



International Code Council

ICC 300-2017 edition Public Input Agenda based on input received On the 2012 edition of the ICC 300 standard

**For June 2017
Meeting - Teleconference**

2012 ICC 300 Standard Revision Proposals

IS-BLE 01-17 **ICC 300 Title Page**

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise standard title as follows:

ICC 300-2012 Standard for on Bleachers, Folding and Telescopic Seating, and Grandstands

Reason: The remainder of the document uses “on” at the bottom of the pages. IBC Chapter 35 uses “on” also.

Staff Note: Titles are considered editorial and determined by ICC Staff. This committee can recommend that staff consider revising the title.

IS-BLE 02-17
ICC 300 Section 202

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Add new text as follows:

202 DEFINED TERMS

ALTERATION. Any construction or renovation to an existing structure other than repair or addition.

Reason: Adding this definition is helpful in clarifying the requirements of 501.4. The text is taken from IBC 2015.

IS-BLE 03-17
ICC 300 Table 303.2

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise as follows:

SECTION 303
STRUCTURAL DESIGN

TABLE 303.2
DESIGN LOADS

TIERED SEATING ELEMENT	LOAD TYPE	LOAD
Seats (vertical)	L	120 pounds per linear foot.
Treads	L	Stair treads and aisle stair treads shall be designed to resist a minimum concentrated load of 300 pounds on an area of 4 square inches.
Handrails and guards, uniform load	R _r	Handrail assemblies and guards shall be designed to resist a load of 50 pounds per linear foot (pound per foot) applied in any direction at the top. The supporting elements shall transfer this load to the structure.
Handrails and guards, concentrated load	R _r	Handrail assemblies and guards shall be able to resist a single concentrated load of 200 pounds, applied in any direction at any direction <u>point</u> along the top. Attachment devices and supporting elements shall transfer this load to the structure.
Guards, infill components	R _r	Intermediate rails (all those except the handrail), balusters, and panel fillers (including flexible infill components) shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot, including openings and space between rails. Application of the loads shall not allow guard openings greater than that permitted by Sections 408.2 and 503.2.

For SI: 1 square inch = 645.46 mm², 1 square foot = 0.0929 m², 1 pound = 4.448 N, 1 pound per linear foot = 14.594 N/m.

Reason: This proposal corrects a typo. See 2015 IBC 1607.8.1.1 and ASCE 7-10 Section 4.5.1.

IS-BLE 04-17

ICC 300 Section 303.5

Proponent: Steven Madden, representing Irwin Seating Company - Telescopic Division

Revise as follows:

SECTION 303 STRUCTURAL DESIGN

303.5 Load Combinations. In addition to the load combinations required to be considered for design in accordance with the building code, the additional load combinations in Section 303.5.1 or in Section 303.5.2 shall be considered. Parallel and perpendicular sway loads need not be considered simultaneously. Also uniform, concentrated and infill loads need not be considered simultaneously. Partial loading shall be addressed to account for the full intensity of the appropriately reduced live load applied only to a portion of a structure or member if it produces a more unfavorable load effect than the same intensity applied over the full structure or member.

Reason: The purpose of this addition is to clarify the calculation requirements for bleachers, folding and telescopic seating, and grandstands. The current standard does not clearly identify that partial loading calculations are required when designing bleachers, folding and telescopic seating, and grandstands. ASCE 7-10 states that partial loading is a requirement, but this is not carried into ICC 300.

There are instances where the loading would not be uniform. Figure 1 shows the typical design of bleachers and how the components are connected. The first instance of non-uniform loading would be end aisle conditions as Figure 2 shows. During loading or unloading of the bleachers the load would be concentrated at the cantilevered portion of the beams. The second instance of non-uniform loading would be a center aisle condition as shown in Figure 3. During loading or unloading of the bleachers the load would be concentrated at the mid span of the beam causing an increase in the axial load of the bracing.

