from the exposed face of wall, and is open to unanticipated pedestrian access that would have the possibility of a fall to the lower level such as a walking surface, parking area, playground, yard, planter, or similar use areas. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9.

Exceptions: *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of *stages* and raised *platforms*, including *stairs* leading up to the *stage* and raised *platforms*.
3. On raised *stage* and *platform* floor areas, such as runways, *ramps* and side *stages* used for entertainment or presentations.
4. At vertical openings in the performance area of *stages* and *platforms*.
5. At elevated walking surfaces appurtenant to *stages* and *platforms* for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.
8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.
9. Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where *approved guards* are present at the perimeter of the roof.
10. At portions of an *occupiable roof* where an *approved* barrier is provided.
11. At retaining walls in locations that cannot be accessed by the public as determined by the building code official.

1807.2.5 Guards. *Guards* shall be provided at retaining walls in accordance with Section 1015.2 ~~Sections 1807.2.5.1 through 1807.2.5.3.~~ ~~**Exception:** *Guards* are not required at retaining walls not accessible to the public.~~

Delete without substitution:

~~**1807.2.5.1 Where required.** At retaining walls located within 36 inches (914mm) of walking surfaces, a *guard* shall be required between the walking surface and the open side of the retaining wall where the walking surface is located more than 30 inches (762 mm) measured vertically to the surface or grade below at any point within 36 inches (914mm) horizontally to the edge of the open side. *Guards* shall comply with Section 1607.9.~~

~~**1807.2.5.2 Height.** Required *guards* at retaining walls shall comply with the height requirements of Section 1015.3.~~

~~**1807.2.5.3 Opening limitations.** Required *guards* shall comply with the opening limitations of Section 1015.4.~~

2024 International Fire Code

[BE] 1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, such as *mezzanines*, *equipment platforms*, *aisles*, *stairs*, *ramps* and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade

below at any point within 36 inches (914 mm) horizontally to the edge of the open side, and at the perimeter of occupiable roofs~~, and at retaining walls in accordance with Section 1807.2.5 of the International Building Code~~. Guards shall be located at retaining walls having an upper grade level that is more than 30 inches (762 mm) measured vertically above the lower grade level at any point within 36 inches (914 mm) horizontally from the exposed face of wall, and is open to unanticipated pedestrian access that would have the possibility of a fall to the lower level such as a walking surface, parking area, playground, yard, planter, or similar use areas. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9 of the International Building Code.

Exception: *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of stages and raised platforms, including *stairs* leading up to the stage and raised platforms.
3. On raised stage and platform floor areas, such as runways, *ramps* and side stages used for entertainment or presentations.
4. At vertical openings in the performance area of stages and platforms.
5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating areas at cross *aisles* in accordance with Section 1030.17.2.
8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.
9. Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where approved guards are present at the perimeter of the roof.
10. At portions of an *occupiable roof* where an *approved* barrier is provided.
11. At retaining walls in locations that cannot be accessed by the public as determined by the building code official.

Reason: This comment is being submitted at the recommendation of ICC Staff and based on the comments in the Committee Reason Statement: "The requirement should be in the guards section, not in Section 1807.2.5, however, until this gets relocated, the proposal added a necessary pointer for guards on retaining walls."

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The requirement for guards at retaining walls is in Section 1807.2.5, so this change is just pointing to that guard requirement.

Comment (CAH2)# 705

E91-24

IBC: 1015.3; IFC: [BE] 1015.3

Proposed Change as Submitted

Proponents: David Cooper, Stair Manufacturing and Design Consultants, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org)

2024 International Building Code

Revise as follows:

1015.3 Height. Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On *stairways* and stepped *aisles*, from the line connecting the *nosings*.
3. On *ramps* and ramped *aisles*, from the ramp surface at the guard.

Exceptions:

1. For occupancies in Group R-3 not more than three *stories* above grade in height and within individual *dwelling units* in occupancies in Group R-2 not more than three *stories* above grade in height with separate *means of egress*, required *guards* shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces.
2. For occupancies in Groups R-2 and R-3, within the interior conditioned space of individual *dwelling units*, where the open-sided walking surface is located not more than 25 feet (7.62 meters) measured vertically to the floor or walking surface below, required *guards* shall not be less than 36 inches (914 mm) in height measured vertically above the adjacent walking surface.
3. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, *guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the *nosings* .
4. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, where the top of the *guard* serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the l *nosings* .
5. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard on the open side of stairs serves as a handrail, the height of the guard transition at the top of a flight is permitted to be less than the required guard height for a distance over the landing not greater than 12 inches (305 mm) as measured horizontally from the landing nosing.

~~5~~ 6. The *guard* height in assembly seating areas shall comply with Section 1030.17 as applicable.

~~6~~ 7. Along *alternating tread devices* and ships ladders, *guards* where the top rail serves as a *handrail* shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from a line connecting the leading edge of the treads.

~~7~~ 8. In Group F occupancies where *exit access stairways* serve fewer than three *stories* and such *stairways* are not open to the public, and where the top of the *guard* also serves as a *handrail*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the nosings.

2024 International Fire Code

Revise as follows:

[BE] 1015.3 Height. Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

[BE] 1015.3 Height. Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On *stairways* and stepped *aisles*, from the line connecting the *nosings*.
3. On *ramps* and ramped *aisles*, from the *ramp* surface at the *guard*.

Exceptions:

1. For occupancies in Group R-3 not more than three *stories* above grade in height and within individual *dwelling units* in occupancies in Group R-2 not more than three *stories* above grade in height with separate *means of egress*, required *guards* shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces.
2. For occupancies in Groups R-2 and R-3, within the interior conditioned space of individual *dwelling units*, where the open-sided walking surface is located not more than 25 feet (7.62 meters) measured vertically to the floor or walking surface below, required *guards* shall not be less than 36 inches (914 mm) in height measured vertically above the adjacent walking surface.
3. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, *guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the *nosings* .
4. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, where the top of the *guard* serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the l *nosings* .

5. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard on the open side of stairs serves as a handrail, the height of the guard transition at the top of a flight is permitted to be less than the required guard height for a distance over the landing not greater than 12 inches (305 mm) as measured horizontally from the landing nosing.

~~5~~ 6. The *guard* height in assembly seating areas shall comply with Section 1030.17 as applicable.

~~6~~ 7. Along *alternating tread devices* and ships ladders, *guards* where the top rail serves as a *handrail* shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from a line connecting the leading edge of the treads.

~~7~~ 8. In Group F occupancies where *exit access stairways* serve fewer than three *stories* and such *stairways* are not open to the public, and where the top of the *guard* also serves as a *handrail*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the nosings.

Reason: In the residencies cited in the new exception the required handrail/stair guard height is 34 – 38 inches. The handrail/stair guard often intersects an adjacent landing guard at the top of a flight. The guard at an open sided landing measured from the walking surface of the landing has a minimum height of 36 inches but has no maximum. Typically guards at a landing may be at a height of as much as 42 inches. The typical difference in height between handrail and level guard is 4 -8 inches directly over the top riser. At this point the handrail must be 34-38".

However, the floor surface at the nosing of the landing, from which guard height is determined, extends as much as 1 1/4 inches beyond the top riser. The resulting landing guard is typically 4 - 8 inches higher than the handrail that is required to be continuous to a point directly over the top riser. This presents a conflict in determining whether the guard height or the handrail height is to be accommodated at this intersection of handrail and guard. This can especially problematic when the occupant has children and requests the handrail be positioned as low as possible.

In most situations a continuous transition is preferred to achieve integrity of the design for safety, structural and aesthetic concerns. However, the strictest interpretation of the code only provides for a more vertical transition from as low as 34 inches to 42 inches to achieve both handrail and guard height requirements. Although an exception to handrail height allows for a handrail fitting to exceed the required handrail height it is often better to allow the handrail height to remain constant and afford an inconsequential reduction of the required guard height for a short distance.

Some might apply the opening limitation requirements when interpreting this situation however, this is not always the case. This proposal will allow for consistent interpretation of a smooth transition of the handrail/guard of the stair with the guard at an open sided landing and extension of the handrail at constant height. The horizontal dimension of 12 inches provides the necessary distance to configure an extension of the handrail without undue compromise of the guard's function to minimize the possibility of a fall to the floor or grade below. See figures 1 & 2.

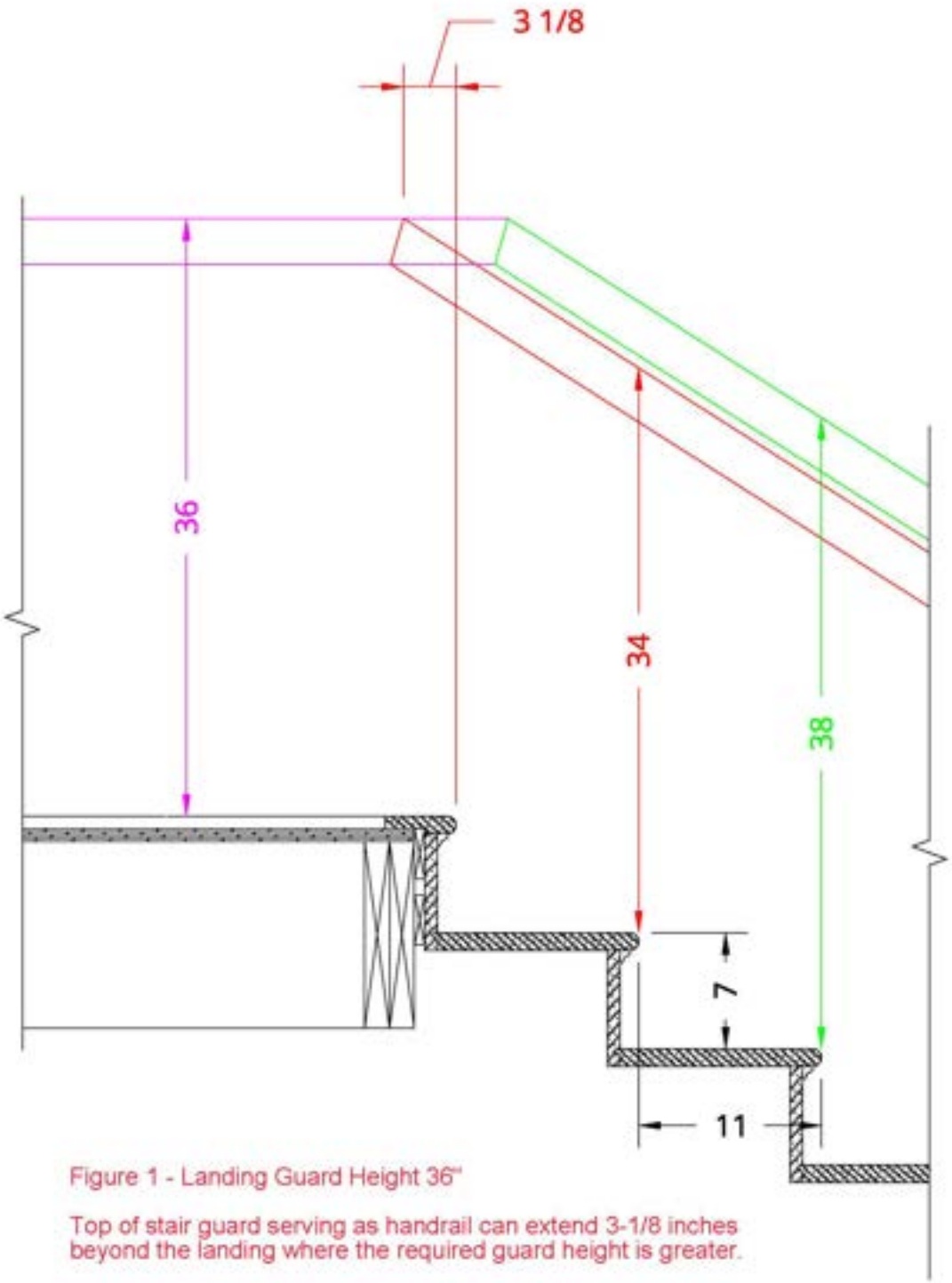


Figure 1 - Landing Guard Height 36"

Top of stair guard serving as handrail can extend 3-1/8 inches beyond the landing where the required guard height is greater.

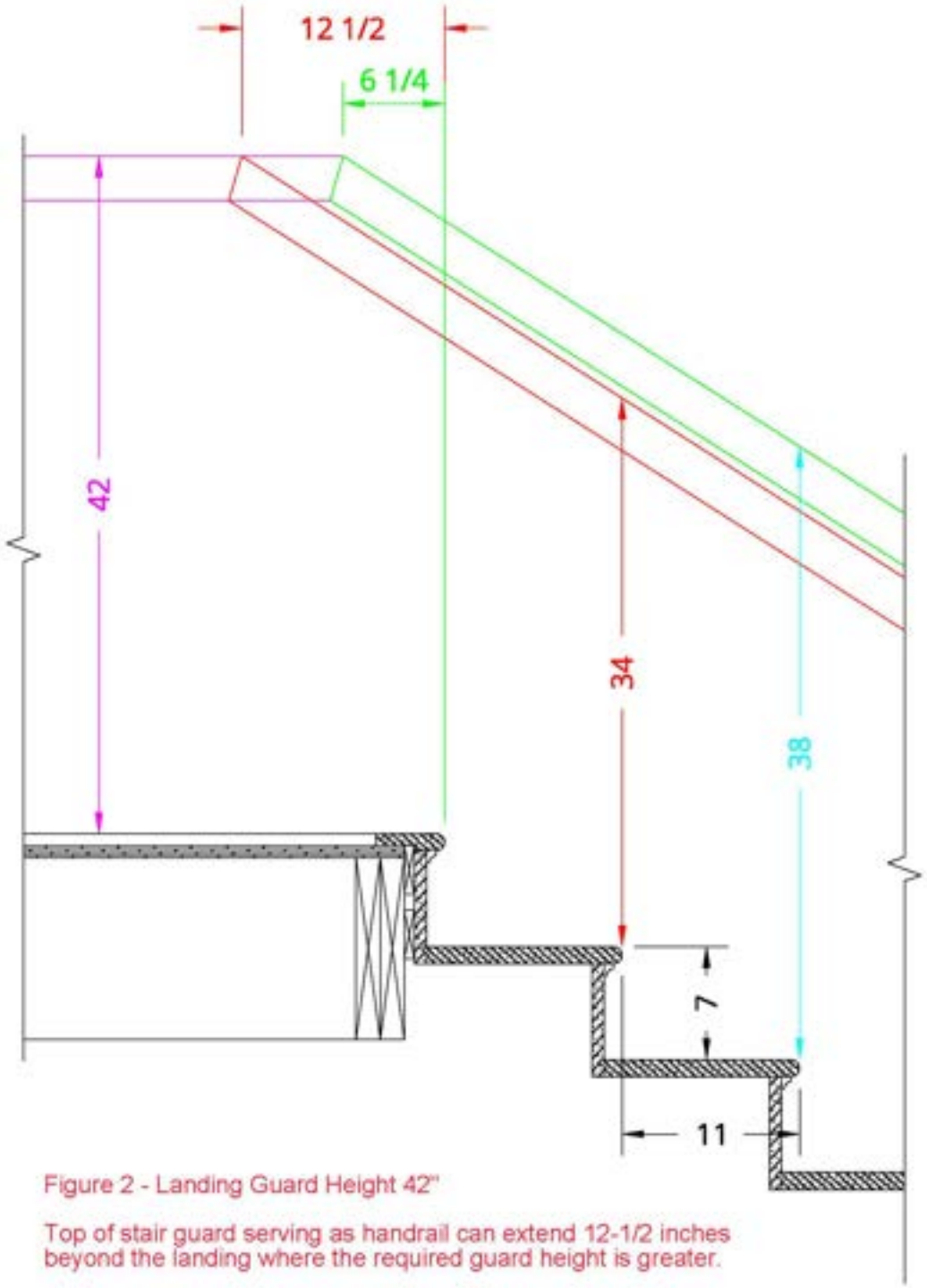


Figure 2 - Landing Guard Height 42"

Top of stair guard serving as handrail can extend 12-1/2 inches beyond the landing where the required guard height is greater.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The technical changes only provide for an alternate location of the related elements. There is no change in the material or labor required that has any consequence upon the cost of construction.

E91-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This is a run on sentence that needs to be edited. (Vote: 14-0)

E91-24

Individual Consideration Agenda

Comment 1:

IBC: 1015.3; IFC: [BE] 1015.3

Proponents: David Cooper, Stairbuilders and Manufacturers Association, Stairbuilders and Manufacturers Association, SMA (coderep@stairways.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Revise as follows:

1015.3 Height. Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On *stairways* and stepped *aisles*, from the line connecting the *nosings*.
3. On *ramps* and ramped *aisles*, from the ramp surface at the guard.

Exceptions:

1. For occupancies in Group R-3 and within individual *dwelling units* in occupancies in Group R-2, the required height of *guards* is permitted to be reduced in accordance with the following:

   1.1. ~~For occupancies in Group R-3~~ Where not more than three *stories* above grade in height and ~~within individual *dwelling units* in occupancies in Group R-2 not more than three *stories* above grade in height~~ with separate *means of egress*, required *guards* shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces.

   1.2. ~~For occupancies in Groups R-2 and R-3, within the interior conditioned space of individual *dwelling units*, where~~ Where the open-sided walking surface is located not more than 25 feet (7.62 meters) measured vertically to the floor or walking surface below, required *guards* shall not be less than 36 inches (914 mm) in height measured vertically above the adjacent walking surface.

   1.3. ~~For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, *guards*~~ *Guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the *nosings*.

   1.4. ~~For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, where~~ Where the top of the *guard* serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the *nosings*.

   1.5. ~~For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard on the open side of stairs serves as a handrail, the height of the guard~~ At the transition of the handrail to the guard at the top of a flight, ~~is permitted to be less than~~ the required guard height ~~for a distance over the landing~~ shall not be less than the handrail height for a distance not greater than 12 inches (305 mm) as measured horizontally from the landing nosing.

2. ~~6.~~ The *guard* height in assembly seating areas shall comply with Section 1030.17 as applicable.

3. ~~7.~~ Along *alternating tread devices* and ships ladders, *guards* where the top rail serves as a *handrail* shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from a line connecting the leading edge of the treads.

4. ~~8.~~ In Group F occupancies where *exit access stairways* serve fewer than three *stories* and such *stairways* are not open to the public, and where the top of the *guard* also serves as a *handrail*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the nosings.

2024 International Fire Code

Revise as follows:

[BE] 1015.3 Height. Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On *stairways* and stepped *aisles*, from the line connecting the *nosings*.
3. On *ramps* and ramped *aisles*, from the *ramp* surface at the *guard*.

Exceptions:

1. For occupancies in Group R-3 and within individual *dwelling units* in occupancies in Group R-2, the required height of *guards* is permitted to be reduced in accordance with the following:

   1.1. ~~For occupancies in Group R-3~~ Where not more than three *stories* above grade in height and ~~within individual *dwelling units* in occupancies in Group R-2 not more than three *stories* above grade in height~~ with separate *means of egress*, required *guards* shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces.

   1.2. ~~For occupancies in Groups R-2 and R-3, within the interior conditioned space of individual *dwelling units*, where~~ Where the open-sided walking surface is located not more than 25 feet (7.62 meters) measured vertically to the floor or walking surface below, required *guards* shall not be less than 36 inches (914 mm) in height measured vertically above the adjacent walking surface.

   1.3. ~~For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, *guards*~~ *Guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the *nosings*.

   1.4. ~~For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, where~~ Where the top of the *guard* serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the *nosings*.

   1.5. ~~For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard on the open side of stairs serves as a handrail, the height of the guard~~ At the transition of the handrail to the guard at the top of a flight, ~~is permitted to be less than~~ the required guard height ~~for a distance over the landing~~ shall not be less than the handrail height for a distance not greater than 12 inches (305 mm) as measured horizontally from the landing nosing.

2. ~~6.~~ The *guard* height in assembly seating areas shall comply with Section 1030.17 as applicable.

3. ~~7.~~ Along *alternating tread devices* and ships ladders, *guards* where the top rail serves as a *handrail* shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from a line connecting the leading edge of the treads.

4. ~~8.~~ In Group F occupancies where *exit access stairways* serve fewer than three *stories* and such *stairways* are not open to the public, and where the top of the *guard* also serves as a *handrail*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the nosings.

Reason: For the most part the original text was defeated as being lengthy and verbose but most testimony agreed with the reason/need for the change. This comment provides the terse, cohesive language the committee and the majority of opposition testimony had suggested was necessary. The proposed list format grouping of all the residential guard height exceptions further aids understanding. Other CAH1 testimony was opposed because they misinterpreted the drawings submitted and the 12 inch dimension as illustrating handrail extensions.. That is not the case as the illustrations only represent certain residential applications where the top of the stair guard is permitted to serve as the handrail and be at the lower height of handrails. Please see the photos and renderings as labeled below that more clearly identify the intent of this comment and the original proposal.

This is a needed change for two critical reasons:

1. Most consumers feel it advantageous to have the handrail at the lower end of the required height range, especially in homes with children and older persons unable to maintain erect posture or with shrinking stature that is inherent with aging.
2. The code measures stair guard and handrail height from a line connecting the nosings however guards at landings and floors are measured from the walking surface. Handrails must be continuous to a point directly above the riser however the landing extends beyond the riser as much as $1\,^{1}/_{4}$ inches. Currently the stair guard would have to be the exact same height as the level guard to have a "sharp" and precise transition or a considerably higher stair guard to allow for a smooth transition by an over easing or a

wreathed fitting, i.e. curved stair handrails. (A wreathed handrail "twists" to conform to the angle of incidence of the users grip as they ambulate through the raked turn of the stair).

The ability to make a smooth rounded transition from stair guard to the level guard at the landing allows a safe and continuous grasp of the handrail. This proposal offers a superior alternative to the use of a gooseneck (vertical type transition) or post at the transition from the stair guard/handrail (allowed in the code) providing a greater level of safety. The minimal decrease from the required landing guard height is only allowed at the top of a flight and occurs for a negligible distance. This type of transition has been common throughout the built environment for hundreds of years. Please review the photographic examples below of common transitions.

Figure 1

Handrail to Post as permitted by code

Gooseneck from Handrail to Post as permitted by code

Gooseneck from Handrail to Guard as permitted by code

Figure 2

Simple Bisect of Handrail and Guard at Exactly Same Height
The arrow indicates area addressed by new exception

Figure 3

Wreathed transitions from Handrail to Landing Guard that provide continuous grip without interruption but require the proposed exception to the required landing guard height.

Figure 4

Preferred smooth transition of Handrail to landing Guard using over-easing at the top of a flight provides for continuous grip without interruption. Red dimension arrow indicates maximum 12 Inch distance where guard height exception would apply.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The technical changes only provide for an alternate location of the related elements. There is no change in the material or labor required that has any consequence upon the cost of construction.

Comment (CAH2)# 83

E93-24

IBC: TABLE 1017.2; IFC: [BE] TABLE 1017.2

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

1017.2 Limitations. *Exit access* travel distance shall not exceed the values given in Table 1017.2.

Revise as follows:

TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT AUTOMATIC SPRINKLER SYSTEM (feet)	WITH AUTOMATIC SPRINKLER SYSTEM (feet)	
	NS	S, S13R	S13D
A, E, F-1, M, ~~R,~~ S-1	200[e]	250[b]	NP
R-1	NP	250	NP
R-2, R-3[c], R-4[c]	NP	250	200
I-1	~~Not Permitted~~ NP	250[b]	NP
B	200	300[e]	NP
F-2, S-2, U	300	400[e]	NP
H-1	~~Not Permitted~~ NP	75[bd]	NP
H-2	~~Not Permitted~~ NP	100[bd]	NP
H-3	~~Not Permitted~~ NP	150[bd]	NP
H-4	~~Not Permitted~~ NP	175[bd]	NP
H-5	~~Not Permitted~~ NP	200[e]	NP
I-2, I-3	~~Not Permitted~~ NP	200[e]	NP
I-4	150	200[e]	NP

For SI: 1 foot = 304.8 mm. NP = Not Permitted.

NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Sections 903.2.8 and 903.3.1.3.

a. See the following sections for modifications to exit access travel distance requirements:

Section 402.8: For the distance limitation in malls.

Section 407.4: For the distance limitation in Group I-2.

Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.

Section 411.2: For the distance limitation in special amusement areas.

Section 412.6: For the distance limitations in aircraft manufacturing facilities.

Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.

Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.

Section 1006.3.4: For buildings with one exit.

Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.

Section 1017.2.3: For increased distance limitation in Group H-5.

Section 1030.7: For increased limitation in assembly seating.

Section 3103.4: For temporary structures.

Section 3104.9: For pedestrian walkways.

~~b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.~~

b. ~~d~~ Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.1.

c. ~~Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.~~ The exit access travel distance shall only apply in a Group R-3 and R-4 occupancy located in a mixed occupancy building.

2024 International Fire Code

[BE] 1017.2 Limitations. *Exit access* travel distance shall not exceed the values given in Table 1017.2.

Revise as follows:

[BE] TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT AUTOMATIC SPRINKLER SYSTEM (feet)	WITH AUTOMATIC SPRINKLER SYSTEM (feet)	
	NS	S, S13R	S13D
A, E, F-1, M, ~~R,~~ S-1	200	250[b, c]	NP
R-1	NP	250	NP
R-2, R-3[c], R-4[c]	NP	250	200
I-1	~~Not Permitted~~ NP	250[b]	NP
B	200	300[c]	NP
F-2, S-2, U	300	400[c]	NP
H-1	~~Not Permitted~~ NP	75[bd]	NP
H-2	~~Not Permitted~~ NP	100[bd]	NP
H-3	~~Not Permitted~~ NP	150[bd]	NP
H-4	~~Not Permitted~~ NP	175[bd]	NP
H-5	~~Not Permitted~~ NP	200[c]	NP

OCCUPANCY	WITHOUT AUTOMATIC SPRINKLER SYSTEM (feet)	WITH AUTOMATIC SPRINKLER SYSTEM (feet)	
	NS	S, S13R	S13D
I-2, I-3	~~Not Permitted~~ NP	200[e]	NP
I-4	150	200[e]	NP

For SI: 1 foot = 304.8 mm. NP = Not Permitted.

NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Sections 903.2.8 and 903.3.1.3.

a. See the following sections for modifications to exit access travel distance requirements:

Section 402.8 of the International Building Code: For the distance limitation in malls.

Section 407.4 of the International Building Code: For the distance limitation in Group I-2.

Sections 408.6.1 and 408.8.1 of the International Building Code: For the distance limitations in Group I-3.

Section 411.2 of the International Building Code: For the distance limitation in special amusement areas.

Section 412.6 of the International Building Code: For the distance limitations in aircraft manufacturing facilities.

Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.

Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.

Section 1006.3.4: For buildings with one exit.

Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.

Section 1017.2.3: For increased distance limitation in Group H-5.

Section 1030.7: For increased limitation in assembly seating.

Section 3103.4 of the International Building Code: For temporary structures.

Section 3104.9 of the International Building Code: For pedestrian walkways.

~~b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.~~

~~c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.~~

b ~~d~~. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.1.

~~e. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.~~

c. The exit access travel distance shall only apply in a Group R-3 and R-4 occupancy located in a mixed occupancy building.

Reason: The intent of this group of proposal is to make the tables in Chapter8 and 10 consistent with the revisions to Table 504.3, 504.4, 506.2 – using S13, S13R, S13D and NP for sprinkler requirements. This would clarify what happens when an NFPA 13D sprinkler system is used. This is not intent to change current allowances; just to clarify what requirements are applicable for an NFPA13D system. Discussion during the BCAC calls has indicated that it is needed to identifying specific code sections so that everyone has the same understanding.

Group R-4 requirements do not always have to be stated as Section 310.5 states “Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.” However, since a lot of people miss that, we are including R-4 in the proposed applicable footnotes.

Townhouses are defined as attached dwelling units that extend from foundation to grade and are open on at least two sides. If a townhouse is 3 stories or less, it can choose to comply with the IBC or IRC (Section 101.2). The IRC Section P2904 is similar to an NFPA 13D system. If the IBC is used, townhouses subdivided by firewalls into 1 or 2 units per building is a Group R-3 (Section 310.4) and townhouses subdivided by fire partitions (Section 420.2) are a Group R-2 (Section 310.3). This is important to clarify because all townhouses can use a 13D sprinkler system: Section 903.2.8 references 903.3, and 903.1.3.3 specifically stating that “Automatic sprinkler systems installed in … and townhouses shall be permitted to be installed throughout in accordance with NFPA 13D.” To make this obvious in the tables, a reference to 903.2.8 and 903.1.3.3 are added in the footnote.

Specifics for this change –

- adds the S13, S13R, S13D and NS in the table titles and footnotes with the section references for sprinklers.
- add columns for NFPA13D and rows to separate out Group R requirements.
- Footnotes b, c and e are redundant and deleted.
- The new footnote is added to coordinate with the singe exit allowance in Section 1006.3.4 Item 4.
- “NP” instead of “not permitted” is for consistency in table styles.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of requirements for Group R where an NFPA13D system is permitted. There are no changes to construction requirements.

E93-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The proposal needs to clarify that Group R-2 townhouses are limited to 3 stories when using a NFPA13D system - this might be in the new footnote. It needs to be clarified where Group R-3 and R-4 are allowed to not have a limit on the exit access travel distance. Section 1006.2.2.6 this appears to reduce the travel distance to 125' for Group R-3 and 75' for Group R-4. (Vote:12-2)

E93-24

Individual Consideration Agenda

Comment 1:

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Submitted

Reason: BCAC had 5 different proposals dealing with requirements for buildings where an NFPA13D sprinkler system is permitted. Proposal FS94-24, E16-24 and E95-24 were approved. We are asking for approval of code changes E22-24 and E93-24 for consistency within the code.

In these tables, by not listing an NFPA13D system, there is no information on exit access travel distance for buildings where an NFPA13D system is permitted. Non-sprinklered buildings say 'NP' for 'not permitted', so information is missing.

Much of the discussion with the committee was about where an NFPA13D system can be used. That is outside the scope of these proposals. However, Code change F100-24 was approved as modified to clarify where an NFPA13D system can be use. This is the approved text.

2024 International Fire/Building Code
Revise as follows:
903.2.8 Group R. An automatic sprinkler system installed in accordance with Section 903.3.1 shall be provided throughout all buildings with a Group R fire area.
Delete without substitution:
~~903.2.8.1 Group R-3. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in Group R-3 occupancies.~~
~~903.2.8.2 Group R-4, Condition 1. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in Group R-4, Condition 1 occupancies.~~
~~903.2.8.3 Care facilities. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in care facilities with five or fewer individuals in a single-family dwelling.~~
Revise as follows:
903.3.1.3 NFPA 13D sprinkler systems. Automatic sprinkler systems installed in one- and two-family dwellings and townhouses; Group R-3; and Group R-4~~, Condition 1; and townhouses~~ shall be permitted to be installed throughout in accordance with NFPA13D.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Comment (CAH2)# 141

E96-24

IBC: TABLE 1020.2; IFC: [BE] TABLE 1020.2

Proposed Change as Submitted

Proponents: Richard Walke, Creative Technology Inc., SAFTIFIRST (richwalke61@gmail.com)

2024 International Building Code

Revise as follows:

TABLE 1020.2 CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without automatic sprinkler system	With automatic sprinkler system
H-1, H-2, H-3	All	Not Permitted	1[c]
H-4, H-5	Greater than 30	Not Permitted	1[c]
A, B, ~~E,~~ F, M, S, U	Greater than 30	1	0
E	All	1	1
R	Greater than 10	Not Permitted	0.5[c]/1[d]
I-2[a]	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b, c]
I-4	All	1	0

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.

b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.8.

c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

d. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

2024 International Fire Code

Revise as follows:

[BE] TABLE 1020.2 CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without automatic sprinkler system	With automatic sprinkler system
H-1, H-2, H-3	All	Not Permitted	1[c]
H-4, H-5	Greater than 30	Not Permitted	1[c]
A, B, ~~E,~~ F, M, S, U	Greater than 30	1	0
E	All	1	1
R	Greater than 10	Not Permitted	0.5[c]/1[d]
I-2[a]	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b, c]
I-4	All	1	0

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3 of the International Building Code.

b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.8 of the International Building Code.

c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

d. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

Reason: This proposal is intended add a requirement for a 1 hr fire-resistance rating on corridor walls in sprinkled E Occupancies. It emulates an amendment which was made when the City of Chicago adopted the International Building Code.

The City of Chicago suffered a tragic loss of ninety-two students and three nuns during the Our Lady of the Angels School Fire on December 1, 1958. Many of these lives were lost due to flames and smoke blocking their normal means of egress. No doubt this fire and the tragic loss of life was on the minds of the City Council members when amending their code. And it should be on our minds when considering this proposal. There is no more important a responsibility we as a collective group should have here this week than to protect the lives of our children and grandchildren through requirements for safe building construction methods.

The need for rated corridors was removed for the sprinkled occupancies during the transition from the legacy codes to the International Building Code. Since that time, if I have heard it once, I have heard it one hundred times, “We need to reinstate the requirement for rated corridors in our schools.” So here is our opportunity.

When voting on this proposal, please keep in mind the chaotic environment which would exist in a school fire. Even though the students and facility do practice fire drills, an actual fire is far different. The practiced means of egress may not be available due to fire, smoke and toxic gases. So having the redundancy of sprinklers and fire-resistance-rated construction certainly increases the likely-hood of a safe ending to a school fire. Please vote to reinstate the requirement for protecting corridors in sprinkled E occupancies. Do it for the children!

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

The average additional installed cost of constructing a 1 hr fire-resistance-rated gypsum board wall as compared to a non-rated gypsum board wall is approximately $1 to $2 / sq ft. The average additional installed cost of constructing a 1 hr fire-resistance-rated concrete masonry unit (CMU) wall as compared to a non-rated CMU wall is approximately $2 to $4 / sq ft. In addition to the additional cost of construction the wall, the various breaches will need to be likewise protected in accordance with Sections 714, 715, 716 and 717 of the International Building Code. Below is the average cost for installing this additional protection:

1. Based on industry and manufacturer input, the average cost of an installed firestop system is $50 to $60 per penetration.
2. Based on industry and manufacturer input, the average cost of an installed joint system is $25 to $40 per lineal foot.
3. Based on industry and manufacturer input, the average increase in cost of an installed 20 minute without hose stream door versus a non-rated door is $50 to $100 per door.
4. Based on industry and manufacturer input, the average increase in cost of an installed 20 or 45 minute fire-protection glazing versus a non-rated glazing is $25 to $40 per sq ft of opening.
5. Based on industry and manufacturer input, the average cost of an installed fire, smoke or combination fire/smoke damper is $300 to $500, $1,000 to $1,500 and $1,000 to $1,500 per damper, respectively.

Estimated Immediate Cost Impact Justification (methodology and variables):

This cost includes average materials and labor costs for the above items. The cost range includes protecting both sides of wall assembly where appropriate. In the end, the exact increase in cost is based on the specific building design in question.

E96-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved. The school fire in 1958 is not an appropriate reference for school buildings as they are built today - schools are constructed with passive and active fire protection systems. Children have monthly fire drills their entire life, so they are well trained in school evacuation. There have been no fire deaths in a school since 1958. There is no recent fire data provided for this significant change in cost for schools - this is not an incremental cost as indicated in the cost impact statement. Closers on classrooms doors are a problem for younger children to open on their own - so fire rated doors will be propped open by the teacher. (Vote: 14-0)

E96-24

Individual Consideration Agenda

Comment 1:

IBC: TABLE 1020.2; IFC: [BE] TABLE 1020.2

Proponents: Richard Walke, Creative Technology Inc., SAFTIFIRST (richwalke61@gmail.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

TABLE 1020.2 CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without automatic sprinkler system	With automatic sprinkler system
H-1, H-2, H-3	All	Not Permitted	1[c]
H-4, H-5	Greater than 30	Not Permitted	1[c]
A, B, F, M, S, U	Greater than 30	1	0
E	All	1	~~1~~0.5
R	Greater than 10	Not Permitted	0.5[c]/1[d]
I-2[a]	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b, c]
I-4	All	1	0

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.

b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.8.

c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

d. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

2024 International Fire Code

[BE] TABLE 1020.2 CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without automatic sprinkler system	With automatic sprinkler system
H-1, H-2, H-3	All	Not Permitted	1[c]
H-4, H-5	Greater than 30	Not Permitted	1[c]
A, B, F, M, S, U	Greater than 30	1	0
E	All	1	~~1~~0.5
R	Greater than 10	Not Permitted	0.5[c]/1[d]
I-2[a]	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b, c]
I-4	All	1	0

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3 of the International Building Code.

b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.8 of the International Building Code.

c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

d. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

Reason: The need for rated corridors was removed for the sprinklered E occupancies during the transition from the legacy codes to the International Building Code. Since that time, if I have heard it once, I have heard it one hundred times, “We need to reinstate the requirement for rated corridors in our schools.” So here is our opportunity.

The proposal as originally written proposed a change in the fire-resistance rating from 0 hr to 1 hr on corridors in sprinklered E occupancies. This was intended to emulates an amendment which was made when the City of Chicago adopted the International Building Code. The original proposal is being modified based on input received from multiple sources both during and after Committee Action Hearing #1.

The modification to the original proposal is to change the required fire resistance rating for sprinklered E occupancies from 1 hr to 0.5 hr. The 0.5 hr rating for sprinklered applications is consistent with other sections or tables of the IBC including the R occupancies within the corridor Table 1020.2 and dwelling and sleeping unit separations covered by Section 708.3.

The landscape of school safety has changed dramatically over the last several decades. Arson fires now account for 43 percent of the school fires. The arson fire could be set by a student simply wanting to get out of a test that day to a mass shooter with using fire to carry out violence against the students and teachers as they evacuate the classrooms due to the fire. And there certainly could be multiple ignition locations.

The Report of Committee Action Hearing #1 mentions there has not been a fire death in a school since 1958. That statement contradicts published information from NFPA Research.[1] The referenced report sites the following statistics relating to school fires during the five-year period from 2014 through 2018:

- The fire services responded to an average of 3,230 school fires per year.
- School fires caused an average of 1 civilian death per year, 39 civilian injuries per year and $37 million in direct property damage per year.
- Arson is the leading cause of school fires, representing 43% of the fires.
- Arson fires accounted 60% of the civilian injuries and 54% of the direct property damage.
- Arson fires were more prevalent in high schools and middle schools than elementary schools.
- 65% of school fires were during school hours, 8a – 4p.
- School fires most often originate in the lavatories and locker rooms.

During Committee Action Hearing #1, testimony cited a growing threat from arson fires targeting violence against persons. Testimony stated the number of fires of this type increased by 57% from 2019 and 2020 in cities having a population of at least 1,000,000 persons and 11% in cities having a population under 10,000 persons.[2] These statistics are particularly frightening for large cities.

Testimony at Committee Action Hearing #1 also questioned why we require rated corridors in sprinklered I-1, I-3 and R occupancies but

not E occupancies. While I recognize the different risk levels of these occupancies as compared to E occupancies, I also recognize the need to protect our vulnerable children. There is no more important a responsibility we as a collective group should have here this week than to protect the lives of our children and grandchildren through requirements for safe building construction methods in our schools. Having the redundancy of sprinklers and fire-resistance-rated construction certainly increases the likely-hood of a safe ending to a school fire. Please vote to reinstate the requirement for protecting corridors in sprinklered E occupancies. Do it for the children!

Bibliography: [1] NFPA Research, September, 2020 - Structure Fires in Schools, by Richard Campbel
[2] Cybersecurity & Infrastructure Security Agency - Fire as a Weapon

Cost Impact: Increase

Estimated Immediate Cost Impact:

The average additional installed cost of constructing a 1/2 hr fire-resistance-rated gypsum board wall as compared to a non-rated gypsum board wall is approximately $1 to 2 / sq ft. The average additional installed cost of constructing a 1/2 hr fire-resistance-rated concrete masonry unit (CMU) wall as compared to a non-rated CMU wall is approximately $2 to 4 / sq ft. In addition to the additional cost of construction the wall, the various breaches will need to be likewise protected in accordance with Sections 714, 715, 716 and 717 of the International Building Code. Below is the average cost for installing this additional protection:

1. Based on industry and manufacturer input, the average cost of an installed firestop system is $50 to $60 per penetration.
2. Based on industry and manufacturer input, the average cost of an installed joint system is $25 to $40 per lineal foot.
3. Based on industry and manufacturer input, the average increase in cost of an installed 20 minute without hose stream door versus a non-rated door is $200 to $300 per door, including the cost of the necessary hardware.
4. Based on industry and manufacturer input, the average increase in cost of an installed 20-minute fire-protection glazing versus a non rated glazing is $25 to $40 per sq ft of opening.
5. Based on industry and manufacturer input, the average cost of an installed fire, smoke or combination fire/smoke damper is $300 to $500, $1,000 to $1,500 and $1,000 to $1,500 per damper, respectively.

Estimated Immediate Cost Impact Justification (methodology and variables):

This includes average materials and labor costs for the above items. The cost range includes protecting both wall assemblies of the corridor, where appropriate. In the end, the exact increase in cost is based on the specific building design in question.

Comment (CAH2)# 470

E97-24

IBC: SECTION 202 (New), SECTION 202, 1022.1, 1022.3 (New), 1023.3.1, 1022.3.2 (New), 1022.3.2.1 (New), 1022.3.2.2 (New), 1022.3.2.3 (New), 1008.3, 1024.5; IFC: SECTION 202 (New), SECTION 202, [BE] 1022.1, 1022.3 (New), [BE] 1023.3.1, 1022.3.2 (New), 1022.3.2.1 (New), 1022.3.2.2 (New), 1022.3.2.3 (New), [BE] 1008.3, [BE] 1024.5

Proposed Change as Submitted

Proponents: Jenifer Gilliland, Seattle Department of Construction and Inspections, Washington Association of Building Officials Technical Code Development Committee (jenifer.gilliland@seattle.gov); Micah Chappell, Seattle Department of Construction and Inspections, Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov); Angela Haupt, City of Kirkland, Washington Association of Building Officials, Technical Code Development Committee (ashaupt@kirklandwa.gov)

2024 International Building Code

Add new definition as follows:

EXIT PATHWAY.
An exit component that serves to meet one or more means of egress design requirements and is open to sky.

Revise as follows:

[BE] EXIT. That portion of a *means of egress* system between the *exit access* and the *exit discharge* or *public way*. Exit components include exterior exit doors at the *level of exit discharge*, *interior exit stairways* and *ramps*, *exit passageways*, *exit pathways*, *exterior exit stairways* and *ramps* and *horizontal exits*.

1022.1 General. *Exits* shall comply with Sections 1022 through 1027 and the applicable requirements of Sections 1003 through 1015. An *exit* shall not be used for any purpose that interferes with its function as a *means of egress*. Once a given level of *exit* protection is achieved, such level of protection shall not be reduced until arrival at the *exit discharge.* ~~Exits shall be continuous from the point of entry into the *exit* to the *exit discharge*~~.

Add new text as follows:

1022.3 Exit continuity. Exits shall be continuous from the point of entry into the *exit* to the *exit discharge*. The path within *exits* is permitted to consist of any combination of *interior exit stairways*, *interior exit ramps*, *exit passageways*, *exit pathways*, *exterior exit stairways*, and *exterior exit ramps*.

Revise as follows:

~~**1023.3.1**~~ **1022.3.1 Extension.** Where an *exit passageway* is used to provide continuity of an *exit*, ~~*interior exit stairways* and *ramps* are extended to an *exit discharge* or a *public way* by an *exit passageway*,~~ the *interior* or exterior *exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both. The *fire-resistance rating* of the exit passageway shall be not less than that required for the *interior exit stairway* and *ramp*. A *fire door assembly* complying with Section 716 shall be installed in the *fire barrier* to provide a *means of egress* from the *interior* or exterior *exit stairway* and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door assembly* are prohibited. Penetrations of the *fire barrier* are prohibited.

Exceptions:

1. Penetrations of the *fire barrier* in accordance with Section 1023.5 shall be permitted.
2. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where there are no openings into the *exit passageway* extension.

3. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where the *interior exit stairway* and the *exit passageway* extension are pressurized in accordance with Section 909.20.4.

Add new text as follows:

1022.3.2 Exit pathways. *Exit pathways* shall be permitted to serve as an exit component in the *means of egress* system where they connect *interior* or *exterior exit stairways and ramps* of the same *building* and comply with the requirements in Section 1022.3.2.1 through 1022.3.2.3.

1022.3.2.1 Construction and openings. The floor, walls, and openings of the *exit pathway* shall be constructed in accordance with Section 1024 for *exit passageways* for a minimum horizontal distance of 10 feet from the edges of *exit pathway* and a minimum vertical distance of 10 feet from the floor of the *exit pathway*.

1022.3.2.2 Location. The *exit pathway* shall have a minimum *fire separation distance* of 10 feet (3048 mm) measured at right angles from the exterior edge of the *exit pathway*, to:

1. The closest interior *lot line*.
2. The centerline of a street, an alley, or *public way*.
3. An imaginary line between two *buildings* on the lot.

1022.3.2.3 Path marking. *Exit pathways* shall be delineated or marked to clearly indicate the path of travel.

Revise as follows:

1008.3 Illumination required by an emergency electrical system. An emergency electrical system shall be provided to automatically illuminate the following areas in the event of a power supply failure:

1. In rooms or spaces that require two or more exits or access to exits:
   1.1. *Aisles*.
   1.2. *Corridors*.
   1.3. *Exit access stairways* and *ramps*.
2. In *buildings* that require two or more exits or access to exits:
   2.1. Interior *exit access stairways* and *ramps*.
   2.2. Interior and *exterior exit stairways* and *ramps*.
   2.3 *Exit pathways*
   ~~2.3.~~ 2.4. Exit passageways.
   ~~2.4.~~ 2.5. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.2.
   ~~2.5.~~ 2.6. Exterior landings as required by Section 1010.1.5 for exit doorways that lead directly to the *exit discharge*.

3. In other rooms and spaces:
    3.1. Electrical equipment rooms.
    3.2. *Fire command centers*.
    3.3. Fire pump rooms.
    3.4. Generator rooms.
    3.5. Public restrooms with an area greater than 300 square feet (27.87 m^2).

1024.5 Openings. Exit passageway opening protectives shall be in accordance with the requirements of Section 716. Except as permitted in Section 402.8.7, openings in exit passageways other than unprotected exterior openings shall be limited to those necessary for *exit access* to the *exit passageway* from normally occupied spaces and for egress from the *exit passageway*.

Where an *interior exit stairway* or *ramp* is extended to an *exit discharge* or a *public way* by an *exit passageway*, the *exit passageway* shall comply with Section ~~1023.3.1~~1022.3.1.

Elevators shall not open into an *exit passageway*.

2024 International Fire Code

Add new definition as follows:

EXIT PATHWAY. An exit component that serves to meet one or more means of egress design requirements and is open to sky.

Revise as follows:

[BE] EXIT. That portion of a *means of egress* system between the *exit access* and the *exit discharge* or *public way*. Exit components include exterior exit doors at the *level of exit discharge*, *interior exit stairways* and *ramps*, *exit passageways*, exit pathways, *exterior exit stairways* and *ramps* and *horizontal exits*.