Deck with uniform Live



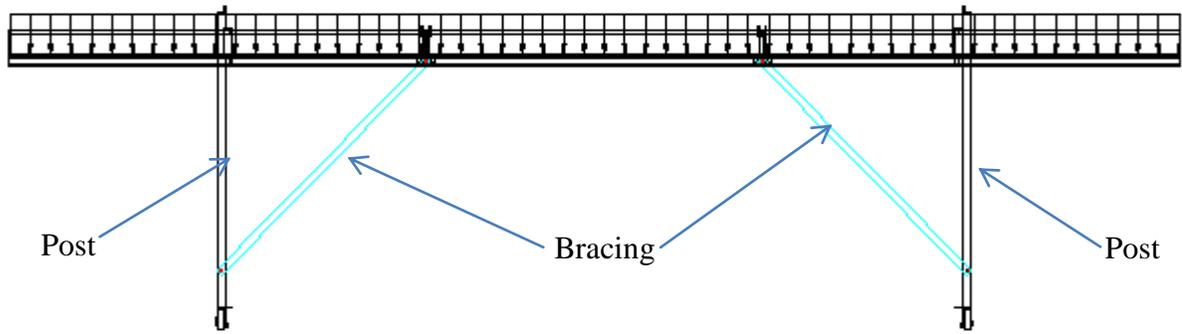
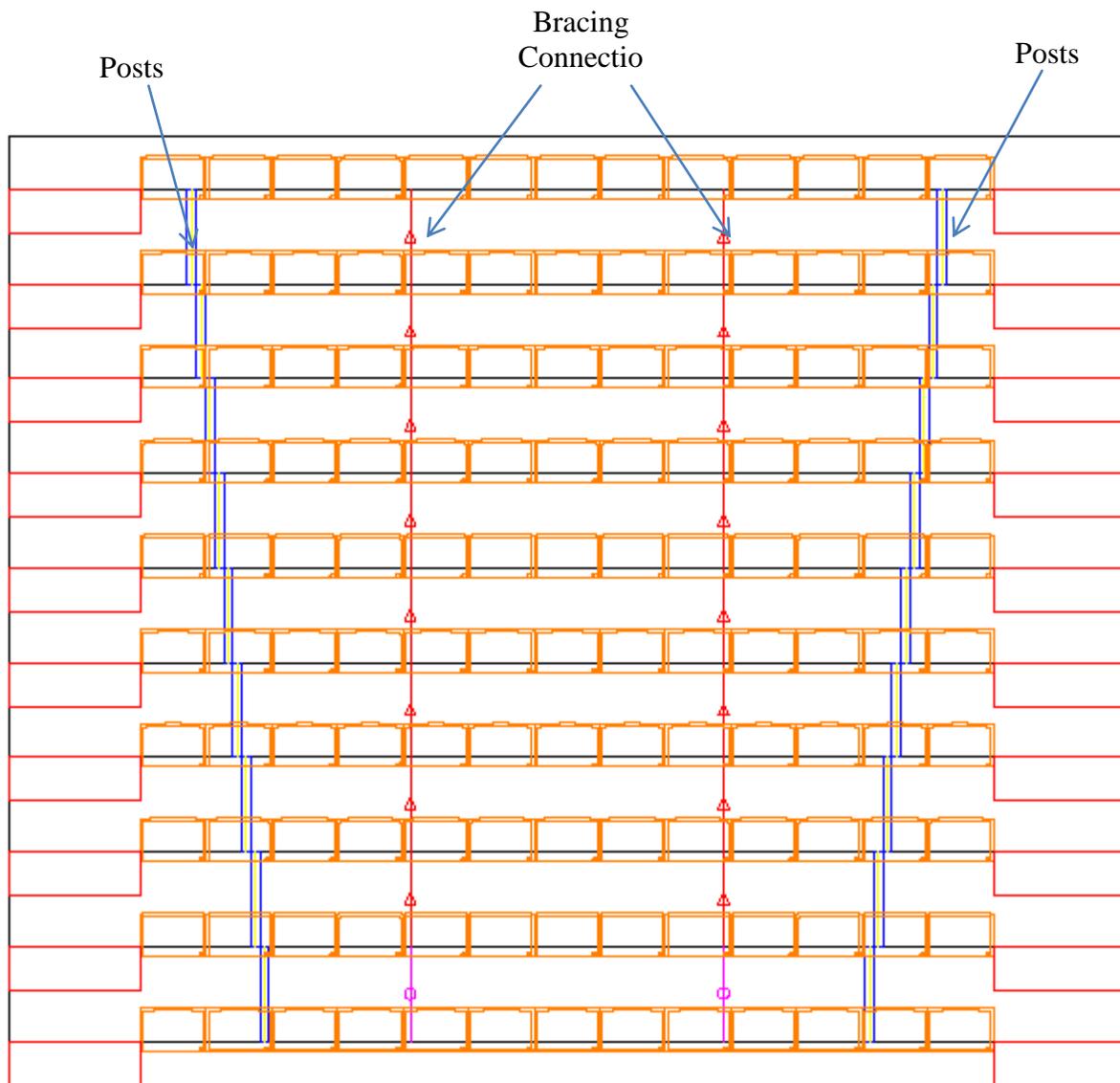


Figure 1 – Uniform Loading of Type.



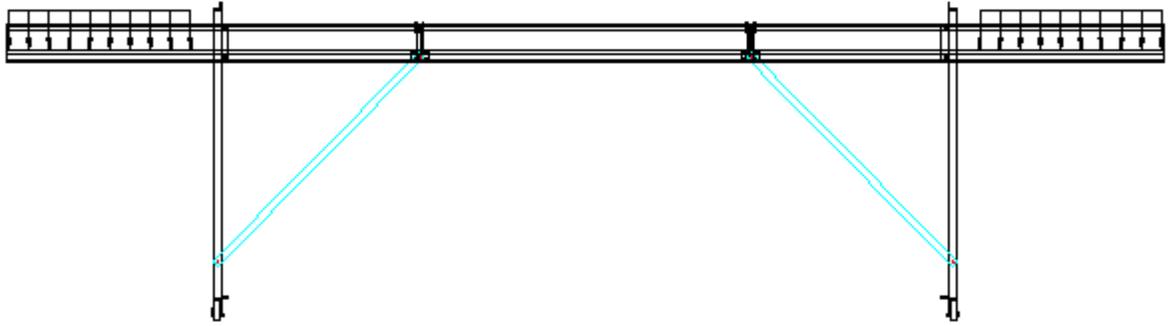
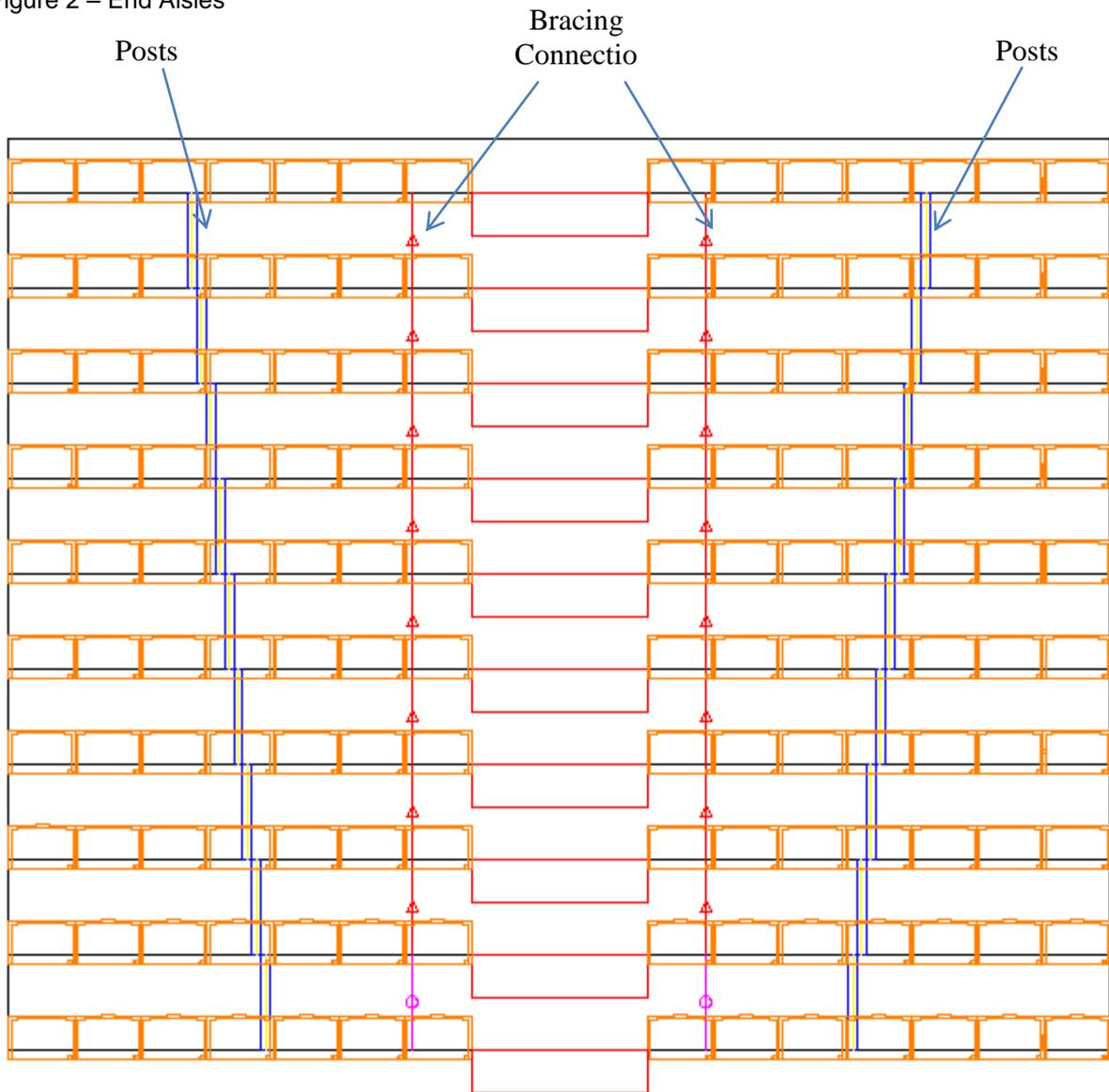