[BE] 1022.1 General. *Exits* shall comply with Sections 1022 through 1027 and the applicable requirements of Sections 1003 through 1015. An *exit* shall not be used for any purpose that interferes with its function as a *means of egress*. Once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the *exit discharge*. ~~*Exits* shall be continuous from the point of entry into the *exit* to the *exit discharge*.~~

Add new text as follows:

1022.3 Exit continuity. Exits shall be continuous from the point of entry into the *exit* to the *exit discharge*. The path within *exits* is permitted to consist of any combination of *interior exit stairways*, *interior exit ramps*, *exit passageways*, *exit pathways*, *exterior exit stairways*, and *exterior exit ramps*.

Revise as follows:

[BE] ~~1023.3.1~~ 1022.3.1 Extension. Where an *exit passageway* is used to provide continuity of an *exit*, ~~*interior exit stairways* and *ramps* are extended to an *exit discharge* or a *public way* by an *exit passageway*,~~ the *interior* or exterior *exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 of the International Building Code or a *horizontal assembly* constructed in accordance with Section 711 of the International Building Code, or both. The *fire-resistance rating* of the exit passageway shall be not less than that required for the *interior exit stairway* and *ramp*. A *fire door assembly* complying with Section 716 of the International Building Code shall be installed in the *fire barrier* to provide a *means of egress* from the *interior* or exterior *exit stairway* and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door assembly* are prohibited. Penetrations of the *fire barrier* are prohibited. **Exceptions:**

1. Penetrations of the *fire barrier* in accordance with Section 1023.5 shall be permitted.

2. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where there are no openings into the *exit passageway* extension.
3. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where the *interior exit stairway* and the *exit passageway* extension are pressurized in accordance with Section 909.20.4 of the International Building Code.

Add new text as follows:

1022.3.2 Exit pathways. *Exit pathways* shall be permitted to serve as an exit component in the *means of egress* system where they connect *interior* or *exterior exit stairways and ramps* of the same *building* and comply with the requirements in Section 1022.3.2.1 through 1022.3.2.3.

1022.3.2.1 Construction and openings. The floor, walls, and openings of the *exit pathway* shall be constructed in accordance with Section 1024 for *exit passageways* for a minimum horizontal distance of 10 feet from the edges of *exit pathway* and a minimum vertical distance of 10 feet from the floor of the *exit pathway*.

1022.3.2.2 Location. The exit pathway shall have a minimum fire separation distance of 10 feet (3048 mm) measured at right angles from the exterior edge of the exit pathway, to:

1. The closest interior lot line.
2. The centerline of a street, an alley, or public way.
3. An imaginary line between two buildings on the lot.

1022.3.2.3 Path marking. *Exit pathways* shall be delineated or marked to clearly indicate the path of travel.

Revise as follows:

[BE] 1008.3 Illumination required by an emergency electrical system. An emergency electrical system shall be provided to automatically illuminate the following areas in the event of a power supply failure:

1. In rooms or spaces that require two or more exits or access to exits:
   1.1. *Aisles*.
   1.2. *Corridors*.
   1.3. *Exit access stairways* and *ramps*.
2. In *buildings* that require two or more exits or access to exits:
   2.1. Interior *exit access stairways* and *ramps*.
   2.2. Interior and *exterior exit stairways* and *ramps*.
   2.3 Exit pathways
   ~~2.3.~~ 2.4. Exit passageways.
   ~~2.4.~~ 2.5. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.2.
   ~~2.5.~~ 2.6. Exterior landings as required by Section 1010.1.5 for exit doorways that lead directly to the *exit discharge*.

3. In other rooms and spaces:
   3.1. Electrical equipment rooms.
   3.2. *Fire command centers*.
   3.3. Fire pump rooms.
   3.4. Generator rooms.
   3.5. Public restrooms with an area greater than 300 square feet (27.87 m^2).

[BE] 1024.5 Openings. *Exit passageway* opening protectives shall be in accordance with the requirements of Section 716 of the International Building Code.
Except as permitted in Section 402.8.7 of the International Building Code, openings in *exit passageways* other than unprotected exterior openings shall be limited to those necessary for *exit access* to the *exit passageway* from normally occupied spaces and for egress from the *exit passageway*.

Where an *interior exit stairway* or *ramp* is extended to an *exit discharge* or a *public way* by an *exit passageway*, the *exit passageway* shall comply with Section ~~1023.3.1~~1022.3.1.

Elevators shall not open into an *exit passageway*.

Reason: The design of new buildings on small complex sites with steep or varying grades can result in buildings with multiple levels and entrances, towers of differing heights, parking garages that are partially underground with large roof decks near grade, etc. Complying with *means of egress* requirements can be difficult and some applicants propose using outdoor spaces such as roofs or roof decks as part of an *exit* or to connect *exit* components. There is no obvious code path allowing a surface like a roof or deck that is open to sky to be used to connect exit components without requiring it to be enclosed with an *exit passageway*, which is cost prohibitive.

Proposed Solution: Exit Pathway

This proposal combines *exit* continuity language from other Chapter 10 locations into Section 1022 Exits and adds new sections and definitions to establish a new option for connecting *exit* components, the *exit pathway.* The *exit pathway* has two attributes: it must be open to sky and is an *exit* component. An *exit pathway* is a delineated route that crosses a space that is open to sky and connects *exit* components, in a similar manner to how an *exit passageway* connects two *interior exit stairways* within a building (see Figure 1 below).

The purpose of the changes in each section is as follows:

1022.1 General. The last sentence, "*Exits* shall be continuous from the point of entry into the *exit* to the *exit discharge,*" is being relocated to section 1022.3 to create a new section, Exit continuity.

1022.3 Exit continuity. This section addresses two important aspects of an *exit*: they must be continuous from beginning to end and an exit can be a combination of several different *exit* components, including the new *exit pathway*.

This proposal also adds *exterior exit stairways and ramps* to the list of exit components that can be daisy-chained together to form the egress path to the exit discharge or public way. Using Figure 1 as an example, if the delineated *exit pathway* crosses the podium of a podium building, in many designs, an *exterior exit stairway* (minus the stair penthouse shown in the figure) is used to get from the podium level to the public way. The language in the current code (1023.3, Exception) would not allow this, yet the level of safety of an *exterior exit stairway* is presumed to be the same as the other *exit* components.

1022.3.1 Extension. The *exit passageway* extension requirement used to separate the *interior or exterior exit stairway and ramp* from the *exit passageway* is being relocated from Section 102**3**.3.1 into Section 102**2**.3.1. *Exit* continuity needs to be maintained through all components of an *exit*, not just *interior exit stairways* and ramps, so the relocation to Section 1022, the general exiting section, is more appropriate.

1022.3.2 *Exit pathways*: Adds scoping language for the new *exit pathway section.*

1022.3.2.1 Construction and openings: The floors and walls of the *exit pathway* would be protected like an *exit passageway,* but there

would be no ceiling that needs protection. The exit pathway is protected from fires below by requiring the horizontal assembly required in 1024.3 to extend 10 feet from the edge of the pathway. Where there is a minimum of 10 feet of horizontal separation between the edge of the *exit pathway* and other parts of the building, then no walls would be required. However, where *building* walls are less than 10 feet from the edge of *exit pathway*, they must be protected for a vertical distance of 10 feet (see Figure 2 below).

1022.3.2.2 Location: The hazard of adjacent buildings is mitigated with a requirement to have 10 feet of *fire separation distance* between the edge of the *exit pathway* and the lot line, centerline of the right-of-way, or an imaginary lot line, which is similar to how Section 1027.5 protects exterior stairs.

1022.3.2.3 Path marking: Marking the *exit pathway* is required. It can be disorienting to leave an exit stairway or other area and suddenly find yourself in an open to sky area that isn't at grade. Providing a visual cue for the *exit pathway* will allow people to get to the other exit component efficiently in the event of an emergency.

1008.3 Illumination required by an emergency electrical system: To coordinate with the change requiring illumination made in 1002.3.2.4, *exit pathways* is added as item 2.3, requiring the emergency electrical system to automatically illuminate the pathway if there is a power failure. Ambient lighting is not an effective substitute for artificial lighting especially in dense urban environments. Areas like podium plazas, may get little ambient light because of shadows from neighboring buildings and the top floor of many high-rise buildings are stepped back and of a such height that no other building is nearby that can provide the ambient light necessary to light the *exit pathway*. In recognition of the limitations of ambient lighting, the code hasn't relied on the use of ambient lighting to light the exit discharge since the 2018 IBC.

1024.5 Openings: The reference to 102**3**.3.1 is being changed to 102**2**.3.1 to reflect the relocation of the extension section for *exit passageway*s in 1023 to 1022.3.1. See comments on 1022.3.1.

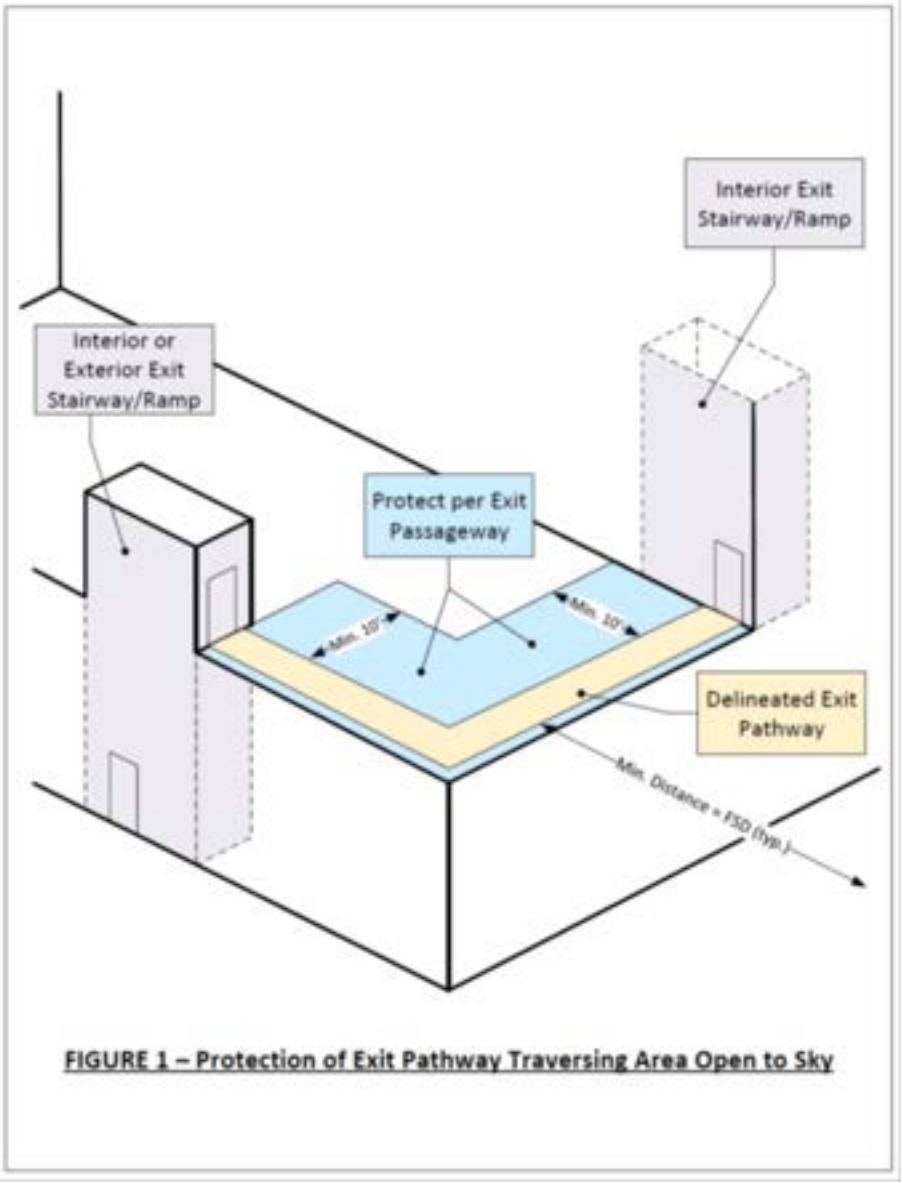


FIGURE 1 – Protection of Exit Pathway Traversing Area Open to Sky

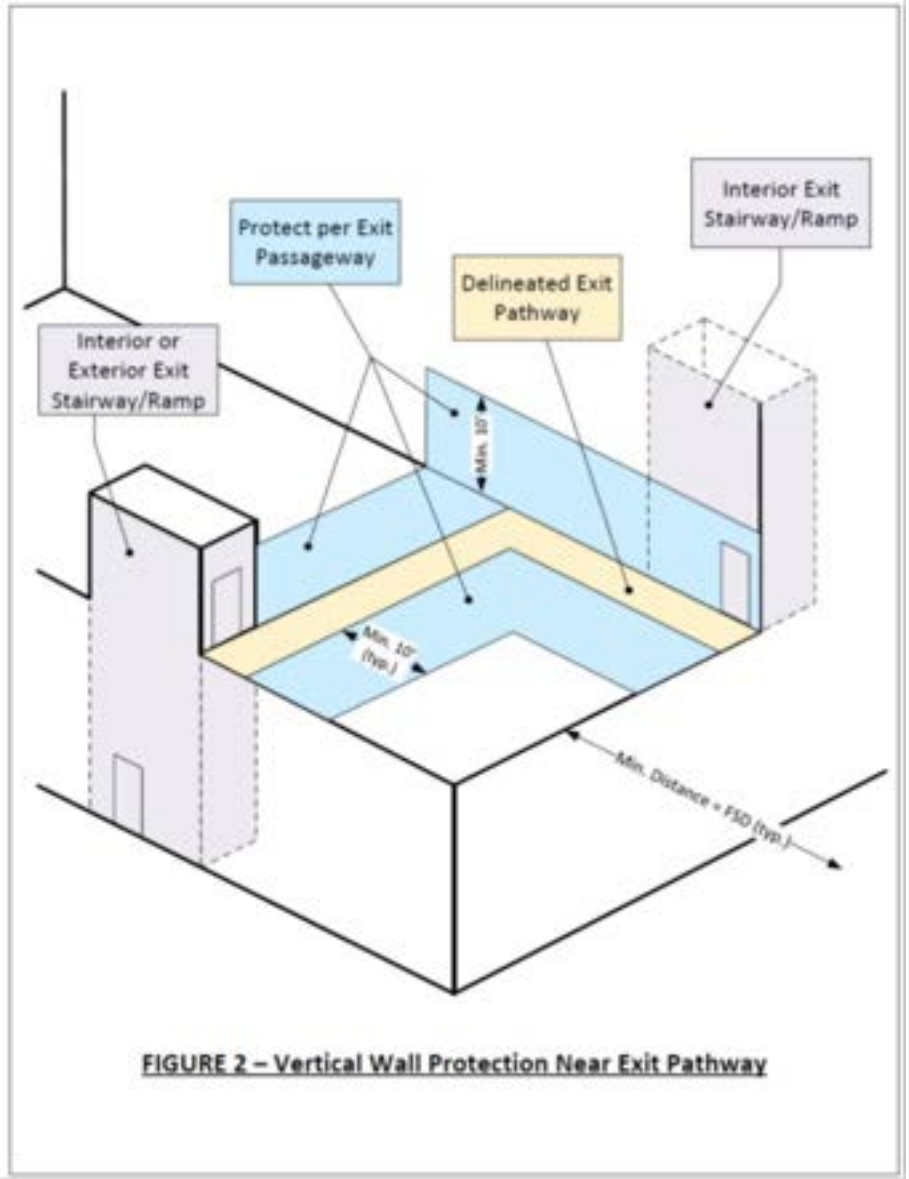


FIGURE 2 – Vertical Wall Protection Near Exit Pathway

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

Much depends on what the applicant proposes and what the building official will approve for delineating or marking the exit pathway. Barriers and guards could make sense depending on if amenities are provided on the roof or other outdoor surface. It is more likely that striping and paint will be used. The exit pathway may need to be redone or touched up in the future. A cursory review of online prices for traffic striping paint and pavement marking tape revealed the following:

Paint

HD Supply Solutions: $70.39 to $199.00 per gallon HD Supply Solutions

Pavement marking tape (retroreflective polymer pavement marking tape)

(yellow) 3M Stamark 24"x30 yard: $320 Uline; $416.78 Stop-Painting.com

3M Stamark Surface Preparation Adhesive P50, 1 gallon: $85.07 Industrial General Store

An analysis of the cost of luminous of egress path markings, such as those required by Section 1025, is not included as they are

generally not designed for outdoor use.

Estimated Immediate Cost Impact Justification (methodology and variables):

This change provides a new option to use an exit pathway across a roof to connect two exit components and an exterior exit stairway or ramp to be used as one of the connected components. It is not creating a new requirement, so there is no cost impact or most likely a decrease in cost.
Currently, the only way an outdoor portion of a building like a roof or roof deck can be used as part of the *exit* would be to put enclose that portion of the roof in an exit passageway. Exit passageways are required to have fire resistance rated construction on the floor, ceiling and walls for the entire length of the exit passageway. With this change, at a minimum, someone opting to use the exit pathway approach where other portions of the surface are within 10 feet of the pathway or where the pathway is within a fire separation distance of 10 feet would not need to rate its ceiling while still rating its walls and floor. This is a cost reduction because they don't need to rate the of the ceiling of what would normally be required, an exit passageway. In cases where the exit pathway is more than 10 feet away from other items on the roof and adjacent buildings, only the floor of would need to be rated. Again, this represents a cost reduction from full compliance with the requirements of an exit passageway. In addition, many podium buildings have roofs and other outdoor surfaces that may already be appropriately fire resistance rated due to other code requirements and nothing would need to be required other than marking and lighting the path. This is also a cost reduction from full compliance with an exit passageway. Exit passageways are required to be provided with lighting and markings, so the minimal lighting and path marking requirements for the exit pathways would certainly cost the same or possibly less.

There could be costs associated with maintaining the exit pathway markings over time, depending on the material or product approved by the building official.

The lighting would not present increased costs over lighting already required in an exit pathway.

E97-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved. To leave a protected exit stairway for a path open to the outside and then back into a protected exit stairway does not seem to maintain the the same level of protection to the exit discharge. If an 'exit pathway' is a new exit element, it should be in it's own section, similar to exit passageways, not lumped under the general exit requirements in Section 1022. The stairway termination requirements need to be addressed. Ways to keep the outside path clear need to be addressed. Either clarify what markings are required, or provide something more substantial than just a marked path. There are no limitation on the use of the roof for other occupancies that might be an obstruction for the path of egress. There are no travel distance limits for this element. This seems like it could already be addressed with horizontal exits. (Vote: 13-0)

E97-24

Individual Consideration Agenda

Comment 1:

IBC: SECTION 202, SECTION 1022, 1022.1, 1022.3, 1022.3.1, SECTION 1023, 1023.3, SECTION 1024, 1024.5, SECTION 1025 (New), 1022.3.2, 1022.3.2.1, 1022.3.2.2, 1022.3.2.3, 1008.3; IFC: SECTION 202, SECTION 1022, [BE] 1022.1, 1022.3, [BE] 1022.3.1, SECTION 1023, [BE] 1023.3, SECTION 1024, [BE] 1024.5, SECTION 1025 (New), 1022.3.2, 1022.3.2.1, 1022.3.2.2, 1022.3.2.3, [BE]

1008.3

Proponents: Jenifer Gilliland, Seattle Department of Construction and Inspections, Washington Association of Building Officials Technical Code Development Committee (jenifer.gilliland@seattle.gov); Micah Chappell, Seattle Department of Construction and Inspections, Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov) requests As Modified by Committee (AMC2)

Further modify as follows:

2024 International Building Code

Revise as follows:

EXIT PATHWAY.
An exit component that serves to meet one or more means of egress design requirements and is open to sky and may or may not be open on one or both sides.

[BE] EXIT. That portion of a *means of egress* system between the *exit access* and the *exit discharge* or *public way*. Exit components include exterior exit doors at the *level of exit discharge*, *interior exit stairways* and *ramps*, *exit passageways*, *exit pathways, exterior exit stairways* and *ramps* and *horizontal exits*.

SECTION 1022
EXITS

1022.1 General. *Exits* shall comply with Sections 1022 through ~~1027~~ 1028 and the applicable requirements of Sections 1003 through 1015. An *exit* shall not be used for any purpose that interferes with its function as a *means of egress*. Once a given level of *exit* protection is achieved, such level of protection shall not be reduced until arrival at the *exit discharge.*

1022.3 Exit continuity. Exits shall be continuous from the point of entry into the *exit* to the *exit discharge*. The path within *exits* is permitted to consist of any combination of *interior exit stairways*, *interior exit ramps*, *exit passageways*, *exit pathways*, *exterior exit stairways*, and *exterior exit ramps*.

1022.3.1 Extension. Where an *exit passageway* is used to provide continuity of an *exit*, the *interior* or exterior *exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both. The *fire-resistance rating* of the exit passageway shall be not less than that required for the *interior exit stairway* and *ramp*. A *fire door assembly* complying with Section 716 shall be installed in the *fire barrier* to provide a *means of egress* from the *interior* or exterior *exit stairway* and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door assembly* are prohibited. Penetrations of the *fire barrier* are prohibited.

Exceptions:

1. Penetrations of the *fire barrier* in accordance with Section 1023.5 shall be permitted.
2. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where there are no openings into the *exit passageway* extension.
3. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where the *interior exit stairway* and the *exit passageway* extension are pressurized in accordance with Section 909.20.4.

SECTION 1023
INTERIOR EXIT STAIRWAYS AND RAMPS

Revise as follows:

1023.3 Termination. *Interior exit stairways* and *ramps* shall terminate at an *exit discharge* or a *public way*. **Exception:** A

combination of *interior exit stairways*, *interior exit ramps*, ~~and~~ *exit passageways*, and *exit pathways* constructed in accordance with Sections 1022.3.1, 1023.2, ~~1023.3.1, and~~ 1024, and 1025 respectively, and forming a continuous protected enclosure, shall be permitted to extend an *interior exit stairway* or *ramp* to the *exit discharge* or a *public way*.

SECTION 1024
EXIT PASSAGEWAYS

1024.5 Openings. Exit passageway opening protectives shall be in accordance with the requirements of Section 716. Except as permitted in Section 402.8.7, openings in exit passageways other than unprotected exterior openings shall be limited to those necessary for *exit access* to the *exit passageway* from normally occupied spaces and for egress from the *exit passageway*.

Where an *interior exit stairway* or *ramp* is extended to an *exit discharge* or a *public way* by an *exit passageway*, the *exit passageway* shall comply with Section1022.3.1.

Elevators shall not open into an *exit passageway*.

Add new text as follows:

SECTION 1025
EXIT PATHWAYS

Revise as follows:

~~**1022.3.2**~~**1025.1 General ~~Exit pathways.~~** *Exit pathways* shall be permitted to serve as an exit component in the *means of egress* system where they connect *interior* or *exterior exit stairways and ramps* of the same *building* and comply with the requirements in Section ~~1022.3.2.1~~ 1025.1 through ~~1022.3.2.3~~ 1025.4.

~~**1022.3.2.1**~~**1025.2 Construction and openings.** The floor~~, walls, and openings~~ of the *exit pathway* shall be constructed in accordance with Section 1024 for *exit passageways* ~~for a minimum horizontal distance of 10 feet from the edges of *exit pathway* and a minimum vertical distance of 10 feet from the floor of the *exit pathway*.~~ Fire resistance rating and opening protection shall extend horizontally not less than 10 feet from the edges of the exit pathway or to the perimeter of the building, whichever is less. Other portions of the building located within 10 feet of the exit pathway shall be separated from the exit pathway by fire-resistance rated construction in accordance with Section 1024 for exit passageways. This separation shall extend vertically from the floor of the exit pathway to a point 10 feet (3048 mm) above the exit pathway, or to the roof line, whichever is lower.