Figure 2 – End Aisles



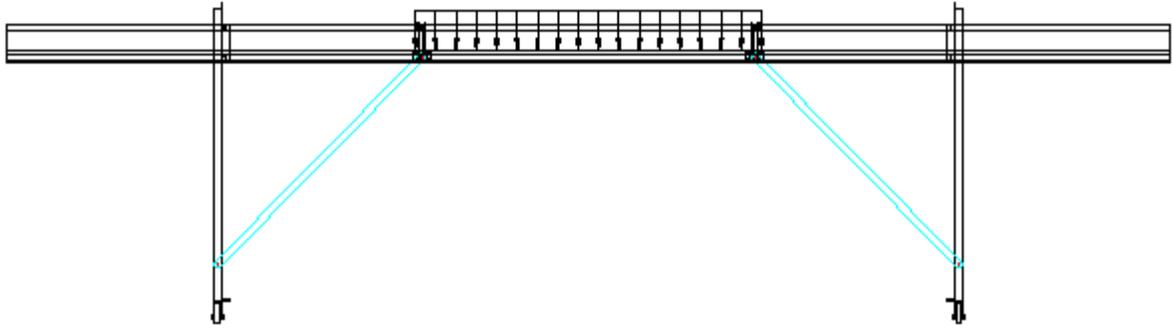


Figure 3 – Center Aisle

Bibliography: American Society of Civil Engineers (ASCE). (2013). "Live Loads." Minimum Design Loads for Buildings and Other Structures, ASCE 7-10 Third Printing, Reston Virginia, 11

IS-BLE 05-17

ICC 300 Section 303.5

Proponent: Steven Madden, representing Irwin Seating Company - Telescopic Division

Revise as follows:

SECTION 303 STRUCTURAL DESIGN

303.5 Load Combinations. In addition to the load combinations required to be considered for design in accordance with the building code, the additional load combinations in Section 303.5.1 or in Section 303.5.2 shall be considered. Parallel and perpendicular sway loads need not be considered simultaneously. Also uniform, concentrated and infill loads need not be considered simultaneously. Load combinations to account for the full intensity of the appropriately reduced live load applied only to a portion of a structure or member need not to be considered except as noted in section 303.5.1 and 303.5.2.

Reason: The purpose of this addition is to clarify the calculation requirements for bleachers, folding and telescopic seating, and grandstands. The current standard does not clearly identify that partial loading calculations are not required when designing bleachers, folding and telescopic seating, and grandstands. ASCE 7-10 states that partial loading is a requirement, but this is not carried into ICC 300. By adding the statement to the code it clarifies that it has been considered and deemed not necessary.

Bibliography: American Society of Civil Engineers (ASCE). (2013). "Live Loads." Minimum Design Loads for Buildings and Other Structures, ASCE 7-10 Third Printing, Reston Virginia, 11

IS-BLE 06-17

ICC 300 Section 303.7.1 (New)

Proponent: Gregory E Nelson, representing BR Bleachers, Co.