~~**1022.3.2.2**~~**1025.3 Location.** The *exit pathway* shall have a minimum *fire separation distance* of 10 feet (3048 mm) measured at right angles from the exterior edge of the *exit pathway,* to:

1. The closest interior *lot line*.
2. The centerline of a street, an alley, or *public way*.
3. An imaginary line between two *buildings* on the lot.

~~**1022.3.2.3**~~**1025.4 Path marking.** *Exit pathways* shall be delineated or marked to clearly indicate the path of travel, as approved by the *building official.*

1008.3 Illumination required by an emergency electrical system. An emergency electrical system shall be provided to automatically illuminate the following areas in the event of a power supply failure:

1. In rooms or spaces that require two or more exits or access to exits:
   1.1. *Aisles*.
   1.2. *Corridors*.
   1.3. *Exit access stairways* and *ramps*.

2. In *buildings* that require two or more exits or access to exits:
   2.1. Interior *exit access stairways* and *ramps*.
   2.2. Interior and *exterior exit stairways* and *ramps*.
   2.3 *Exit pathways*
   2.4. Exit passageways.
   2.5. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.2.
   2.6. Exterior landings as required by Section 1010.1.5 for exit doorways that lead directly to the *exit discharge*.

3. In other rooms and spaces:
   3.1. Electrical equipment rooms.
   3.2. *Fire command centers*.
   3.3. Fire pump rooms.
   3.4. Generator rooms.
   3.5. Public restrooms with an area greater than 300 square feet (27.87 m^2).

2024 International Fire Code

EXIT PATHWAY. An exit component that serves to meet one or more means of egress design requirements and is open to sky and may or may not be open on one or both sides.

[BE] EXIT. That portion of a *means of egress* system between the *exit access* and the *exit discharge* or *public way*. Exit components include exterior exit doors at the *level of exit discharge*, *interior exit stairways* and *ramps*, *exit passageways*, exit pathways, *exterior exit stairways* and *ramps* and *horizontal exits*.

SECTION 1022
EXITS

[BE] 1022.1 General. *Exits* shall comply with Sections 1022 through ~~1027~~1028 and the applicable requirements of Sections 1003 through 1015. An *exit* shall not be used for any purpose that interferes with its function as a *means of egress*. Once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the *exit discharge*.

1022.3 Exit continuity. Exits shall be continuous from the point of entry into the *exit* to the *exit discharge*. The path within *exits* is permitted to consist of any combination of *interior exit stairways*, *interior exit ramps*, *exit passageways*, *exit pathways*, *exterior exit stairways*, and *exterior exit ramps*.

[BE] 1022.3.1 Extension. Where an *exit passageway* is used to provide continuity of an *exit*, the *interior* or exterior *exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 of the International Building Code or a *horizontal assembly* constructed in accordance with Section 711 of the International Building Code, or

both. The *fire-resistance rating* of the exit passageway shall be not less than that required for the *interior exit stairway* and *ramp*. A *fire door assembly* complying with Section 716 of the International Building Code shall be installed in the *fire barrier* to provide a *means of egress* from the *interior* or exterior *exit stairway* and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door assembly* are prohibited. Penetrations of the *fire barrier* are prohibited. **Exceptions:**

1. Penetrations of the *fire barrier* in accordance with Section 1023.5 shall be permitted.
2. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where there are no openings into the *exit passageway* extension.
3. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where the *interior exit stairway* and the *exit passageway* extension are pressurized in accordance with Section 909.20.4 of the International Building Code.

SECTION 1023
INTERIOR EXIT STAIRWAYS AND RAMPS

[BE] 1023.3 Termination. *Interior exit stairways* and *ramps* shall terminate at an *exit discharge* or a *public way*. **Exception:** A combination of *interior exit stairways, interior exit ramps*, ~~and~~ *exit passageways*, and *exit pathways* constructed in accordance with Sections 1022.3.1, 1023.2, ~~1023.3.1,~~ ~~and~~ 1024, and 1025 respectively, and forming a continuous protected enclosure, shall be permitted to extend an *interior exit stairway* or *ramp* to the *exit discharge* or a *public way*.

SECTION 1024
EXIT PASSAGEWAYS

[BE] 1024.5 Openings. *Exit passageway* opening protectives shall be in accordance with the requirements of Section 716 of the International Building Code.
Except as permitted in Section 402.8.7 of the International Building Code, openings in *exit passageways* other than unprotected exterior openings shall be limited to those necessary for *exit access* to the *exit passageway* from normally occupied spaces and for egress from the *exit passageway*.

Where an *interior exit stairway* or *ramp* is extended to an *exit discharge* or a *public way* by an *exit passageway*, the *exit passageway* shall comply with Section 1022.3.1.

Elevators shall not open into an *exit passageway*.

Add new text as follows:

SECTION 1025
EXIT PATHWAYS

Revise as follows:

~~**1022.3.2**~~**1025.1 ~~Exit pathways~~General.** *Exit pathways* shall be permitted to serve as an exit component in the *means of egress* system where they connect *interior* or *exterior exit stairways and ramps* of the same *building* and comply with the requirements in Section ~~1022.3.2.1~~ 1025.1 through ~~1022.3.2.3~~ 1025.4.

~~**1022.3.2.1**~~**1025.2 Construction and openings.** The floor~~, walls, and openings~~ of the *exit pathway* shall be constructed in accordance with Section 1024 for *exit passageways* ~~for a minimum horizontal distance of 10 feet from the edges of *exit pathway* and a minimum vertical distance of 10 feet from the floor of the *exit pathway*~~. Fire resistance rating and opening protection shall extend horizontally not less than 10 feet from the edges of the exit pathway or to the perimeter of the building, whichever is less. Other portions of the building

located within 10 feet of the exit pathway shall be separated from the exit pathway by fire-resistance rated construction in accordance with Section 1024 for exit passageways. This separation shall extend vertically from the floor of the exit pathway to a point 10 feet (3048 mm) above the exit pathway, or to the roof line, whichever is lower.

~~1022.3.2.2~~1025.3 **Location.** The exit pathway shall have a minimum fire separation distance of 10 feet (3048 mm) measured at right angles from the exterior edge of the exit pathway, to:

1. The closest interior lot line.
2. The centerline of a street, an alley, or public way.
3. An imaginary line between two buildings on the lot.

~~1022.3.2.3~~1025.4 **Path marking.** *Exit pathways* shall be delineated or marked to clearly indicate the path of travel, as approved by the building official.

[BE] 1008.3 Illumination required by an emergency electrical system. An emergency electrical system shall be provided to automatically illuminate the following areas in the event of a power supply failure:

1. In rooms or spaces that require two or more exits or access to exits:
   1.1. *Aisles*.
   1.2. *Corridors*.
   1.3. *Exit access stairways* and *ramps*.
2. In *buildings* that require two or more exits or access to exits:
   2.1. Interior *exit access stairways* and *ramps*.
   2.2. Interior and *exterior exit stairways* and *ramps*.
   2.3 Exit pathways
   2.4. Exit passageways.
   2.5. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.2.
   2.6. Exterior landings as required by Section 1010.1.5 for exit doorways that lead directly to the *exit discharge*.
3. In other rooms and spaces:
   3.1. Electrical equipment rooms.
   3.2. *Fire command centers*.
   3.3. Fire pump rooms.
   3.4. Generator rooms.
   3.5. Public restrooms with an area greater than 300 square feet (27.87 m^2).

Reason: After reviewing the committee's vote of disapproval, we would like to clarify that the proposal's goal is to create a new exit component, the exit pathway, to allow a roof or similar outdoor surface to be used as part of a building's means of egress.

The proposal is based on the following assumptions:

- This is a new "exit" component and can be daisy-chained together with other exit components. It is **not** part of the "exit **discharge**". See Figure 3 below.
- The space open to sky next to and above a path that traverses a roof or other outdoor surface presents no fire hazard or smoke hazard because it is open.
- The lack of hazard in this pathway and its associated adjacent space creates protection equivalent to that of other exit components.

- The efficacy of the pathway and its associated adjacent space to protect path users is dependent on the width and height of both.
- It is protected from fire below by construction with a fire resistance rating equal to what is a required for an *exit passageway*. Where located too close to other portions of the building, fire rated walls meeting *exit passageway* requirements may be required.
- The concept of an *exit pathway* does not easily fit into any of the current *exit* component sections in Chapter 10. It most resembles an *exit passageway* but without a ceiling, and in some cases, walls.
- Many jurisdictions already approve this configuration using alternative means and methods.
- The code generally doesn't require the marking of or cordoning off of portions of the *means of egress* within buildings.

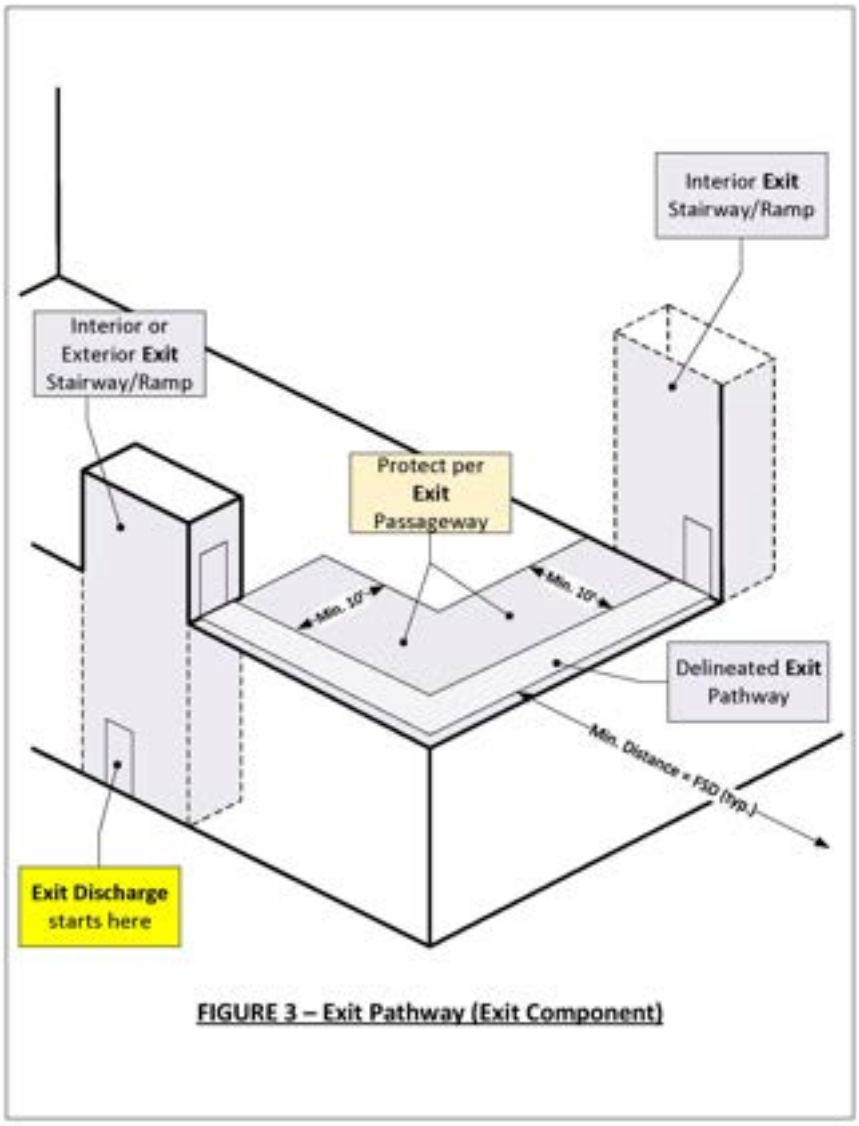


FIGURE 3 – Exit Pathway (Exit Component)

Response to Committee Concerns:

The requirements for exit pathways should be located in a separate Chapter 10 section: Agreed. We have removed this proposed language from 1022 Exits and created a new section **1025 Exit Pathways**.**Leaving a protected exit stairway and traversing an unprotected roof doesn't continue the protection of the exit stairway:** We disagree. What is the hazard posed by the open sky to people exiting a roof? No hazard is posed from an adjacent building if there is proper fire separation distance between the exit pathway and other buildings. There is also no hazard if adequate space is maintained between the pathway and rooftop structures, like photovoltaic panels and modules, and glazing materials, like skylights. Depending on the distance to other buildings and structures on the roof, there could be additional protection required in the form of walls, like *an exit passageway*. We are extending the fire resistive walls in the traditional sense, but the path is protected and safe because of the absence of a hazard. At a minimum, there will always be the protection afforded by the roof/ceiling assembly. See Figure 4. **This should be left to the alternative means and methods process.**

Yes, many jurisdictions do allow this, but lack of a nationwide standard results in inconsistent application of requirements for applicants and building officials alike, not to mention the additional headache and paperwork of the alternative means and methods process. If it can be allowed outright everyone wins.

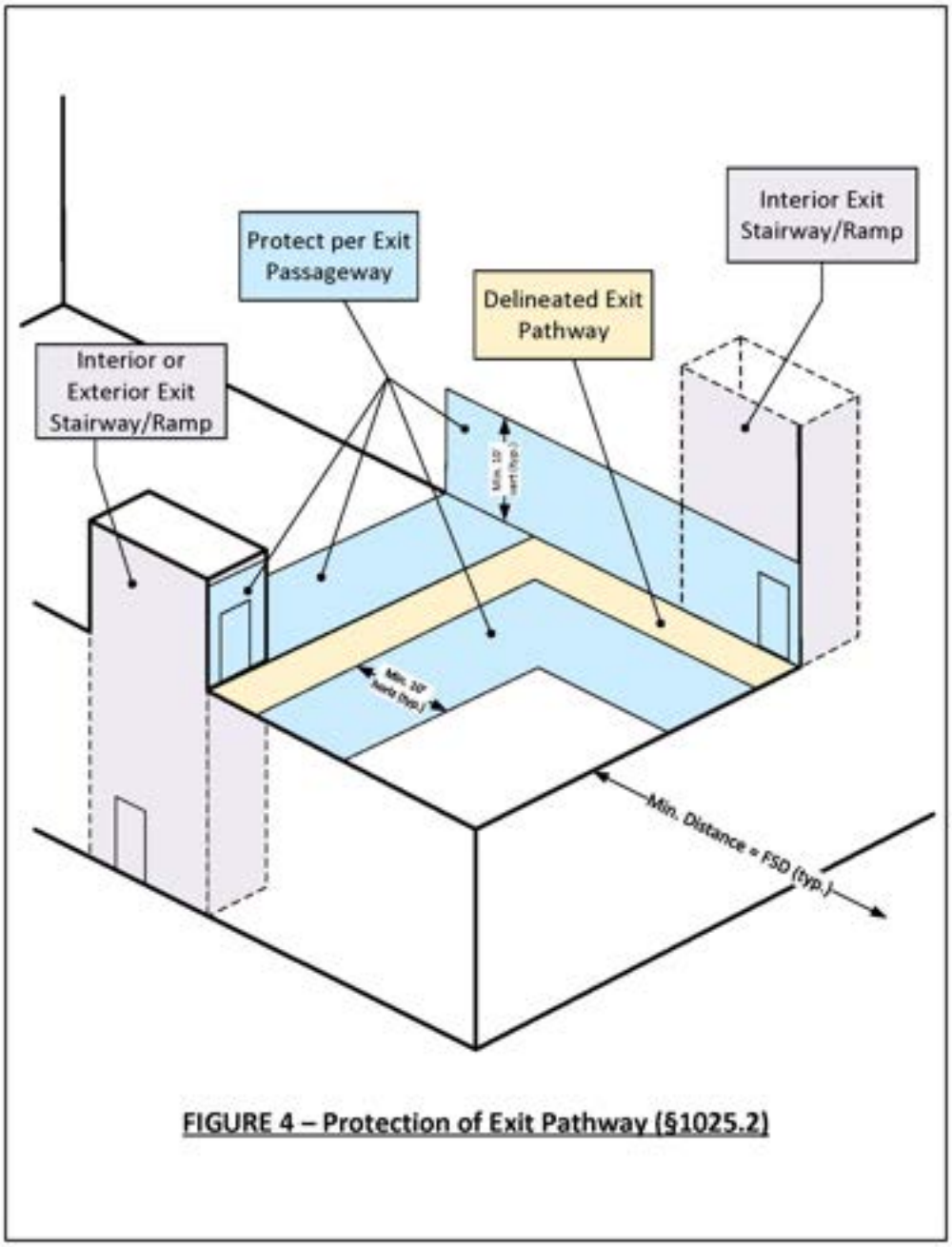


FIGURE 4 – Protection of Exit Pathway (§1025.2)

Stairway termination requirements in 1023.3 and 1023.3.3 need to be addressed/modified. This comment seems to be a misunderstanding of the original proposal and the portion of the building to which the change applies. The pathway connects two exit components, one of which terminates at the exit discharge. The most likely scenario is where an exit stair from one portion of the building connects to an exit pathway that transverses a roof which then connects to another exit stair that ends at the level of exit discharge. See Figure 1 in the reason statement for the original proposal.

Means of egress can only be used for means of egress. A painted walkway doesn't guarantee that the section of the roof the pathway is on will only be used for that purpose. Many other portions of the means of egress are unmarked and are not guaranteed for

their use either. Why would we penalize the *exit pathway* and no other portions of the *means of egress*?

Keeping the pathway clear needs to be addressed. Maintenance for the *means of egress* is addressed by the *International Fire Code* in Section 1031.3.

1031.3 Obstructions. A *means of egress* shall be free from obstructions that would prevent its use, including the accumulation of snow and ice."

Exterior exit stairways and ramps, as well as the *exit discharge*, are also subject to weather conditions, but there are no requirements to keep them clear, aside from the Fire Code. Why would we require an *exit pathway* to meet more stringent requirements than other portions of the *means of egress*? The code is mostly silent on this because of the drastic difference in outdoor conditions. The requirements for maintaining a reliable roof top *exit pathway* in Phoenix, AZ vary greatly from what may be needed in Minneapolis, Mn. Designers need flexibility to make decisions about what works for the client and the location.

The exit pathway is still subject to general means of egress requirements for the use of slip resistant materials and secure attachment.

Clarify what markings are required or provide something more substantial than a marked path. The delineation of an egress path is not required in other portions of the building. Other portions of the means of egress that are unmarked are not guaranteed to only be used for means of egress purposes either. Also, we don't require delineation of any kind of path for people using the roof as an amenity to direct them to the interior or exterior exit stairway. We are going the extra mile by requiring the delineation of the path.

No limits on other rooftop occupancies that might obstruct the MOE. Other portions of the building are not limited in the types of occupancies that can be adjacent to or served by a particular portion of the *means of egress*. Why should exit pathways be? Keeping chairs and other moveable items out of the means of egress is a maintenance issue.

No travel distance limits are provided for this element. Why should there be? There is no travel distance limitation for exit passageways because you are within the *exit* not in the *exit access. Exit pathways, just like exit passageways would* be considered protected portions of the building and are both exit components. A person using either one as part of an *exit* is not exposed to the same hazards as when they are in the *exit access* portion of a building.

This is not needed. You can already do this with horizontal exits. An *exit pathway* gives designers flexibility and is just another option to use instead of a *horizontal exit or exit passageway*. They all serve a similar purpose. *Horizontal exits* have their own constraints, such a requirement for standpipes on both ends of the passageway that a building designer or building owner may not want depending on the design

Cost Impact: Decrease

Estimated Immediate Cost Impact:

See original cost impact statement. No changes.

Estimated Immediate Cost Impact Justification (methodology and variables):

See original cost impact justification. No changes.

Comment (CAH2)# 324

E107-24

IBC: 1027.6; IFC: [BE] 1027.6

Proposed Change as Submitted

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

1027.6 Exterior exit stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the *building* as required in Section 1023.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical plane projecting from the edge of an *exterior exit stairway* or *ramp* and landings is exposed by other parts of the *building* at an angle of less than 180 degrees (3.14 rad), the *exterior wall* shall be rated in accordance with Section 1023.7. Where the exterior exit stairway is recessed into the building, the separation for the exterior exit stairway or ramp shall extend to the exterior walls. **Exceptions:**

1. Separation from the interior of the *building* is not required for occupancies, other than those in Group R-1 or R-2, in *buildings* that are not more than two *stories above grade plane* where a *level of exit discharge* serving such occupancies is the first *story above grade plane*.
2. Separation from the interior of the *building* is not required where the *exterior exit stairway* or *ramp* is served by an *exterior exit ramp* or balcony that connects two remote exterior exit *stairways* or other *approved exits* with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be not less than 50 percent of the height of the enclosing wall, with the top of the openings not less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the *open-ended corridor* of the *building* is not required for *exterior exit stairways* or *ramps*, provided that Items 3.1 through 3.5 are met:
   3.1. The *building*, including *open-ended corridors*, and *stairways* and *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
   3.2. The *open-ended corridors* comply with Section 1020.
   3.3. The *open-ended corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1027. At the location where the exterior exit stairway or ramp is open to an open-ended corridor, the separation from the interior of the building shall extend to the extent of the required landing.
   3.4. The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1023.7.
   3.5. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or *toxic* gases.
4. In Group R-3 occupancies not more than four *stories* in height, *exterior exit stairways* and *ramps* serving individual *dwelling units* are not required to be separated from the interior of the *building* where the *exterior exit stairway* or *ramp* discharges directly to grade.

2024 International Fire Code

Revise as follows:

[BE] 1027.6 Exterior exit stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the building as required in Section 1023.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical plane projecting from the edge of an *exterior exit stairway* or *ramp* and landings is exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the *exterior wall* shall be rated in accordance with Section 1023.7. Where the exterior exit stairway is recessed into the building, the separation for the exterior exit stairway or ramp shall extend to the exterior walls.

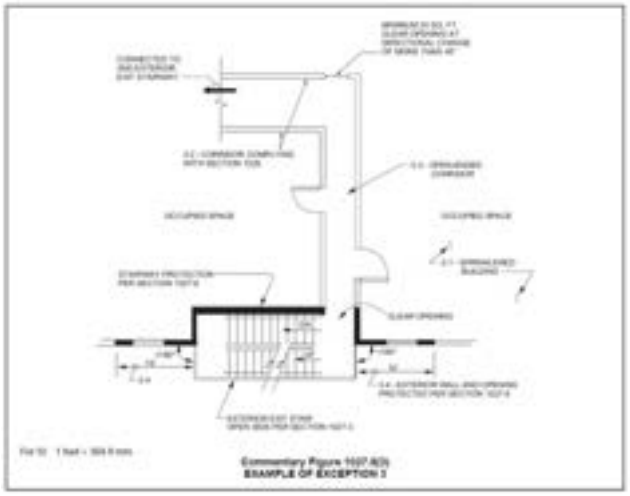
Exceptions:

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are not more than two stories above *grade plane* where a *level of exit discharge* serving such occupancies is the first story above *grade plane*.
2. Separation from the interior of the building is not required where the *exterior exit stairway* or *ramp* is served by an *exterior exit ramp* or balcony that connects two remote *exterior exit stairways* or other *approved exits*, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be not less than 50 percent of the height of the enclosing wall, with the top of the openings not less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the *open-ended corridor* of the building is not required for *exterior exit stairways* or *ramps*, provided that Items 3.1 through 3.5 are met:
   3.1. The building, including *open-ended corridors*, and *stairways* and *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
   3.2. The *open-ended corridors* comply with Section 1020.
   3.3. The *open-ended corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1027. <u>At the location where the exterior exit stairway or ramp is open to an open-ended corridor, the separation from the interior of the building shall extend to the extent of the required landing.</u>
   3.4. The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1023.7.
   3.5. At any location in an *open-ended corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an exterior *stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.
4. In Group R-3 occupancies not more than four stories in height, *exterior exit stairways* and *ramps* serving individual *dwelling units* are not required to be separated from the interior of the building where the *exterior exit stairway* or *ramp* discharges directly to grade.