Revise as follows:

SECTION 303 STRUCTURAL DESIGN

303.7 Foundations. A foundation, designed to support all loads, shall be provided as required by the building code.

Exception: Outdoor installations that are directly supported on the ground that is adequate to support the superimposed loads.

303.7.1 Anchoring. Provide anchoring for outdoor seating on permanent or temporary bleachers to resist overturning in wind gusts and storms. Resistance of the anchoring should be a minimum equal to the weight of the structure with full load capacity and evenly distributed to anchor near all four corners of the bleacher framework, with equal anchoring a regular intervals the length of the bleacher, if over 30' long (9145mm).

Reason: Requires owners to secure potentially hazardous, injurious, and damaging unsecured stands. Numerous incidents of losses of seating and other property damage, as well as potential personal injury risks, occur each year from unsecured bleachers. Anchoring systems exist for all forms of installations, both permanent and temporary (portable), and are relatively inexpensive.

See the images below for storm damage due to unanchored stands unsecured multiple stands.



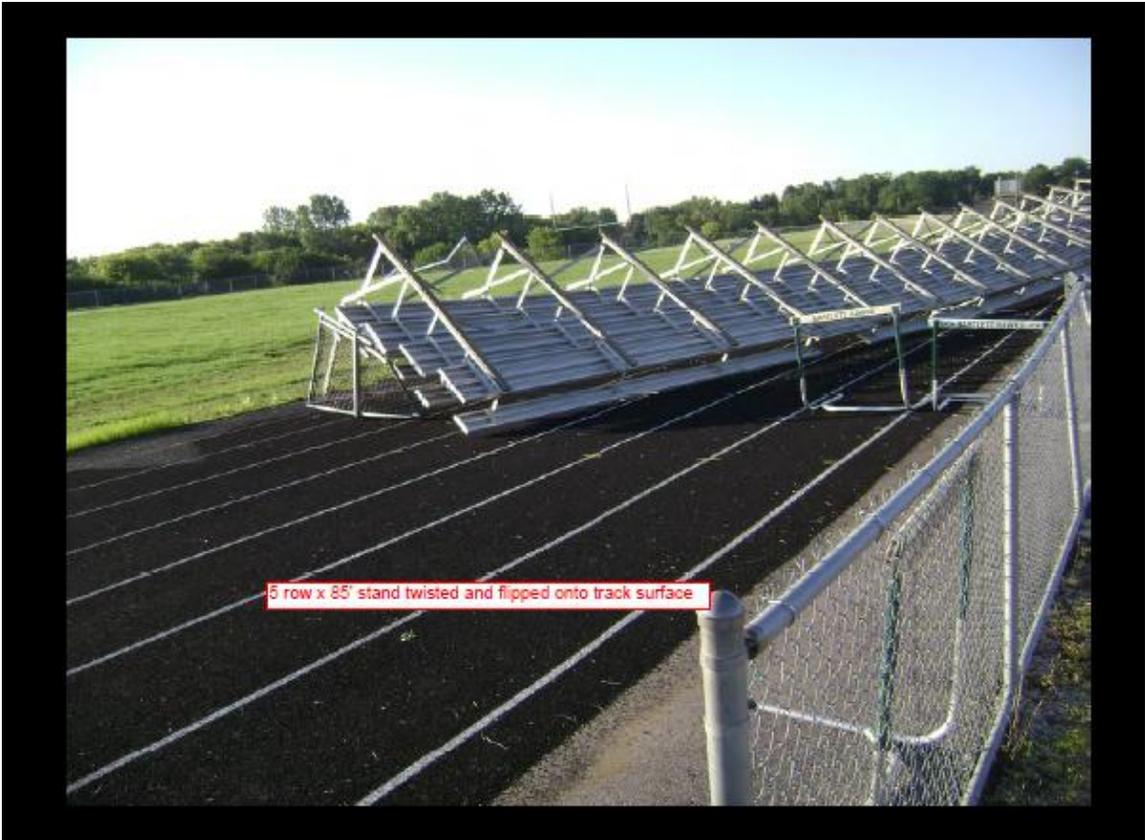
Mudsill, unanchored 10 row x 27' stand blown half off slab, other identical stand blown over and destroyed itself and backstop fence