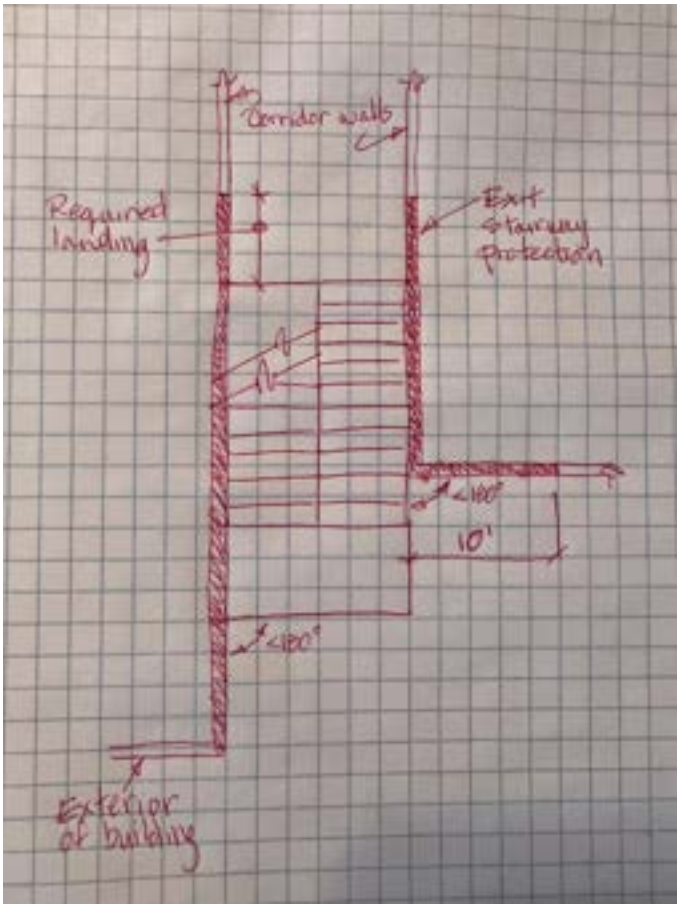
Reason: This proposal has two purposes:

1. Address the rating/separation requirements for exterior exit stairways that are open to a breezeway at the floor landings
2. To address where a stairway may be recessed into the footprint of the building.

There has been a misinterpretation that the walls on the open-ended corridor are exterior walls in accordance with Item 3.4 instead of the corridor in accordance with 3.2. This can lead to unnecessary ratings on the corridor walls. The added sentence in 3.3 clarifies this. The sentence added in the base paragraph is to address a situation where the exterior exit stairway is completely recessed into the building. It is not clear if the walls between the exterior exit stairway and the exterior of the building is an exterior wall. However, BCAC felt the stairway does need to be available for people to leave the building, so the protection needs to be available. The following is an existing figure in IBC Commentary.



The illustration below gives an orientation of a rotated stair that is partially within the building , illustrating where the rating would stop at the extent of the landing as well as illustrating how the requirement for the ten foot of exterior wall is required to be rated when less than 180 degrees.



This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of existing provisions for exterior exit stairway configurations and fire-resistance ratings for the surrounding walls. There are no changes to construction requirements.

E107-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: There should be a limit to the distance for the the exterior wall length when the building is recessed. It needs to be more specific on the extent of the wall protection. Suggestion to remove "recessed" and find better wording. (Vote: 12-2)

E107-24

Individual Consideration Agenda

Comment 1:

IBC: 1027.6; IFC: [BE] 1027.6

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Modified by Committee (AMC2)

Replace as follows:

2024 International Building Code

1027.6 Exterior exit stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the *building* as required in Section 1023.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical plane projecting from the edge of an *exterior exit stairway* or *ramp* and landings is exposed by other parts of the *building* at an angle of less than 180 degrees (3.14 rad), the *exterior wall* shall be rated in accordance with Section 1023.7. **Exceptions:**

1. Separation from the interior of the *building* is not required for occupancies, other than those in Group R-1 or R-2, in *buildings* that are not more than two *stories above grade plane* where a *level of exit discharge* serving such occupancies is the first *story above grade plane*.
2. Separation from the interior of the *building* is not required where the *exterior exit stairway* or *ramp* is served by an *exterior exit ramp* or balcony that connects two remote exterior exit *stairways* or other *approved exits* with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be not less than 50 percent of the height of the enclosing wall, with the top of the openings not less than 7 feet (2134 mm) above the top of the balcony.

3. Separation from the *open-ended corridor* of the *building* is not required for *exterior exit stairways* or *ramps*, provided that Items 3.1 through 3.5 are met:

   3.1. The *building*, including *open-ended corridors*, and *stairways* and *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

   3.2. The *open-ended corridors* comply with Section 1020.

   3.3. The *open-ended corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1027. At the location where the exterior exit stairway or ramp is open to an open-ended corridor, the separation from the interior of the building shall extend to the extent of the required landing.

   3.4. The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1023.7.

   3.5. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or *toxic* gases.

4. In Group R-3 occupancies not more than four *stories* in height, *exterior exit stairways* and *ramps* serving individual *dwelling units* are not required to be separated from the interior of the *building* where the *exterior exit stairway* or *ramp* discharges directly to grade.

2024 International Fire Code

[BE] 1027.6 Exterior exit stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the building as required in Section 1023.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical plane projecting from the edge of an *exterior exit stairway* or *ramp* and landings is exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the *exterior wall* shall be rated in accordance with Section 1023.7. **Exceptions:**

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are not more than two stories above *grade plane* where a *level of exit discharge* serving such occupancies is the first story above *grade plane*.
2. Separation from the interior of the building is not required where the *exterior exit stairway* or *ramp* is served by an *exterior exit ramp* or balcony that connects two remote *exterior exit stairways* or other *approved exits*, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be not less than 50 percent of the height of the enclosing wall, with the top of the openings not less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the *open-ended corridor* of the building is not required for *exterior exit stairways* or *ramps*, provided that Items 3.1 through 3.5 are met:

   3.1. The building, including *open-ended corridors*, and *stairways* and *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

   3.2. The *open-ended corridors* comply with Section 1020.

   3.3. The *open-ended corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1027. At the location where the exterior exit stairway or ramp is open to an open-ended corridor, the separation from the interior of the building shall extend to the extent of the required landing.

   3.4. The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1023.7.

   3.5. At any location in an *open-ended corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an exterior *stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

4. In Group R-3 occupancies not more than four stories in height, *exterior exit stairways* and *ramps* serving individual *dwelling units* are not required to be separated from the interior of the building where the *exterior exit stairway* or *ramp* discharges directly to grade.

Reason: This proposal has been split into two parts so that the two issues with exterior exit stairways can be addressed separately.The revision to Exception 3 address the rating/separation requirements for exterior exit stairways that are open to a breezeway at the floor landings

There has been a misinterpretation that the walls on the open-ended corridor are exterior walls in accordance with Item 3.4 instead of the corridor in accordance with 3.2. This can lead to unnecessary ratings on the corridor walls. The added sentence in 3.3 clarifies this. Where the stairway and the corridor/breezeway, the extent of the stairway protection is for the stairway landing. The corridor/breezeway is not an exterior wall that would require the rating to extend to 10 feet from the top of the stairway. See the reason statement for the original proposal for examples.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of existing provisions for exterior exit stairway configurations and fire-resistance ratings for the surrounding walls. There are no changes to construction requirements.

Comment (CAH2)# 224

Comment 2:

IBC: 1027.6; IFC: [BE] 1027.6

Proponents: Jeff Grove, Chair, Building Code Action Committee (BCAC) (bcac@iccsafe.org) requests As Modified by Committee (AMC2)

Replace as follows:

2024 International Building Code

Revise as follows:

1027.6 Exterior exit stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the *building* as required in Section 1023.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical plane projecting from the edge of an *exterior exit stairway* or *ramp* and landings is exposed by other parts of the *building* at an angle of less than 180 degrees (3.14 rad), the *exterior wall* shall be rated in accordance with Section 1023.7. Where the exterior exit stairway is recessed into the building, for the purposes of this section, the path of travel at the level of exit discharge shall be considered an egress court and shall comply with Sections 1028 and 1029. **Exceptions:**

1. Separation from the interior of the *building* is not required for occupancies, other than those in Group R-1 or R-2, in *buildings* that are not more than two *stories above grade plane* where a *level of exit discharge* serving such occupancies is the first *story above grade plane*.
2. Separation from the interior of the *building* is not required where the *exterior exit stairway* or *ramp* is served by an *exterior exit ramp* or balcony that connects two remote exterior exit *stairways* or other *approved exits* with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be not less than 50 percent of the height of the enclosing wall, with the top of the openings not less than 7 feet (2134 mm) above the top of the balcony.

3. Separation from the *open-ended corridor* of the building is not required for *exterior exit stairways* or *ramps*, provided that Items 3.1 through 3.5 are met:
    3.1. The *building*, including *open-ended corridors*, and *stairways* and *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
    3.2. The *open-ended corridors* comply with Section 1020.
    3.3. The *open-ended corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1027.
    3.4. The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1023.7.
    3.5. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or *toxic* gases.
4. In Group R-3 occupancies not more than four *stories* in height, *exterior exit stairways* and *ramps* serving individual *dwelling units* are not required to be separated from the interior of the *building* where the *exterior exit stairway* or *ramp* discharges directly to grade.

2024 International Fire Code

Revise as follows:

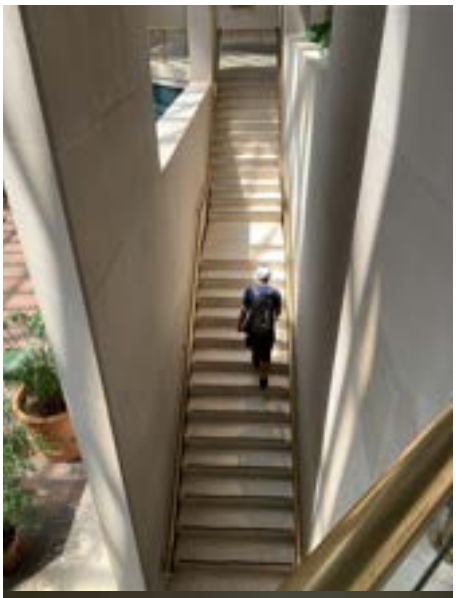
[BE] 1027.6 Exterior exit stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the building as required in Section 1023.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical plane projecting from the edge of an *exterior exit stairway* or *ramp* and landings is exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the *exterior wall* shall be rated in accordance with Section 1023.7. Where the exterior exit stairway is recessed into the building, for the purposes of this section, the path of travel at the level of exit discharge shall be considered an egress court and shall comply with Sections 1028 and 1029. **Exceptions:**

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are not more than two stories above *grade plane* where a *level of exit discharge* serving such occupancies is the first story above *grade plane*.
2. Separation from the interior of the building is not required where the *exterior exit stairway* or *ramp* is served by an *exterior exit ramp* or balcony that connects two remote *exterior exit stairways* or other *approved exits*, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be not less than 50 percent of the height of the enclosing wall, with the top of the openings not less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the *open-ended corridor* of the building is not required for *exterior exit stairways* or *ramps*, provided that Items 3.1 through 3.5 are met:
    3.1. The *building*, including *open-ended corridors*, and *stairways* and *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
    3.2. The *open-ended corridors* comply with Section 1020.
    3.3. The *open-ended corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1027.
    3.4. The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1023.7.
    3.5. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or *toxic* gases.
4. In Group R-3 occupancies not more than four stories in height, *exterior exit stairways* and *ramps* serving individual *dwelling units* are not required to be separated from the interior of the building where the *exterior exit stairway* or *ramp* discharges directly to grade.

Reason: This proposal has been split into two parts so that the two issues with exterior exit stairways can be addressed separately.

This change is to address where a stairway may be recessed into the footprint of the building.

The modification is to address a situation where the exterior exit stairway is completely recessed into the building. The reference to exit discharge and exit court requirements will remind designers that protection is required where the path of travel is confined between when you leave the exterior exit stairway and the public way. Below are a couple of the exterior exit stairways we are attempting to address.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of existing provisions for exterior exit stairway configurations and fire-resistance ratings for the surrounding walls. There are no changes to construction requirements.

Comment (CAH2)# 227

E110-24

IBC: 1028.2; IFC: [BE] 1028.2

Proposed Change as Submitted

Proponents: Jeffrey Grove, Coffman Engineers, Coffman Engineers (jeff.grove@coffman.com)

2024 International Building Code

Revise as follows:

1028.2 Exit discharge. *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:
   1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior *exit* door and such *exit* is readily visible and identifiable by exit signage from the point of termination of the enclosure.
   1.2. The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the *fire-resistance rating* for the enclosure.
   1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps*.
   1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the *exit discharge* door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the *building*, whichever is less. The distance shall be measured in a straight line between the *exit discharge* door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.
2. Not more than 50 percent of the number and minimum width or required capacity of the *interior exit stairways* and *ramps* is permitted to egress through a vestibule provided that all of the following conditions are met:
   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp enclosure*.
   2.2. The depth from the exterior of the *building* is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708. **Exception:** The maximum transmitted temperature rise is not required.
   2.4. The area is used only for *means of egress* and *exits* directly to the outside.
3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the *building*.

2024 International Fire Code

Revise as follows:

[BE] 1028.2 Exit discharge. *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:
   1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior exit door and such *exit* is readily visible and identifiable by exit signage from the point of termination of the enclosure.
   1.2. The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the *fire-resistance rating* for the enclosure.
   1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. Portions of the *level of exit discharge* with access to the egress path shall either be equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps*.
   1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the exit discharge door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the exit discharge door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.
2. Not more than 50 percent of the number and minimum width or required capacity of the *interior exit stairways* and *ramps* is permitted to egress through a vestibule provided that all of the following conditions are met:
   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp* enclosure.
   2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708 of the International Building Code. **Exception:** The maximum transmitted temperature rise is not required.
   2.4. The area is used only for *means of egress* and *exits* directly to the outside.
3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the building.

Reason: Through the 2015 editions of both the IBC and NFPA 101, Life Safety Code, these two codes were consistent in their language and interpretation regarding exit discharge of interior exit stairways and ramps through areas of the building on the level of exit discharge. The 2018 edition of NFPA 101 included an amendment to Section 7.7.2(3) that clarified the intent of the code to permit the use of exit signage to direct occupants discharging from an exit enclosure to the nearest exterior exit door:

> *"The interior exit discharge shall lead to a free and unobstructed way to the exterior of the building, and such way shall be readily apparent or shall be identifiable by exit signage from the point of discharge from the exit."*

The 2018 IBC and subsequent 2021 and 2024 editions have lagged behind NFPA 101 and have not yet amended Section 1028.2 Exception 1.1 to provide this clarification.

This proposal will clarify that exit signage is permitted to be used for this purpose and will remove the common misconception that an exterior exit discharge must be visible from the point of exit enclosure termination. The proposal will also bring the IBC back into alignment with NFPA on this issue, as had long been the case until 2018.

Bibliography: NFPA 101, Life Safety Code

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed text clarifies the original intent to allow utilization of exit signage to achieve interior exit stairway discharge through areas of the building on the level of exit discharge. The exit signage required for this purpose would already be required by Section 1013.1 and thus adds no cost."

E110-24

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: This will help identify requirements for lobby exit options for how to determine "readily visible and identifiable". If someone used this exception, this would over ride the exception for lobby entrances to not have exits signs in Section 1013.1. (Vote: 13-0)

E110-24

Individual Consideration Agenda

Comment 1:

IBC: 1028.2; IFC: [BE] 1028.2

Proponents: Jeffrey Grove, Coffman Engineers, Coffman Engineers (jeff.grove@coffman.com) requests As Modified by Committee (AMC2)

Further modify as follows:

2024 International Building Code

1028.2 Exit discharge. *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:

   1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior *exit* door and such *exit* is readily visible ~~and~~ or identifiable by exit signage from the point of termination of the enclosure.

   1.2. The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the *fire-resistance rating* for the enclosure.

   1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps*.

   1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the *exit discharge* door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the *building*, whichever is less. The distance shall be measured in a straight line between the *exit discharge* door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.

2. Not more than 50 percent of the number and minimum width or required capacity of the *interior exit stairways* and *ramps* is permitted to egress through a vestibule provided that all of the following conditions are met:

   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp enclosure*.

   2.2. The depth from the exterior of the *building* is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).

   2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708. **Exception:** The maximum transmitted temperature rise is not required.

   2.4. The area is used only for *means of egress* and *exits* directly to the outside.

3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the *building*.

2024 International Fire Code

[BE] 1028.2 Exit discharge. *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:
   1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior exit door and such *exit* is readily visible ~~and~~ or identifiable by exit signage from the point of termination of the enclosure.
   1.2. The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the *fire-resistance rating* for the enclosure.
   1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. Portions of the *level of exit discharge* with access to the egress path shall either be equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps*.
   1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the exit discharge door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the exit discharge door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.

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   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp* enclosure.
   2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708 of the International Building Code. **Exception:** The maximum transmitted temperature rise is not required.
   2.4. The area is used only for *means of egress* and *exits* directly to the outside.

3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the building.

Reason: This modification will revise the word “and” to “or” to clarify that Section 1028.1 Exception 1.1 does not require exit signage. Rather, exit signage is one option to meet this exception – the other option is for the exterior exit door to be readily visible. Exit signage may or may not be required based on IBC 1013.1 and its exceptions.

Additionally, the use of the word “or” will bring this code language further into alignment with the corresponding language of NFPA 101 (as outlined in the reason statement for the original E110-24 proposal).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Cost impact remains unchanged from the original code change proposal.

Comment (CAH2)# 766

Comment 2:

Proponents: Gabriel Levy, incandescence life safety, inc, Colorado Chapter Code Development Committee (glevy@incandescencels.com); Richard Williams, Washington Association of Building Officials Technical Code Development Committee (richard@cwaconsultants.net); Micah Chappell, Seattle Department of Construction and Inspections, Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov) requests Disapproved

Reason: LEVY: E110-24 was written and approved such that its interpretation by the approving committee is opposite the intent of the author. The proponent of E110 reasons that the "intent of the code [is] to permit the use of exit signage to direct occupants discharging from an exit enclosure to the nearest exterior exit door... This proposal will clarify that exit signage is permitted to be used for this purpose and will remove the common misconception that an exterior exit discharge must be visible from the point of exit enclosure termination." The author intended for directional wayfinding to be acceptable along the path of stair discharge - that is, direct line of sight to an exterior exit door should not be required so long as the path is marked by exit signs. The change was intended to create a leniency for stair discharge and allow for longer and more complicated discharge travel paths than what is currently permitted.

The committee approved this submittal, but for reasons unintended by the proponent. The recorded committee reason is that "If someone used this exception, this would override the exception for lobby entrances to not have exits signs in Section 1013.1." This interpretation was possibly overlooked by the original author. A buildings main exit often does not require exit signage. However, with the proposed change, discharge through a lobby requires the exterior exit door to have exit signage. Additionally, the exit signage required for the stair discharge is tied to the exterior exit door. In the E110 reason statement, the referenced NFPA 101 sections require that the exit signage is required along the path of travel. However, E110 was written in such a way that the exit signage to at the exterior exit door rather than along the path. Ultimately, this proposal was approved as a more stringent requirement than what the IBC previously required, such that the main exit's exit sign exception would not be permitted if a stair discharged through the space.This CAH2 comment proposes to overturn committee action and disapprove of E110 because of the unintended consequence. The additional exit signage required by this change is unnecessary and unjustified. There is no identifiable need or loss history correlated to an exit signs presence (or lack of) at a building's "main" exit after stair discharge. By approving this code modification, we create redundant requirements and further limit building design options unnecessarily. Furthermore, the additional exit sign has an inherent cost increase - something that was not accounted for in the author's proposal or in testimony.

WILLIAMS/CHAPPELL: During the Committee Action Hearing, the proponent stated the purpose for this proposal was to align discharge provisions with NFPA 101, but the reason why this was necessary was not explained, since there are currently many differences between the two codes. In fact, E110 would still result in a difference between the IBC and NFPA because the corresponding NFPA section allows for the exit to be readily apparent OR identifiable by exit signage. E110 states the exit shall be readily visible AND identifiable by exit signage. The proponent acknowledged that NFPA language could be interpreted to be less restrictive than the IBC but that they were trying to go to another recognized standard that also addresses egress. It is not clear to us what was meant by this.

We don’t necessarily have a problem with adding a greater requirement for exit signage for this door, even though there are situations where it could be more restrictive than current code requirements specified per IBC Section 1013.1 exception 2. This was pointed out by a committee member during the testimony. The problem we have is that this language can be read two different ways. First, it can be interpreted as having two separate requirements: A) to provide an exit that is readily visible and B) for that exit to be identifiable by exit signage. That is how it currently reads (except for the additional requirement for exit signage) and based on committee reason statements, this seems to be the way many of them read and understood this. However, this can also be read as one requirement for the exit sign to be readily visible and identifiable. Exit signage would be the sole control, meaning the exterior exit door would not be required to be readily visible when leaving the exit enclosure. This reading appears to align more closely with the proponent’s intent per the reason statement, as compared to the committee’s reason statement.

As currently adopted, this first exception for Section 1028.2 is very limited in what it allows, and it is that way for a reason. In all other situations, the stair must discharge to the outside of the building, or it must be extended to the outside of the building with an exit passageway. We are opposed to this proposal because if read to allow for the exit signage to be the control, it would allow for the exit discharge to be extended indefinitely inside the building as long as signage is provided. This could create a situation that allows for a path from the stair to the exterior of the building that is similar to an exit passageway but is not protected like one. During their testimony one of the proponents stated that distance is not an issue because you are in an area of the building where the greatest distance you could ever have from the stair door to the outside door would be the exit access travel distance. This is not correct since travel distance is satisfied once access is gained into the stair enclosure. When the occupant leaves the interior exit stairway, they are in the exit

discharge, not the exit access. We feel this proposal should be disapproved and this section should be left as it is currently written.

Cost Impact: No change to code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Comment (CAH2)# 441

E111-24

IBC: 1028.2; IFC: [BE] 1028.2

Proposed Change as Submitted

Proponents: Ali Fattah, City of San Diego Development Services Department, San Diego Area Chapter of ICC (afattah@sandiego.gov)

2024 International Building Code

Revise as follows:

1028.2 Exit discharge. *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:
   1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior *exit* door and such *exit* is readily visible and identifiable from the point of termination of the enclosure.
   1.2. The entire ~~area~~ story of the *level of exit discharge* is separated from ~~areas~~ stories below by construction conforming to the *fire-resistance rating* for the enclosure.
   1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system* . Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps.*
   1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the *exit discharge* door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the *building*, whichever is less. The distance shall be measured in a straight line between the *exit discharge* door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.
2. Not more than 50 percent of the number and minimum width or required capacity of the *interior exit stairways* and *ramps* is permitted to egress through a vestibule provided that all of the following conditions are met:
   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp enclosure*.
   2.2. The depth from the exterior of the *building* is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708. **Exception:** The maximum transmitted temperature rise is not required.
   2.4. The area is used only for *means of egress* and *exits* directly to the outside.
3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the *building*.

2024 International Fire Code

Revise as follows:

[BE] 1028.2 Exit discharge. *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:
   1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior exit door and such *exit* is readily visible and identifiable from the point of termination of the enclosure.
   1.2. The entire ~~area~~ story of the *level of exit discharge* is separated from ~~areas~~ stories below by construction conforming to the *fire-resistance rating* for the enclosure.
   1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system* . Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps.*
   1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the exit discharge door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the exit discharge door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.
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   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp* enclosure.
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   2.4. The area is used only for *means of egress* and *exits* directly to the outside.
3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the building.

Reason: This is an editorial code change that helps make code application of the requirements more consistent. Interior exit stairway protection terminates at horizontal exits and exterior exit doorways, or the stairway is extended to exterior exit doorways with exit passageways.

As written the IBC uses the undefined term area that some code users interpret to be the portion of the story at the level of exit discharge used to access the exterior exit doorways. Other code users interpret the requirement to apply to the entire story.

The latter interpretation is consistent with the IBC's philosophy that the level of protection along an egress path is not reduced and that the exceptions should be equivalent. Exit passageways, shaft enclosures protecting interior exit stairways and horizontal exits provide protection from the entire story. Additionally, fire sprinkler protection should be throughout the story since the stairway protection protects the stairway from the entire story.

When extended with an exit passageway the path of egress is defined and the protection has a top and sides and a bottom. As a consequence, at a minimum when exception 1.3 is applied the floor between the fire barriers should be fire resistance rated and when the fire sprinkler tradeoff is selected the entire floor above the story below should be protected. Most of the cases we have seen were when the entire story is protected with fire sprinklers.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

The increased cost of spray fireproofing between IIB and IIA construction is approximately $11 per sq ft. Between IB and IA, it is similar.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost was determined by analyzing the ICC Building Valuation Table and determining average variations across types of construction and occupancies for Type II and Type I.

Group (2021 International Building Code)	IA			IB			IIA		
A-1 Assembly, theaters, with stage	335.89	97%	$13.44	324.58	98%	$12.98	316.94	$12.68	98%
A-1 Assembly, theaters, without stage	307.39	96%	$12.30	296.08	97%	$11.84	288.44	$11.54	97%
A-2 Assembly, nightclubs	269.94	97%	$10.80	261.93	97%	$10.48	254.48	$10.18	97%
A-2 Assembly, restaurants, bars, banquet halls	268.94	97%	$10.76	260.93	97%	$10.44	252.48	$10.10	97%
A-3 Assembly, churches	311.88	96%	$12.48	300.57	97%	$12.02	292.93	$11.72	97%
A-3 Assembly, general, community halls, libraries, museums	266.07	96%	$10.64	254.76	97%	$10.19	246.12	$9.84	97%
A-4 Assembly, arenas	306.39	96%	$12.26	295.08	97%	$11.80	286.44	$11.46	97%
B Business	260.69	96%	$10.43	251.13	96%	$10.05	241.86	$9.67	96%
E Educational	273.46	97%	$10.94	263.96	97%	$10.56	255.62	$10.22	97%
F-1 Factory and industrial, moderate hazard	160.20	95%	$6.41	152.78	94%	$6.11	143.34	$5.73	94%
F-2 Factory and industrial, low hazard	159.20	95%	$6.37	151.78	94%	$6.07	143.34	$5.73	94%
H-1 High Hazard, explosives	149.46	95%	$5.98	142.04	94%	$5.68	133.60	$5.34	94%
H234 High Hazard	149.46	95%	$5.98	142.04	94%	$5.68	133.60	$5.34	94%
H-5 HPM	260.69	96%	$10.43	251.13	96%	$10.05	241.86	$9.67	96%
I-1 Institutional, supervised environment	262.22	96%	$10.49	252.95	97%	$10.12	244.31	$9.77	97%
I-2 Institutional, hospitals	434.15	98%	$17.37	424.59	98%	$16.98	415.32	$16.61	98%
I-2 Institutional, nursing homes	302.01	97%	$12.08	292.45	97%	$11.70	283.18	$11.33	97%
I-3 Institutional, restrained	285.86	97%	$11.83	286.31	97%	$11.45	277.03	$11.08	97%
I-4 Institutional, day care facilities	262.22	96%	$10.49	252.95	97%	$10.12	244.31	$9.77	97%
M Mercantile	201.37	96%	$8.05	193.36	96%	$7.73	184.91	$7.40	96%
R-1 Residential, hotels	264.67	97%	$10.59	255.41	97%	$10.22	246.77	$9.87	97%
R-2 Residential, multiple family	221.32	96%	$8.85	212.06	96%	$8.48	203.42	$8.14	96%
R-3 Residential, one- and two-family [a]	209.61	97%	$8.38	203.74	98%	$8.15	198.94	$7.96	98%
R-4 Residential, care/assisted living facilities	262.22	96%	$10.49	252.95	97%	$10.12	244.31	$9.77	97%
S-1 Storage, moderate hazard	148.46	95%	$5.94	141.04	93%	$5.64	131.60	$5.26	93%
S-2 Storage, low hazard	147.46	95%	$5.90	140.04	94%	$5.60	131.60	$5.26	94%
U Utility, miscellaneous	114.09	94%	$4.56	107.37	93%	$4.29	99.89	$4.00	93%
Average		96%	$9.79		96%	$9.43		$9.09	96%

E111-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved. It is not necessary to protect the entire floor where the intent is to protect the area where occupants are discharging. Protecting stories below would include protecting the entire supporting elements and would be a high cost for minimal benefits. Adding "stories" would not address crawl spaces or other areas below that are not a true story. (Vote: 13-0)

E111-24

Individual Consideration Agenda

Comment 1:

IBC: 1028.2; IFC: [BE] 1028.2

Proponents: Ali Fattah, City of San Diego Development Services Department, San Diego Area Chapter of ICC (afattah@sandiego.gov) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

1028.2 Exit discharge. *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:**

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   1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system* . Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps.*
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   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp enclosure*.
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   2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708. **Exception:** The maximum transmitted temperature rise is not required.
   2.4. The area is used only for *means of egress* and *exits* directly to the outside.
3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the *building*.

2024 International Fire Code

[BE] 1028.2 Exit discharge. *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:**

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   1.2. The entire story of the *level of exit discharge* is separated from stories or usable areas below by construction conforming to the *fire-resistance rating* for the enclosure.
   1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system* . Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps.*
   1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the exit discharge door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the exit discharge door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.

2. Not more than 50 percent of the number and minimum width or required capacity of the *interior exit stairways* and *ramps* is permitted to egress through a vestibule provided that all of the following conditions are met:
   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp* enclosure.
   2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708 of the International Building Code. **Exception:** The maximum transmitted temperature rise is not required.
   2.4. The area is used only for *means of egress* and *exits* directly to the outside.

3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the building.

Reason: The Means of Egress Committee did not approve the original code change since a speaker in opposition observed that the exiting code would not address usable underfloor areas that also need to be separated from the egress path. The added text was adapted from footnote (n) to Table 721.1 (3) of the IBC, where roof ceiling and floor-ceiling assemblies can omit a portion of the assembly above or below when the area above or below is not usable. The proposal separates the level of exit discharge from the stories and usable areas below since the exception allows the egress path from the exit not to be defined as it would be with an exit passageway that would fully encapsulate the egress path.

The committee comments that the proposed code change is excessive because protecting supporting construction would add unnecessary costs is reasonable; however, Section 712.3 requires protection of the horizontal assembly to remain in place for the fire resistance rating. If permanent construction is not required to define the egress path, it would be difficult to define the extent of the partially protected floor insofar as the proposed code change is concerned. In proponent's experience, partially protected buildings are difficult to enforce.

A further reason for the code change is that the actual path is not defined by construction alterations of the level exit discharge over the life of the building. This may result in a modified egress path being located or areas not being protected. This would be a difficult item to determine in plan check and inspection. The scope of exceptions should be the same as the scope of the base code requirement, which is that exits terminate at the exit discharge by extending the interior exit enclosure or terminating it at an exterior exit doorway. The egress path would be at the exterior or fully encapsulated on both sides, above and below, and the supporting construction fully protected for the full span of the supporting construction.

The proponent requests approval as submitted with further modification through public comment.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed code change is editorial and may result in a cost increase in jurisdictions that do not interpret the term areas as the entire story below.

Comment (CAH2)# 565

E114-24

IBC: 1031.2; IFC: [BE] 1031.2

Proposed Change as Submitted

Proponents: Jeffrey Munsterteiger, National Association of Home Builders, National Association of Home Builders (jmunsterteiger@nahb.org)

2024 International Building Code

Revise as follows:

1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2).
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way, or to an egress balcony that leads to a public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, *sleeping rooms* in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:

   5.1. One *means of egress* and one *emergency escape and rescue opening*.

   5.2. Two *means of egress*.

6. In Groups R-2 and R-3, a yard shall not be required to open directly into a public way where the yard opens to an unobstructed path from the yard to the public way. Such path shall have a width of not less than 36-inches (914 mm).

2024 International Fire Code

Revise as follows:

[BE] 1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in stories with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2).
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way* , or to an egress balcony that leads to a *public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:

   5.1. One *means of egress* and one *emergency escape and rescue opening*.

   5.2. Two *means of egress*.

6. <u>In Groups R-2 and R-3, a yard shall not be required to open directly into a public way where the yard opens to an unobstructed path from the yard to the public way. Such path shall have a width of not less than 36-inches (914 mm).</u>

Reason: The purpose of this code change is to allow an EERO to discharge into a yard that does not directly open onto a public way if a minimum 36-inch-wide path is provided from the yard to the public way. This language is similar to language that was approved in the IRC last cycle. In many cities, new townhouses are being constructed on infill lots with tight space limitations. Back yards may already be enclosed because of placement of fences on neighboring lots. There are many examples of this in cities throughout the country where backyard fences are added after the structure was built leaving existing EERO to discharge into a fenced back yard. In some cases, a builder may want to construct two rows of townhouses that are tight up to the street but that have fenced backyards for each unit. Under the current code, the builder must construct all EERO facing the front of the units, with a window well in the sidewalk to access a basement EERO or forgo the private fenced yards as there will likely not be enough space to provide a 10-foot wide “public way”. The problems with placing an EERO in the front to allow a fenced yard in the back include coordinating the location with entry doors and front steps, coordinating the location with utilities, and providing a secure cover over the window well that prevents passers-by from dropping trash into the window well or falling. The problem with forgoing fenced yards is the loss of security for children and pets, and privacy.

While a 10-foot-wide path between back-to-back fenced yards is almost certainly not feasible, a 3-foot path may be in many cases. The new exception would allow such a path, that occupants could use to get out of their yard after escaping through an EERO or that firefighters could use to access the fenced yard for firefighting and rescue operations without having to breach or climb over a series of fences. In these multi-family arrangements this space most-likely would be a common space maintained by the management company or by an association.

Support for choosing the 36-inch minimum width can be found in NFPA 101 (2024) where exit discharge paths leading to a public way are allowed to be a minimum of 36-inches wide in Section 7.7.1.2 for all occupancies and occupant loads. Similarly, IBC Table 1020.3 allows corridors 36-inches in width when serving any occupant load of less than 50 in all occupancies.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal will not increase or decrease the cost of construction. The code change does not change the requirement to provide an EERO for sleeping rooms. Thus, there should be no increase in cost because of this proposal.

There may be a modest savings from the added ability to locate a basement EERO in the rear of the home, where covers may not be required and coordination with utilities is easier.

E114-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: How is the path guaranteed and maintained to the public way? The exception is not needed - it can be permitted with current text. (Vote: 13-1)

E114-24

Individual Consideration Agenda

Comment 1:

IBC: 1031.2; IFC: [BE] 1031.2

Proponents: Jeffrey Munsterteiger, National Association of Home Builders, National Association of Home Builders (jmunsterteiger@nahb.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Revise as follows:

1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in *stories* with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2).
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way, or to an egress balcony that leads to a public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.

2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.
5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, *sleeping rooms* in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:

   5.1. One *means of egress* and one *emergency escape and rescue opening*.

   5.2. Two *means of egress*.

6. In Groups R-2 and R-3, a yard shall not be required to open directly into a public way where the yard opens to an unobstructed path from the yard to the public way. Such path shall have a width of not less than 36-inches (914 mm) and shall be maintained in accordance with the International Fire Code. Pathways shall be located on the same lot or be on property secured for the life of the structure by legal means.
7. Emergency escape and rescue openings shall be permitted to discharge to an egress court complying with Section 1029 or safe dispersal area complying with Section 1028.5.

2024 International Fire Code

Revise as follows:

[BE] 1031.2 Where required. In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in stories with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.4(1) and 1006.3.4(2).
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way* , or to an egress balcony that leads to a *public way* .

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior egress balcony that leads to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. *Storm shelters* are not required to comply with this section where the shelter is constructed in accordance with ICC 500.

5. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:

   5.1. One *means of egress* and one *emergency escape and rescue opening*.

   5.2. Two *means of egress*.

6. In Groups R-2 and R-3, a yard shall not be required to open directly into a public way where the yard opens to an unobstructed path from the yard to the public way. Such path shall have a width of not less than 36-inches (914 mm) and shall be maintained in accordance with the International Fire Code. Pathways shall be located on the same lot or be on property secured for the life of the structure by legal means

7. Emergency escape and rescue openings shall be permitted to discharge to an egress court complying with Section 1029 or safe dispersal area complying with Section 1028.5.

Reason: The purpose of this comment is to address committee concerns and questions with the original proposal. The code change was intended to allow an Emergency Escape and Rescue Opening (EERO) to discharge into a yard that does not directly open onto a public way if a minimum 36-inch-wide path is provided from the yard to the public way.

When discussing EEROs, one must consider that an EERO is not a component of the Means of Egress system (MOES). MOE is defined in the IBC and IFC. The MOES is made up of three components, the Exit Access, Exit and Exit Discharge. Definitions from the 2024 IBC are included here for clarity:

[BE]EMERGENCY ESCAPE AND RESCUE OPENING. *An operable exterior window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.*

[BE]MEANS OF EGRESS. *A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.*

[BE]EXIT ACCESS. *That portion of a means of egress system that leads from any occupied portion of a building or structure to an exit.*

[BE]EXIT. *That portion of a means of egress system between the exit access and the exit discharge or public way. Exit components include exterior exit doors at the level of exit discharge, interior exit stairways and ramps, exit passageways, exterior exit stairways and ramps and horizontal exits.*

[BE]EXIT DISCHARGE. *That portion of a means of egress system between the termination of an exit and a public way.*

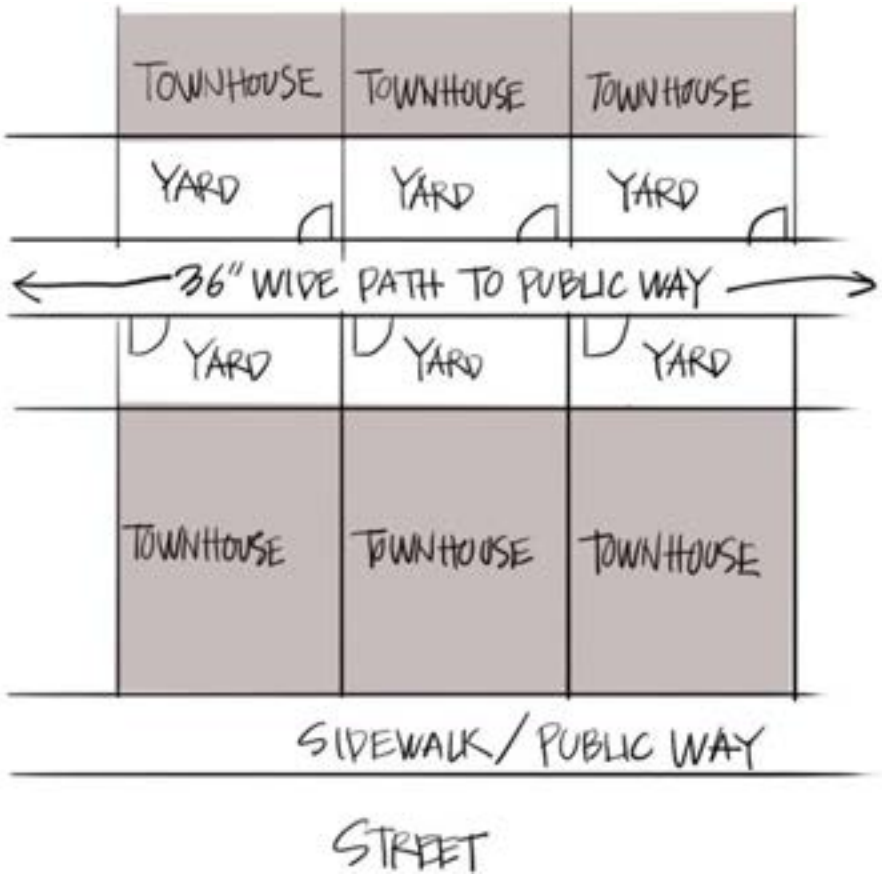
Considering these definitions one can see that EEROs are not treated the same as other MOE components in chapter 10. Much of chapter 10 doesn't apply directly to an EERO, because they are not part of the MOES, as its defined. In this context, one also shouldn't apply more restrictive requirements to EERO than the other exiting components.

To address committee concerns about other options the code provides, Exception 7 was added to allow them to discharge to an egress court. An additional method of discharging to a safe dispersal area is also referenced. While the committee felt the code already allows this, keep in mind EEROs are not currently included in the definitions as an exit component, and there are examples where code officials have interpreted otherwise.

The originally proposed Exception 6 was revised to clarify that if providing the path, maintenance shall be in accordance with the International Fire Code, and that the pathway shall be located on the same lot or be on property secured for the life of the structure by legal means. Legal means could be through legal easements, deeded access or other property rights considerations, none of which are typically addressed directly in the building code. There is no nationwide standard applicable to the terminology so the phrase "by legal means" is used.

The yards addressed in item 6 could be enclosed with fences or building walls or by other means. As it applies to the path being unobstructed, the term would carry the meaning as it applies to other egress components and paths. All building means of egress paths encounter doors or gates that typically are not considered as an obstruction to the path of travel; the same logic should apply in this case. In 1003.6 of the 2024 IBC it says "***Obstructions*** *shall not be placed in the minimum width or required capacity of a means of egress*

component except projections permitted by this chapter." Code Officials should apply the same interpretation of an obstruction in the path from an EERO as they previously have when applying the Means of Egress Continuity Section 1003.6.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change does not change the requirement to provide an EERO for sleeping rooms. Thus, there should be no increase in cost because of this proposal.

There may be a modest savings from the added ability to locate a basement EERO in the rear of the home, where covers may not be required and coordination with utilities is easier.

Comment (CAH2)# 273

E117-24

IBC: 1105.1

Proposed Change as Submitted

Proponents: Steve Thomas, Shums Coda Associates, Himself (sthomas@coloradocode.net)

2024 International Building Code

Revise as follows:

1105.1 Public entrances. In addition to accessible entrances required by Sections 1105.1.2 through 1105.1.8, at least 60 percent of all *public entrances* shall be accessible. **Exceptions:**

1. An accessible entrance is not required to areas not required to be accessible.
2. Loading and *service entrances* that are not the only entrance to a tenant space.
3. Groups R-2, R-3 or R-4 occupancies containing Accessible, Type A or Type B Units, including accessory occupancies in accordance with Section 508.2 shall be provided with no fewer than one accessible public entrance.

Reason: The Federal Fair Housing Act does not require more than one entrance to buildings regulated under that standard. The intent of this proposal is to be consistent with those provisions and clarify that 60% of the entrances are not required to be accessible but that at least one entrance must be accessible. Section 1108.4 states the following:

Not fewer than one accessible route shall connect accessible building or facility entrances with the primary entrance of each Accessible unit, Type A unit and Type B unit within the building or facility and with those exterior and interior spaces and facilities that serve the units.

We believe that this provides supporting documentation that only one accessible route and entrance is required to a residential building.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of the intent of the code. This requirement is consistent with the Fair Housing Act and the current code language in 1105.1.8.

E117-24

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: Allowing for one accessible entrance for apartment buildings would be consistent with Fair Housing. This will also align with Sections 1105.1.8 and 1108.4. (Vote: 10-4)

E117-24

Individual Consideration Agenda

Comment 1:

Proponents: C. Scott Anderson, City of Minneapolis, Self (c.scott.anderson@minneapolismn.gov) requests Disapproved

Reason: The committee should reconsider its actions from the hearings in April and disapprove this change.

2000 IBC required 50% of entrances to be accessible.

2006 changed to 60% of public entrances to be accessible.

18 years of requiring a majority of public entrances to be accessible.

FHA – published in 1996 and updated in 1998 – 26 year old standard. There is no indication that it will be updated in the future.

FHA pages 1.32 + 1.34 acknowledges that non-accessible entrances while acceptable under the guidelines may be required to be accessible to meet Local, state or other emergency egress requirements.

Reason statement in E117-24 references IBC 1108.4 which is accessible route not accessible entrances. This section requires an accessible route connect the unit entrance to ALL accessible building entrances.

The reason statement also references IBC 1105.1.8 as justification, however that section is specific to the individual dwelling unit entrance not the building as a whole.

Accepting this proposal could easily result in the only accessible entrance to a new apartment building be the one most remote from the "front door". Worse it could result in a condition where the only accessible entrance is located in the parking garage.

The fact that ICC requires a higher level accessibility than a 26 year old federal standard is not surprising, nor unusual. The FHA standard for example has no requirements for type A or accessible units. Should we therefore eliminate these unit types? For the sake of uniformity of standards.

The current requirement meets the FHA requirement. If you have 60% of public entrance accessible then at least one is, therefore the requirement is met. This is not a conflict in the standards or requirements. This proposed change significantly reduces the ability of people with disabilities to access R-2 facilities and should not be approved.

As an alternative to total disapproval, the proposal could be modified so that it is limited to R-3 and R-4 occupancies. These are smaller structures and often only have one or perhaps two entrances as a result of their size.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Comment (CAH2)# 99

E119-24

IBC: 1106.3.1 (New)

Proposed Change as Submitted

Proponents: Gene Boecker, CCI, self (geneb@codeconsultants.com); Matt Lescher, CCI, self (mattl@codeconsultants.com); Richard Williams, CWA Consultants, Self (richard@cwaconsultants.net); Marsha Mazz, United Spinal Association, United Spinal Association (mmazz@accessibility-services.com)

2024 International Building Code

1106.3 Groups R-2, R-3 and R-4. Accessible parking spaces shall be provided in Group R-2, R-3 and R-4 occupancies in accordance with the greatest number of parking spaces of any of the following:

1. In Group R-2, R-3 and R-4 occupancies that are required to have *Accessible*, Type A or *Type B dwelling units* or *sleeping units*, at least 2 percent, but not less than one, of each type of parking space provided shall be accessible.
2. Where at least one parking space is provided for each *dwelling unit* or *sleeping unit*, at least one accessible parking space shall be provided for each *Accessible* and *Type A unit*.

Add new text as follows:

1106.3.1 Parking for other than residents. In parking lots serving Group R-2, R-3 and R-4 occupancies, where parking spaces are provided for persons other than residents, parking for such spaces shall be provided in accordance with Table 1106.2.

Reason: The additional text is necessary to clarify that the parking spaces at residential facilities can be based upon each “facility” and that guest parking, employee parking, parking for the leasing office, etc. are not intended to be included as parking the calculation for residential parking noted in Section 1106.3. The language is the same as that in Section 208.2.3.3. This is also consistent with the manner in which HUD interprets the condition.

Bibliography: 2010 ADA Standards for Accessible Design

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The intent is only to provide clarity to the condition where confusion has been present for non-resident parking requirements.

E119-24

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: This is a clarification for where visitor/business parking is indicated on the site. This matches the current intent of the code and this is how this is commonly interpreted. (Vote: 10-4)

E119-24

Individual Consideration Agenda

Comment 1:

IBC: 1106.3.1

Proponents: Jeffrey Munsterteiger, National Association of Home Builders, National Association of Home Builders (jmunsterteiger@nahb.org) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Revise as follows:

1106.3.1 Parking for ~~other than residents~~ serving other facilities. In parking lots serving Group R-2, R-3 and R-4 occupancies, where parking spaces are provided ~~for persons other than residents~~ serving other facilities, parking for such ~~spaces~~ facilities shall be provided in accordance with ~~Table~~ Section 1106.2.

Reason:
The purpose of this committee comment is to accomplish two things. First, referencing Section 1106.2 in place of a direct refence to Table 1106.2 preserves the exceptions found in that section. There is no reason these exceptions should not continue to be applicable in the context of this code change.
The second change is modifying the text "for persons other than residents" with" serving other facilities". Accessible parking is based on each "facility" and by the code's definition, a signed parking space is not a separate facility. The proponents original reason statement also says parking is based "upon each facility" and since that is a defined term and that the term is used throughout the fair housing design manual it should be used here.

Attached to this proposal are pages from the Fair Housing Act Design Manual and Fair Housing Act Accessibility Guidelines. Examples referenced are as annotated in the attachment.
On PDF page 2, Example 1 it is clear that parking shown is a separate parking facility serving a non-residential facility. In this example parking is calculated separately using Section 1106.2. But this isn't what this proposal is addressing as it was submitted.
On PDF page 2, Example 2 a single residential building and pool are served by two surface parking lots. And one can surmise from the driveway leading to the left side of the building that an enclosed parking structure is also provided under the building. One can also surmise that the striped spaces indicate required access aisles at curb ramps as shown. As many as 6 accessible parking spaces are shown. What this proposal as submitted says is that if you then added a sign that says parking for deliveries or guest parking, additional accessible spaces are required because there are no longer 3 parking facilities, it is now 5. Each new "facility" requires at least one parking space with an access aisle. This does not fit the definition of a separate parking facility and doesn't meet the intent of what the FHA documents describe for parking.
The proponents' reason statement referenced HUD documents as requiring separate accessible parking for guests, and those documents simply don't state that. What they do say is that when visitor parking spaces are provided, such parking must be "sufficient" to provide access. The Guidelines do not specify a number or percentage of accessible visitor spaces and no evidence was provided that new residential buildings are being provided with fewer numbers of accessible parking spaces than required. Guest parking is most often provided away from the main entrance and guests are permitted to park in any accessible parking spaces.
It is however understood that if the leasing office or a common use space were provided as separate buildings then the parking specific to them would need to provide accessible parking in compliance with Section 1106.2. This is clearly referenced in the HUD documents and the change in this comment makes it clear that this is the intent.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impact is anticipated with this change. But without these clarifications, costs could be incalculable.

Attached Files

- **E119-24 Attachment.pdf**
  https://www.cdpaccess.com/comment/281/32198/files/download/7897/

Comment (CAH2)# 281

E120-24

IBC: 1107.2, 1107.2.1, 1107.2.2, 1107.2.2.1 (New), 1107.2.3 (New), 1107.2.3.1 (New), 1107.2.3.2 (New), 1107.2.3.3 (New), 1107.2.4 (New), 1107.2.4.1 (New), 1107.2.4.2 (New), 1112.1

Proposed Change as Submitted

Proponents: Jeffrey Grove, Southern Nevada ICC Chapter (jeff.grove@coffman.com)

2024 International Building Code

Revise as follows:

1107.2 Electrical vehicle charging stations. *Electrical vehicle charging stations* shall comply with Sections 1107.2.1 ~~and 1107.2.2~~ through 1107.2.4. **Exceptions:**

1. *Electrical vehicle charging stations* provided to serve Group R-3 and R-4 occupancies are not required to comply with this section.
2. Electric vehicle charging stations used exclusively by buses, trucks, other delivery vehicles, law enforcement vehicles and motor pools are not required to comply with this section.

1107.2.1 Number of accessible vehicle spaces. Not less than 5 percent of vehicle spaces on the *site* served by electrical vehicle charging systems, but not fewer than one for each type of electric vehicle charging system, shall be accessible. Where new electric vehicle charging stations are installed in facilities with existing electric vehicle charging stations, the total number of accessible spaces provided shall include both existing and new electric vehicle charging stations. Where an electric vehicle charging station charger can simultaneously charge more than one vehicle, the number of electric vehicle charging stations provided shall be considered equivalent to the number of electric vehicles that can be simultaneously charged. Parking spaces serving electric vehicle charging stations shall not be permitted to count towards the number of accessible parking spaces required by Section 1106.

1107.2.2 Vehicle space size. Accessible vehicle charging spaces shall ~~comply with the requirements for a van accessible parking space that is~~ be132 inches (3350 mm) minimum in width, 240 inches (6096 mm) minimum in length, and 98 inches (2489 mm) minimum in height with an adjoining access aisle ~~that is 60 inches (1525 mm) minimum in width~~ complying with Section 1107.2.3.

Add new text as follows:

1107.2.2.1 Vehicle charging space marking. The vehicle charging spaces shall be marked to define the width and length. Where vehicle charging spaces are marked with lines, the width measurements of vehicle charging spaces and adjacent access aisles shall be made from the centerline of the markings. **Exceptions:**

1. Where parking spaces or access aisles are not adjacent to another vehicle charging space or access aisle, measurements shall be permitted to include the full width of the line defining the vehicle charging space or access aisle.
2. Vehicle charging space in pull-through electric vehicle charging stations are not required to comply with this section.

1107.2.3 Access aisle. The vehicle charging spaces shall have an adjacent access aisle complying with Section 1107.2.3.1 through 1107.2.3.3. Access aisles shall adjoin an accessible route. Two vehicle charging spaces shall be permitted to share a common access aisle. Access aisles shall not overlap with the vehicular way. The vehicle charging spaces shall be permitted to have access aisles placed on either side of the vehicle charging space.

1107.2.3.1 Width. Access aisles serving the vehicle charging spaces shall be 60 inches (1525 mm) minimum in width.

1107.2.3.2 Length. Access aisles shall extend the full length of the vehicle charging spaces they serve.

1107.2.3.3 Marking. Access aisles shall be marked so as to discourage parking in them. Where access aisles are marked with lines, the width measurements of access aisles and adjacent vehicle charging spaces shall be made from the centerline of the markings. Exceptions:

1. Where access aisles or vehicle charging spaces are not adjacent to another access aisle or vehicle charging space, measurements shall be permitted to include the full width of the line defining the access aisle or vehicle charging space
2. Vehicle charging space in pull-through EV charging stations are not required to comply with this section.

1107.2.4 Accessible routes. Accessible routes shall be provided to serve *electric vehicle charging stations* in accordance with Sections 1107.2.4.1 and 1107.2.4.2.

1107.2.4.1 Building or facility. Accessible *electric vehicle charging stations* that serve a building or facility on the same site shall be located along an *accessible route* providing access to an *accessible* building entrance. Where *accessible electric vehicle charging stations* do not serve a building or facility on the same site, they shall be located along an accessible route providing access to the *public way.*

1107.2.4.2 Charging stations. *Accessible electric vehicle charging stations* shall be provided with an *accessible route* between the *accessible* aisle serving it and all related operable parts and other equipment. When a vehicle is being charged, the *accessible route* shall not be obstructed by the cable between the vehicle and the charging station.

Revise as follows:

1112.1 Signs. Required accessible elements shall be identified by the International Symbol of Accessibility at the following locations.

1. Accessible parking spaces required by Section 1106.2. **Exception:** Where the total number of parking spaces provided is four or less, identification of accessible parking spaces is not required.
2. Accessible parking spaces required by Section 1106.3. **Exception:** In Group I-1, R-2, R-3 and R-4 *facilities*, where parking spaces are assigned to specific *dwelling units* or *sleeping units*, identification of accessible parking spaces is not required.
3. Accessible electric vehicle charging station signs shall include “Accessible EV Charing - Use Last”. Signs shall be 60 inches (1525 mm) minimum above the floor of the vehicle charging space, measured to the bottom of the sign.
4. Accessible passenger loading zones.
5. Accessible toilet or bathing rooms where not all toilet or bathing rooms are *accessible*.
6. Accessible entrances where not all entrances are accessible.
7. Accessible checkout aisles where not all aisles are accessible. The sign, where provided, shall be above the checkout aisle in the same location as the checkout aisle number or type of checkout identification.
8. Accessible dressing, fitting and locker rooms where not all such rooms are accessible.
9. *Accessible areas of refuge* in accordance with Section 1009.9.
10. Exterior areas for assisted rescue in accordance with Section 1009.9.
11. In recreational *facilities*, lockers that are required to be accessible in accordance with Section 1110.12.

Reason: This code change is proposing to add language to more closely align accessibility requirements with the existing requirements for parking and accessibility in Section 1106 and ANSI A117.1 as well as the recommendations from the U.S. Access board while allowing for more sustainable implementation. The current language attempts to rely on the provisions in ANSI 117.1 to identify the requirements of vehicle charging spaces such as is done with accessible parking spaces. Currently, ANSI 117.1 does not have requirements specific to vehicle charging spaces. This leaves language open to misinterpretation and increases the probability of

conflicts between the two code documents.

The vehicle space size was chosen based on the recommendations of the U.S. Access Board. It was determined that these mobility features allow sufficient space for a person who uses a mobility device to exit and maneuver around the vehicle, retrieve the EV connector, and plug the connector into the electric vehicle charging inlet. Since EVs do not have a uniform vehicle charging inlet location, a larger vehicle charging space is needed to maneuver around all sides of the electric vehicle.

The current version of the code would allow for the accessible charging stations to be counted towards the overall accessible parking requirement for the site. Making the charging station a required accessible parking space with accessible signage could potentially prevent people who are able bodied from being permitted to utilize the charging stations without facing fines and/or other legal penalties. In a small group of charging stations this could lead to an extremely low utilization rate on the charging stations affecting the viability of the installation. By allowing smaller groups of charging stations to be accessible without requiring them to be dedicated, the utilization rates will be higher. Adding the signage requirement to Section 1112.1 would further clarify anyone may use the accessible charging space with preference that it be used last. The overall resources required will be reduced allowing for a more rapid implementation of the charging network.

Adding a requirement to provide access to a building or public way is necessary to provide equal access. An accessible route to a building will by default provide access to a public way as the code already requires buildings be connected to a public way by an accessible route. Requiring charging stations not on a site with buildings to connect to a public way allows users to have access to public transportation or businesses off site. While many charging stations are rapid charging stations, some take a significant amount of time to complete a charge. In that time people may walk to get some food or use a nearby restroom facility. Another scenario where this becomes important is in the event the vehicle becomes disabled at the charging station and the user needs to leave the site to seek shelter or other transportation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

Typical fast charger equipment cost is $30,000-$50,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

By eliminating the need to install a dedicated accessible underutilized charger, the overall number of chargers can be reduced by at least 1. There are too many variables to estimate the additional infrastructure cost. Distance from utility access to 3 phase power, free capacity on existing service, site characteristics, ect. are all highly variable contributors to the construction cost.

E120-24

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved. The next edition of the A117.1 will include technical criteria for EV charging spaces so a lot of this text is not needed. The proponent might want to consider coming back with just the requirement for the accessible route from the EV charging spaces to the building. (Vote 11-2)

E120-24

Individual Consideration Agenda

Comment 1:

IBC: 1107.2, 1107.2.1, 1107.2.2, 1107.2.2.1 (New), 1107.2.2.2 (New), 1112.1

Proponents: Jeffrey Grove, Southern Nevada ICC Chapter (jeff.grove@coffman.com) requests As Modified by Committee (AMC2)

Replace as follows:

2024 International Building Code

Revise as follows:

1107.2 Electrical vehicle charging stations. *Electrical vehicle charging stations* shall comply with Sections 1107.2.1 ~~and~~ through ~~1107.2.2~~ 1107.2.2.2. **Exceptions:**

1. *Electrical vehicle charging stations* provided to serve Group R-3 and R-4 occupancies are not required to comply with this section.
2. Electric vehicle charging stations used exclusively by buses, trucks, other delivery vehicles, law enforcement vehicles and motor pools are not required to comply with this section.

1107.2.1 Number of accessible vehicle spaces. Not less than 5 percent of vehicle spaces on the *site* served by electrical vehicle charging systems, but not fewer than one for each type of electric vehicle charging system, shall be accessible. . Where an electric vehicle charging station charger can simultaneously charge more than one vehicle, the number of electric vehicle charging stations provided shall be considered equivalent to the number of electric vehicles that can be simultaneously charged. Parking spaces serving electric vehicle charging stations shall not be permitted to count towards the number of accessible parking spaces required by Section 1106 unless they meet all of the requirements for accessible parking spaces in addition to the requirements for electric vehicle charging stations.

1107.2.2 ~~Vehicle space size~~ Accessible routes. ~~Accessible vehicle spaces shall comply with the requirements for a van accessible parking space that is 132 inches (3350 mm) minimum in width with an adjoining access aisle that is 60 inches (1525 mm) minimum in width.~~ Accessible routes shall be provided to serve electric vehicle charging stations in accordance with Sections 1107.2.2.1 and 1107.2.2.2.

Add new text as follows:

1107.2.2.1 Building or facility. Accessible electric vehicle charging stations that serve a building or facility on the same site shall be located along an accessible route providing access to an accessible building entrance. Where accessible electric vehicle charging stations do not serve a building or facility on the same site, they shall be located along an accessible route providing access to the public way.

1107.2.2.2 Charging stations. Accessible electric vehicle charging stations shall be provided with an accessible route between the accessible aisle serving it and all related operable parts and other equipment. When a vehicle is being charged, the accessible route shall not be obstructed by the cable between the vehicle and the charging station.

Revise as follows:

1112.1 Signs. Required accessible elements shall be identified by the International Symbol of Accessibility at the following locations.

1. Accessible parking spaces required by Section 1106.2.
   Exception: Where the total number of parking spaces provided is four or less, identification of accessible parking spaces is not required.

2. Accessible parking spaces required by Section 1106.3.
   Exception: In Group I-1, R-2, R-3 and R-4 *facilities*, where parking spaces are assigned to specific *dwelling units* or *sleeping units*, identification of accessible parking spaces is not required.

3. Accessible passenger loading zones.

4. Accessible toilet or bathing rooms where not all toilet or bathing rooms are *accessible*.

5. Accessible entrances where not all entrances are accessible.

6. Accessible checkout aisles where not all aisles are accessible. The sign, where provided, shall be above the checkout aisle in the same location as the checkout aisle number or type of checkout identification.

7. Accessible dressing, fitting and locker rooms where not all such rooms are accessible.

8. *Accessible areas of refuge* in accordance with Section 1009.9.

9. Exterior areas for assisted rescue in accordance with Section 1009.9.

10. In recreational *facilities*, lockers that are required to be accessible in accordance with Section 1110.12.

11. Accessible electric vehicle charging station signs shall include “Accessible EV Charging - Use Last”. Signs shall be 60 inches (1525 mm) minimum above the floor of the vehicle charging space, measured to the bottom of the sign.

Reason: During CAH 1, the committee voted this proposal down based on the desire that the technical language be placed in ICC A117.1. The original proposal was written with these items in it due to the fact A117.1 has not been finalized and there is no guarantee that it will be adopted as part of the 2027 IBC. In an effort to preserve the scoping previsions of this code change proposal in the appropriate location of the IBC, the technical requirements have been removed and left to ICC A117.1. Part of this change was removing the vehicle charging station space size as it is technical in nature and would also be better left to ICC A117.1.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Information is unchanged from original proposal.

Estimated Immediate Cost Impact Justification (methodology and variables):

Information is unchanged from original proposal.

Comment (CAH2)# 486

Comment 2:

IBC: 1112.1

Proponents: Steven Rosenstock, Edison Electric Institute, Edison Electric Institute (srosenstock@eei.org); Genevieve Cullen, Electric Drive Transportation Association (EDTA), EDTA (gcullen@electricdrive.org); Emily Kelly, ChargePoint (emily.kelly@chargepoint.com); Rick Tempchin, Alliance for Transportation Electrification (rick@evtransportationalliance.org); Tessa Sanchez, Tesla, Tesla, Inc. (tesanchez@tesla.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Revise as follows:

1112.1 Signs. Required accessible elements shall be identified by the International Symbol of Accessibility at the following locations.

1. Accessible parking spaces required by Section 1106.2. **Exception:** Where the total number of parking spaces provided is four or less, identification of accessible parking spaces is not required.

2. Accessible parking spaces required by Section 1106.3. **Exception:** In Group I-1, R-2, R-3 and R-4 *facilities*, where parking spaces are assigned to specific *dwelling units* or *sleeping units*, identification of accessible parking spaces is not required.

3. ~~Accessible electric vehicle charging station signs shall include "Accessible EV Charing - Use Last". Signs shall be 60 inches (1525 mm) minimum above the floor of the vehicle charging space, measured to the bottom of the sign.~~

4. Accessible passenger loading zones.

5. Accessible toilet or bathing rooms where not all toilet or bathing rooms are *accessible*.

6. Accessible entrances where not all entrances are accessible.

7. Accessible checkout aisles where not all aisles are accessible. The sign, where provided, shall be above the checkout aisle in the same location as the checkout aisle number or type of checkout identification.

8. Accessible dressing, fitting and locker rooms where not all such rooms are accessible.

   Accessible areas of refuge in accordance with Section 1009.9.

10 Exterior areas for assisted rescue in accordance with Section 1009.9.

11. In recreational *facilities*, lockers that are required to be accessible in accordance with Section 1110.12.

Reason: With the requirements for EV space marking already included in Section 1107, there is no need for a sign. Also, the phrase "use last" will likely cause confusion, since EV owners who need the accessible parking are allowed to use the space (and the charging) first.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Eliminating the requirement for accessible EV charging station signs will reduce the cost.

Estimated Immediate Cost Impact Justification (methodology and variables):

It will reduce the immediate costs by taking out the requirement for EV charging station signs.

Estimated Life Cycle Cost Impact:

This will reduce life cycle costs as signs will not need to be replaced in the future.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Eliminating the first cost and future cost of a sign creates $0 life cycle costs, which will be lower than the cost to purchase, maintain, and replace a sign.

Comment (CAH2)# 412

E122-24

IBC: 1108.5.1.1, 1108.5.1.2, 1108.5.2.1, 1108.5.4, 1110.2.2, 1110.2.2.1, 1110.2.2.2, 1110.2.2.2.1, 1110.2.2.2.2, 1110.2.2.2.3, 1110.2.2.3, 1110.2.2.4, 1110.2.2.5, 1110.2.2.6, 1110.2.3, 1110.2.3.1, 1110.2.3.2, 1110.2.3.3, 1110.2.3.3.1, 1110.2.3.3.2, 1110.2.3.4, 1110.2.3.5, 1110.2.3.6, 1110.2.3.7, 1110.2.3.8, 1110.2.3.9

Proposed Change as Submitted

Proponents: Matt Lescher, CCI, self (mattl@codeconsultants.com); Marsha Mazz, United Spinal Association, United Spinal Association (mmazz@accessibility-services.com); Gene Boecker, CCI, self (geneb@codeconsultants.com); Jim Safranek, Safranek Group LLC, Self (jim@safranekgroup.com)

2024 International Building Code

1108.5 Group I. *Accessible units* and *Type B units* shall be provided in Group I occupancies in accordance with Sections 1108.5.1 through 1108.5.5.

1108.5.1 Group I-1. *Accessible units* and *Type B units* shall be provided in Group I-1 occupancies in accordance with Sections 1108.5.1.1 and 1108.5.1.3.

Revise as follows:

1108.5.1.1 Accessible units. In Group I-1, Condition 1, at least 4 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessible units*. *Accessible dwelling units* and *sleeping units* shall be dispersed among the various classes of units. **Exceptions:**

1. Water closets shall be permitted to comply with assisted toileting requirements in accordance with ICC A117.1 Section 611 ~~not be required to comply with ICC A117.1 where such water closets comply with Section 1110.2.2~~, in not more than 50 percent of the *Accessible units.*
2. Roll-in-type showers shall be permitted to comply with assisted bathing requirements in accordance with ICC A117.1 Section 611.7 ~~not be required to comply with ICC A117.1 where such water closets comply with Section 1110.2.3~~, in not more than 50 percent of the *Accessible units*.

1108.5.1.2 Accessible units in Group I-1, Condition 2. In Group I-1, Condition 2, at least 10 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessible units*. *Accessible dwelling units* and *sleeping units* shall be dispersed among the various classes of units. **Exceptions:**

1. Water closets shall be permitted to comply with assisted toileting requirements in accordance with ICC A117.1 Section 611 ~~not be required to comply with ICC A117.1 where such water closets comply with Section 1110.2.2~~, in not more than 50 percent of the *Accessible units.*
2. Roll-in-type showers shall be permitted to comply with assisted bathing requirements in accordance with ICC A117.1 Section 611.7 ~~not be required to comply with ICC A117.1 where such water closets comply with Section 1110.2.3~~, in not more than 50 percent of the *Accessible units*.

1108.5.1.3 Type B units. In *structures* with four or more *dwelling units* or *sleeping units intended to be occupied as a residence* , every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*. **Exception:** The number of *Type B units* is permitted to be reduced in accordance with Section 1108.7.

1108.5.2 Group I-2 nursing homes. *Accessible units* and *Type B units* shall be provided in *nursing homes* of Group I-2, Condition 1 occupancies in accordance with Sections 1108.5.2.1 and 1108.5.2.2.

Revise as follows:

1108.5.2.1 Accessible units. At least 50 percent but not less than one of each type of the *dwelling units* and *sleeping units* shall be *Accessible units*. **Exceptions:**

1. Water closets shall be permitted to comply with assisted toileting requirements in accordance with ICC A117.1 Section 611 ~~not be required to comply with ICC A117.1 where such water closets comply with Section 1110.2.2~~, in not more than 90 percent of the *Accessible units*.
2. Roll-in-type showers shall be permitted to comply with assisted bathing requirements in accordance with ICC A117.1 Section 611.7 ~~not be required to comply with ICC A117.1 where such water closets comply with Section 1110.2.3~~, in not more than 90 percent of the *Accessible units.*

1108.5.2.2 Type B units. In *structures* with four or more *dwelling units* or *sleeping units intended to be occupied as a residence*, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*. **Exception:** The number of *Type B units* is permitted to be reduced in accordance with Section 1108.7.

1108.5.3 Group I-2 hospitals. *Accessible units* and *Type B units* shall be provided in general-purpose *hospitals*, psychiatric *facilities* and *detoxification facilities* of Group I-2 occupancies in accordance with Sections 1108.5.3.1 and 1108.5.3.2.

1108.5.3.1 Accessible units. At least 10 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessible units*.
Exception: Entry doors to *Accessible dwelling units* or *sleeping units* shall not be required to provide the maneuvering clearance beyo the latch side of the door.

1108.5.3.2 Type B units. In *structures* with four or more *dwelling units* or *sleeping units intended to be occupied as a residence*, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*. **Exception:** The number of *Type B units* is permitted to be reduced in accordance with Section 1108.7.

Revise as follows:

1108.5.4 Group I-2 rehabilitation facilities. In *hospitals* and rehabilitation *facilities* of Group I-2 occupancies that specialize in treating conditions that affect mobility, or units within either that specialize in treating conditions that affect mobility, 100 percent of the *dwelling units* and *sleeping units* shall be *Accessible units*. **Exceptions:**

1. Water closets shall be permitted to comply with assisted toileting requirements in accordance with ICC A117.1 Section 611 ~~not be required to comply with ICC A117.1 where such water closets comply with Section 1110.2.2~~, in not more than 50 percent of *Accessible units*.
2. Roll-in-type showers shall be permitted to comply with assisted bathing requirements in accordance with ICC A117.1 Section 611.7 ~~not be required to comply with ICC A117.1 where such water closets comply with Section 1110.2.3~~, in not more than 50 percent of *Accessible units*.

Delete without substitution:

~~**1110.2.2 Water closets designed for assisted toileting.** Water closets designed for assisted toileting shall comply with Sections 1110.2.2.1 through 1110.2.2.6.~~

~~**1110.2.2.1 Location.** The centerline of the water closet shall be not less than 24 inches (610 mm) and not greater than 26 inches (660 mm) from one side of the required clearance.~~

~~**1110.2.2.2 Clearance.** Clearance around the water closet shall comply with Sections 1110.2.2.2.1 through 1110.2.2.2.3.~~

~~**1110.2.2.2.1 Clearance width.** Clearance around a water closet shall be not less than 66 inches (1675 mm) in width, measured~~

perpendicularly from the side of the clearance that is not less than 24 inches (610 mm) and not greater than 26 inches (660 mm) from the water closet centerline.

1110.2.2.2.2 Clearance depth. Clearance around the water closet shall be not less than 78 inches (1980 mm) in depth, measured perpendicularly from the rear wall

1110.2.2.2.3 Clearance overlap. The required clearance around the water closet shall permit overlaps per ICC A117.1, Section 604.3.3

1110.2.2.3 Height. The height of the water closet seats shall comply with ICC A117.1, Section 604.4.

1110.2.2.4 Swing-up grab bars. Swing-up grab bars shall comply with ICC A117.1, Sections 609.2 and 609.8. Swing-up grab bars shall be provided on both sides of the water closet and shall comply with all of the following:

1. The centerline of the grab bar shall be not less than 14 inches (356 mm) and not greater than 16 inches (405 mm) from the centerline of the water closet.
2. The length of the grab bar is not less than 36 inches (915 mm) in length, measured from the rear wall to the end of the grab bar.
3. The top of the grab bar in the down position is not less than 30 inches (760 mm) and not greater than 34 inches (865 mm) above the floor.

1110.2.2.5 Flush controls. Flush controls shall comply with ICC A117.1, Section 604.6.

1110.2.2.6 Dispensers. Toilet paper dispensers shall be mounted on at least one of the swing-up grab bars and the outlet of the dispenser shall be located not less than 24 inches (610 mm) and not greater than 36 inches (915 mm) from the rear wall.

1110.2.3 Standard roll-in-type shower compartment designed for assisted bathing. Standard roll-in-type shower compartments designed for assisted bathing shall comply with Sections 1110.2.3.1 through 1110.2.3.9.

1110.2.3.1 Size. Standard roll-in-type shower compartments shall have a clear inside dimension of not less than 60 inches (1525 mm) in width and 30 inches (760 mm) in depth, measured at the center point of opposing sides. An entry not less than 60 inches (1525 mm) in width shall be provided.

1110.2.3.2 Clearance. A clearance of not less than 60 inches (1525 mm) in length adjacent to the 60-inch (1525 mm) width of the open face of the shower compartment, and not less than 30 inches (760 mm) in depth, shall be provided. **Exceptions:**

1. A lavatory complying with ICC A117.1, Section 606 shall be permitted at one end of the clearance.
2. Where the shower compartment exceeds minimum sizes, the clear floor space shall be placed adjacent to the grab bars and not less than 30 inches (762 mm) from the back wall.

1110.2.3.3 Grab bars. Grab bars shall comply with ICC A117.1, Section 609 and shall be provided in accordance with Sections 1110.2.3.3.1 and 1110.2.3.3.2. In standard roll-in-type shower compartments, grab bars shall be provided on three walls. Where multiple grab bars are used, required horizontal grab bars shall be installed at the same height above the floor. Grab bars can be separate bars or one continuous bar.

1110.2.3.3.1 Back-wall grab bar. The back-wall grab bar shall extend the length of the back wall and extend within 6 inches (150 mm) maximum from the two adjacent sidewalls. **Exception:** The back-wall grab bar shall not be required to exceed 48 inches (1220 mm) in length. The rear grab bar shall be located with one end within 6 inches maximum of a sidewall with a grab bar complying with Section 1110.2.3.3.2.

~~**1110.2.3.3.2 Sidewall grab bars.** The sidewall grab bars shall extend the length of the wall and extend within 6 inches (150 mm) of the adjacent back wall. **Exceptions:**~~

1. ~~The sidewall grab bar shall not be required to exceed 30 inches (760 mm) in length. The side grab bar shall be located with one end within 6 inches (152 mm) of the back wall with a grab bar complying with Section 1110.2.3.3.1.~~
2. ~~Where the sidewalls are located 72 inches (1830 mm) or greater apart, a grab bar is not required on one of the sidewalls.~~

~~**1110.2.3.4 Seats.** Wall-mounted folding seats shall not be installed.~~

~~**1110.2.3.5 Controls and hand showers.** In standard roll-in-type showers, the controls and hand shower shall be located not less than 38 inches (965 mm) and not greater than 48 inches (1220 mm) above the shower floor. Controls shall be located to facilitate caregiver access.~~

~~**1110.2.3.6 Hand showers.** Hand showers shall comply with ICC A117.1, Section 608.5.~~

~~**1110.2.3.7 Thresholds.** Thresholds shall comply with ICC A117.1, Section 608.6.~~

~~**1110.2.3.8 Shower enclosures.** Shower compartment enclosures for shower compartments shall comply with ICC A117.1, Section 608.7.~~

~~**1110.2.3.9 Water temperature.** Water temperature shall comply with ICC A117.1, Section 608.8.~~

Reason: The next edition of ICC A117.1 will include requirements for assisted toileting and bathing in Section 611. This proposal was 06-84-2021. Information can be viewed on the ICC A117.1 webpage at https://www.iccsafe.org/icc-asc-a117-1/. These provisions include several improvements to the text currently in the IBC. This section should be deleted from the IBC and reference the appropriate sections in the ICC A117.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

These requirements are being replaced with similar requirements in the next edition of ICC A117.1. There scoping will remain the same for this option.

E122-24

Public Hearing Results (CAH1)

Errata: This proposal includes unpublished errata in the following sections of the IBC.
1108.5.1.1 Accessible units. In Group I-1, Condition 1, at least 4 percent, but not less than one, of the dwelling units and sleeping units shall be Accessible units. Accessible dwelling units and sleeping units shall be dispersed among the various classes of units.
Exceptions:
1. Water closets shall be permitted to comply with assisted toileting requirements in accordance with ICC A117.1 Section 611 in not more than 50 percent of the Accessible units.
2. Roll-in-type showers shall be permitted to comply with assisted ~~toileting~~ bathing requirements in accordance with ICC A117.1 Section 611.7 in not more than 50 percent of the Accessible units.

1108.5.1.2 Accessible units in Group I-1, Condition 2. In Group I-1, Condition 2, at least 10 percent, but not less than one, of the dwelling units and sleeping units shall be Accessible units. Accessible dwelling units and sleeping units shall be dispersed among the

various classes of units.

Exceptions:

1. Water closets shall be permitted to comply with assisted toileting requirements in accordance with ICC A117.1 Section 611, in not more than 50 percent of the Accessible units.
2. Roll-in-type showers shall be permitted to comply with assisted ~~toileting~~ bathing requirements in accordance with ICC A117.1 Section 611.7 in not more than 50 percent of the Accessible units.

1108.5.2.1 Accessible units. At least 50 percent but not less than one of each type of the dwelling units and sleeping units shall be Accessible units.

Exceptions:

1. Water closets shall be permitted to comply with assisted toileting requirements in accordance with ICC A117.1 Section 611 in not more than 90 percent of the Accessible units.
2. Roll-in-type showers shall be permitted to comply with assisted ~~toileting~~ bathing requirements in accordance with ICC A117.1 Section 611.7 in not more than 90 percent of the Accessible units.

1108.5.4 Group I-2 rehabilitation facilities. In hospitals and rehabilitation facilities of Group I-2 occupancies that specialize in treating conditions that affect mobility, or units within either that specialize in treating conditions that affect mobility, 100 percent of the dwelling units and sleeping units shall be Accessible units.

Exceptions:

1. Water closets shall be permitted to comply with assisted toileting requirements in accordance with ICC A117.1 Section 611 in not more than 50 percent of Accessible units.
2. Roll-in-type showers shall be permitted to comply with assisted ~~toileting~~ bathing requirements in accordance with ICC A117.1 Section 611.7 in not more than 50 percent of Accessible units.

Committee Action: **Disapproved**

Committee Reason: These criteria should not be deleted until the next edition of the ICC A117.1 is finalized. (Vote: 12-0)

E122-24

Individual Consideration Agenda

Comment 1:

Proponents: Gene Boecker, CCI, self (geneb@codeconsultants.com); Matt Lescher, CCI, self (mattl@codeconsultants.com) requests As Submitted

Reason: BOECKER: The only reason offered by the committee was that these items should not be deleted until the A117.1 is finalized. There were no technical objections. A request to approve as originally submitted is offered to keep this item "alive."

This particular portion of the A117.1 has been reviewed and approved and is now a part of the final draft. As such, it's final form is complete. At the time of this submission in July, final votes on the content of the new A117.1 have not occurred. So, it is not possible to say that the A117.1 is a "next edition" yet. However, the timeline for inclusion in the 2027 IBC requires it to be published prior to the publication of the 2027 IBC, technically December 2026 although it should be a few months earlier for practical purposes. Also, from a practical perspective, the final active for Group A and B items will be at the public hearings from April 19-28, 2026. Even at the current pace, the A117.1 will be completed by then.

The committee has the option to either vote to approve As Submitted since the A117.1 will certainly be completed before the Public hearings in 2026 or to again vote to Disapprove and kick the can to the next round of public comments. My preference is to have fewer public comments in the future.

LESCHER: The reason that the code change was disapproved was: " These criteria should not be deleted until the next edition of the ICC A117.1 is finalized." The requirments for assisted toilet and bathing facilities has already been approved by the A117.1 Committee and will be in the next edition of the standard. The entire standard is anticipated to be completed by the end of 2026 at the latest.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Comment (CAH2)# 728

E123-24

IBC: 1108.6.2

Proposed Change as Submitted

Proponents: Matt Lescher, CCI, self (mattl@codeconsultants.com); Jim Safranek, Safranek Group LLC, Self (jim@safranekgroup.com); Gene Boecker, CCI, self (geneb@codeconsultants.com); Marsha Mazz, United Spinal Association, United Spinal Association (mmazz@accessibility-services.com)

2024 International Building Code

Revise as follows:

1108.6.2 Group R-2. *Accessible units, Type A units* and *Type B units* shall be provided in Group R-2 occupancies in accordance with Sections 1108.6.2.1 through 1108.6.2.3. Where Group R-2 apartments will have dwelling units intended to also be Group R-1 occupancies, those units shall comply with Section 1108.6.1.

Reason: In the old days it was generally simple to distinguish the difference between an apartment building and a hotel building. However, in recent years as the demand for short term rentals has increased exponentially, many multifamily R-2 projects are being designed with a group of units where the intention is that they will be used for short term stays. In many instances, these units will be covered by the ADA and/or Fair Housing Act (FHA). One of the main objectives of Chapter 11 is to harmonize with the ADA and FHA requirements because the Building Official is charged with enforcing the IBC and does not otherwise have authority to enforce the ADA or FHA. There are many factors that must be considered when determining the application of the ADA and FHA, such as ownership, management, length of stays, etc., but we have attempted to provide some generalizations in order to simplify and capture some of the major concerns.

If these units will be available to be rented by the general public, it is likely that they will be covered by the ADA as transient lodging. Similar to hotels, this code change proposal requires compliance with the R-1 requirements of Section 1108.6.1. Accessible units will be required in accordance with Table 1108.6.1.1. Per Section 1108.6.1.2, the remaining units will be required to be Type B if they are intended to be occupied as a residence to meet the requirements of the Fair Housing Act (FHA), if these units will only function for short term stays, like a standard hotel, then the remaining units would not be Type B.

If these units will only be available as an amenity for residents and will not be available for rental by the general public, then it is unlikely that the ADA will apply to these units. However, the units will likely be covered by the FHA. While covered by the FHA, the FHA safe harbor documents do not state how they should be addressed. Requiring compliance with Section 1108.6.1 will cover this concern. Fully accessible units will be required per Table 1108.6.1.1 and the determination for Type B is whether or not these units are intended to be occupied as a residence.

In this proposal, the term apartment houses was used for consistency with the other applicable sections for R-2. As such, it is intended to cover both apartment houses and condominiums.

There will be times where there is no way to know how certain units will be used in the future. Therefore, designers, Building Officials, owners, and other interested parties, must use the best information available at that time when applying these requirements.

Another goal of this proposal is to avoid future litigation as these short term rentals are covered by the ADA and FHA and must provide accessibility to people with disabilities.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

In our opinion, this proposal is a clarification for how the requirements should be applied to short term rental units. These units do not function as standard apartment/condominium units and should be classified as R-1 units, not as R-2 where the occupancy is longer than 30 days.

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This is already addressed in Chapter 3 for all buildings used for two purposes. A change of occupancy can be address through enforcement. (Vote: 11-1)

E123-24

Individual Consideration Agenda

Comment 1:

IBC: 1108.6.2

Proponents: Matt Lescher, CCI, self (mattl@codeconsultants.com) requests As Modified by Committee (AMC2)

Modify as follows:

2024 International Building Code

Revise as follows:

1108.6.2 Group R-2. *Accessible units, Type A units* and *Type B units* shall be provided in Group R-2 occupancies in accordance with Sections 1108.6.2.1 through 1108.6.2.3. Where Group R-2 ~~apartments~~ apartment houses will have dwelling units or sleeping units intended to also be used on a transient basis ~~Group R-1 occupancies~~, the ~~those~~ units intended for transient purposes shall comply with ~~Section~~ Sections 302.1 and1108.6.1.

Reason: The revised proposal addresses the reason for disapproval by incorporating Section 302.1. The modification removed the reference to R-1 occupancies because there are many times where the Authority Having Jurisdiction will allow the units to be classified as R-2, however, in doing so, the building would not comply with the ADA and/or FHA unless the short term rental units are subject to the unit counts for fully accessible units.

Bibliography: Report from the Rocky Mountain ADA Center

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This requirement is a clarification. Where units are provided for use on a transient basis, compliance with Table 1108.6.2.1 should have already been required, either because the units should be classified as R-1, or because they should comply with Section 1108.2.3. Further, the federal ADA and associated 2010 Standards and/or the FHA require these units include fully accessible, so an argument that this increases construction costs would be based on a building that is not built in compliance with federal accessibility laws.

Comment (CAH2)# 402

E127-24 Part I

IBC: SECTION 202 (New), 1110.4.2, IAPMO (New)

Proposed Change as Submitted

Proponents: Misty Guard, Regulosity LLC, MAG Industries LLC (misty.guard@regulosity.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC EGRESS CODE COMMITTEE. PART II WILL BE HEARD BY THE PLUMBING/PRIVATE SEWAGE CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new definition as follows:

ADULT CHANGING STATIONS. An *assistive table* and the associated maneuvering clearances.

ASSISTIVE TABLE. A product produced, generally available, or used by or for persons with a physical, or cognitive disability intended to facilitate and support personal care or hygiene with a changing surface to support a user in a reclined or lying position. Assistive Tables can be fixed or adjustable height and have integrated plumbing fittings and fixtures.

1110.4 Adult changing stations. Where provided, adult changing stations shall be accessible. Where required, adult changing stations shall be accessible and shall comply with Sections 1110.4.1 through 1110.4.4.

1110.4.1 Where required. Not fewer than one adult changing station shall be provided in the following locations:

1. In assembly and mercantile occupancies, where family or assisted-use toilet or bathing rooms are required to comply with Section 1110.2.1.
2. In Group B occupancies providing educational *facilities* for students above the 12th grade, where an aggregate of 12 or more male and female water closets are required to serve the classrooms and lecture halls.
3. In Group E occupancies, where a room or space used for assembly purposes requires an aggregate of six or more male and female water closets for that room or space.
4. In highway rest stops and highway service plazas.

Revise as follows:

1110.4.2 Room. Adult changing stations shall be located in toilet rooms that include only one water closet and only one lavatory. The assistive tables shall comply with IAPMO Z1390. Fixtures located in such rooms shall be included in determining the number of fixtures provided in an occupancy. The occupants shall have access to the required adult changing station at all times that the associated occupancy is occupied. **Exception:** Adult changing stations shall be permitted to be located in family or assisted toilet rooms required in Section 1110.2.1.

1110.4.3 Prohibited location. The *accessible route* from separate-sex toilet or bathing rooms to an accessible adult changing station shall not require travel through security checkpoints.

1110.4.4 Travel distance. The adult changing station shall be located on an *accessible route* such that a *person* is not more than two *stories* above or below the *story* with the adult changing station and the path of travel to such *facility* shall not exceed 2,000 feet (609.6 m).

Add new standard(s) as follows:

IAPMO Z1390-20XX. Assistive Tables

Reason: Assistive tables are plumbing products that facilitate and support the personal hygiene of individuals who are physically challenged, disabled, or elderly. While the assistive table is not a new product, the products are required in new commercial buildings and substantial renovations of existing bathrooms in Arkansas, Arizona, California, New Hampshire, and Pennsylvania. Massachusetts, Michigan, Minnesota, and Wisconsin have pending legislation for these products. A technical subcommittee of manufacturers, consultants, installers, and disability experts wrote the product performance and safety standard, IAPMO Z1390 Assistive Tables. IAPMO Z1390 covers 1) product design requirements for user weight, maximum loads, heights, operation, locking safety mechanisms, mechanical wear, cleaning and disinfection, changing surface, grab rails, safety restraint systems, electrical, support structure, integrated plumbing fittings, integrated plumbing fixtures, 2) performance requirements for height, vertical movement, locking mechanisms, changing surface tests, grab bars, support structures, waste fitting connections, and body part entrapment, 3) marking and signage requirements, and 4) installation documentation.

Bibliography: IAPMO Z1390 Assistive Tables

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

This requirement will increase the cost of these products by requiring the product manufacturer to obtain testing through a testing laboratory and third-party certification. Laboratory testing and third-party certification fees for products typically range between $3,000 to $20,000. The increase in cost is offset by the benefits to public health and safety of products that conform to product safety and performance standards resulting in a reduction of harm to users.

Estimated Immediate Cost Impact Justification (methodology and variables):

This requirement will increase the cost of these products by requiring the product manufacturer to obtain testing through a testing laboratory and third-party certification. The increase in cost is offset by the benefits to public health and safety of products that conform to product safety and performance standards resulting in a reduction of harm to users.

E127-24 Part I

Public Hearing Results (CAH1)

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved because while a safety standard for adult changing tables are important, the IAPMO Z1390 is not yet finalized. (Vote: 10-4)

E127-24 Part I

Individual Consideration Agenda

Comment 1:

Proponents: Misty Guard, Regulosity LLC, MAG Industries LLC (misty.guard@regulosity.com) requests As Submitted

Reason: *IAPMO Z1390 Assistive Tables* standard was published on July 8, 2024. The publication of the safety standard addresses the Committee's concern.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

NOTE: E127-24 PART II DID NOT RECEIVE A COMMENT (CAH2) AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

E127-24 Part II

IPC: SECTION 202 (New), SECTION 427 (New), 427.1 (New), 427.1.1 (New), 427.1.2 (New), 427.1.3 (New), 427.1.4 (New), IAPMO (New)

Proposed Change as Submitted

Proponents: Misty Guard, Regulosity LLC, MAG Industries LLC (misty.guard@regulosity.com)

2024 International Plumbing Code

Add new definition as follows:

ADULT CHANGING STATIONS. An *assistive table* and the associated maneuvering clearances.

ASSISTIVE TABLE. A product produced, generally available, or used by or for persons with a physical, or cognitive disability intended to facilitate and support personal care or hygiene with a changing surface to support a user in a reclined or lying position. Assistive Tables can be fixed or adjustable height and have integrated plumbing fittings and fixtures.

Add new text as follows:

SECTION 427
ASSISTIVE TABLES

427.1 Adult changing stations.. Where provided, adult changing stations shall be accessible. Where required, adult changing stations shall be accessible and shall comply with Sections 427.1.1 through 427.1.4.

427.1.1
Where required
. Not fewer than one adult changing station shall be provided in the following locations:

1. In assembly and mercantile occupancies, where family or assisted-use toilet or bathing rooms are required to comply with Section 1110.2.1 of the International Building Code.
2. In Group B occupancies providing educational *facilities* for students above the 12th grade, where an aggregate of 12 or more male and female water closets are required to serve the classrooms and lecture halls.
3. In Group E occupancies, where a room or space used for assembly purposes requires an aggregate of six or more male and female water closets for that room or space.
4. In highway rest stops and highway service plazas.

427.1.2 Room. Adult changing stations shall be located in toilet rooms that include only one water closet and only one lavatory. The assistive tables shall comply with IAPMO Z1390. Fixtures located in such rooms shall be included in determining the number of fixtures provided in an occupancy. The occupants shall have access to the required adult changing station at all times that the associated occupancy is occupied. **Exception:** Adult changing stations shall be permitted to be located in family or assisted toilet rooms required in Section 1110.2.1.

427.1.3 Prohibited location. The *accessible route* from separate-sex toilet or bathing rooms to an accessible adult changing station shall not require travel through security checkpoints.

427.1.4 Travel distance. The adult changing station shall be located on an *accessible route* such that a *person* is not more than two *stories* above or below the *story* with the adult changing station and the path of travel to such *facility* shall not exceed 2,000 feet (609.6 m).

IAPMO Z1390-20XX. Assistive Tables

Reason: Assistive tables are plumbing products that facilitate and support the personal hygiene of individuals who are physically challenged, disabled, or elderly. While the assistive table is not a new product, the products are required in new commercial buildings and substantial renovations of existing bathrooms in Arkansas, Arizona, California, New Hampshire, and Pennsylvania. Massachusetts, Michigan, Minnesota, and Wisconsin have pending legislation for these products. A technical subcommittee of manufacturers, consultants, installers, and disability experts wrote the product performance and safety standard, IAPMO Z1390 Assistive Tables. IAPMO Z1390 covers 1) product design requirements for user weight, maximum loads, heights, operation, locking safety mechanisms, mechanical wear, cleaning and disinfection, changing surface, grab rails, safety restraint systems, electrical, support structure, integrated plumbing fittings, integrated plumbing fixtures, 2) performance requirements for height, vertical movement, locking mechanisms, changing surface tests, grab bars, support structures, waste fitting connections, and body part entrapment, 3) marking and signage requirements, and 4) installation documentation.

Bibliography: IAPMO Z1390 Assistive Tables

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Estimated Immediate Cost Impact:

This requirement will increase the cost of these products by requiring the product manufacturer to obtain testing through a testing laboratory and third-party certification. Laboratory testing and third-party certification fees for products typically range between $3,000 to $20,000. The increase in cost is offset by the benefits to public health and safety of products that conform to product safety and performance standards resulting in a reduction of harm to users.

Estimated Immediate Cost Impact Justification (methodology and variables):

This requirement will increase the cost of these products by requiring the product manufacturer to obtain testing through a testing laboratory and third-party certification. The increase in cost is offset by the benefits to public health and safety of products that conform to product safety and performance standards resulting in a reduction of harm to users.

E127-24 Part II

Public Hearing Results (CAH1)

Committee Action: **As Submitted**

Committee Reason: The committee agreed with the published reason statement. (Vote: 10-3)

E127-24 Part II