Mudsill stand blown off concrete slab foundation



Fence post stubs from destroyed fence backstop













IS-BLE 07-17

ICC 300 Section 309.1

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise as follows:

SECTION 309 FIRE PROTECTION

309.1 Fire protection. Fire protection systems shall be provided where required by the building code.

Exceptions:

1. An emergency voice/alarm system is not required for outdoor bleacher-type seating provided all of the following are met:
 - 1.1. The bleacher-type seating has an occupant load of less than 15,000;
 - 1.2. A public address system with standby power is provided;
 - 1.3. Enclosed spaces attached or immediately adjacent to the bleacher-type seating comprise, in the aggregate, 10% or less of the overall area of the bleacher-type seating or 1,000 square feet (92.9 square meters), whichever is less.
 - 1.4. Spaces under the bleacher-type seating shall be separated from the bleacher-type seating in accordance with ~~Section 1028.1.1.1~~ the assembly requirements within Chapter 10 of the International Building Code.
 - 1.5. All means of egress from the bleacher-type seating are open to the outside.
2. An emergency voice/alarm system is not required for outdoor bleacher-type seating with an occupant load of 300 or less.
3. An emergency voice/alarm system is not required for temporary outdoor bleacher-type seating providing all of the following are met:
 - 3.1. There are no enclosed spaces under or attached to the bleacher-type seating;
 - 3.2. The bleacher-type seating is erected for a period of less than 180 days;
 - 3.2. Evacuation of the bleacher-type seating is included in an approved fire safety plan.

Reason: Section 1028.1.1.1 in the 2012 IBC is 1029.1.1.1 in the 2015 IBC. This change avoids possible revision requirements in the future.

IS-BLE 08-17

ICC 300 Sections 310.1, 404.1 and 404.3

Proponent: Ed Roether, representing Ed Roether Consulting

Revise as follows:

SECTION 310 ACCESSIBILITY

310.1 Accessibility. Tiered seating shall be accessible as required by the building code. Accessible means of egress shall be provided as required by the building code.

SECTION 404 GENERAL MEANS OF EGRESS

404.1 Minimum number of exits. The minimum number of exits shall be provided from the seating area based on the following occupant loads and in accordance with the calculated width requirement for egress capacity in Section 404.5. Accessible means of egress shall be provided as required by the building code.

OCCUPANT LOAD	REQUIRED MEANS OF EGRESS
0-250	1
251-750	2
751-2,500	3
Over 2,500	4

404.2 Room or space means of egress. Rooms or spaces in which tiered seating is located shall be provided with the required means of egress in accordance with the building code.

404.3 Exterior installations. For exterior installations where the means of egress converge on the grade level, a minimum of two egress paths shall be provided, sized to accommodate the occupant load served. Where the exit discharge does not lead directly to a street or public way, it shall lead to an area of refuge sized to contain the full capacity and located a minimum of 50 feet (15 240 mm) from the structure.

Reason: There are two concerns regarding means of egress. Was it the intent to allow for 404.3 to override the number of means of egress required in 404.1? Or was it meant to allow for paths to converge after the occupants had left the bleacher seating.

There is also the concern about accessible means of egress. The building code allows for assembly seating to use the common path of travel to determine if the seating needs one or two accessible means of egress from a room or level. There is some interpretation that the bleacher seating only needs one way to the accessible seating and only the room needs the two accessible means of egress. This is a problem on very long bleachers.

IS-BLE 09-17
ICC Section 404.6 (New)

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise as follows:

SECTION 404
GENERAL MEANS OF EGRESS

404.6 Clear height. The clear height of aisle accessways, aisles and portions of the means of egress system shall be a minimum of 80 inches (2032 mm).

Reason: This text is a copy of section 306.1. It is an egress provision and belongs in chapter 4.

IS-BLE 10-17

ICC 300 Sections 404.1, 404.5, Table 404.5(1), Table 404.5(2), Table 404.5(3), Section 405.1 and 407.4.2

Proponent: Ed Roether, representing Ed Roether Consulting

Revise as follows:

SECTION 404 GENERAL MEANS OF EGRESS

404.1 Minimum number of exits. The minimum number of exits shall be provided from the seating area based on the following occupant loads and in accordance with the calculated width capacity requirement for egress capacity in Section 404.5.

OCCUPANT LOAD	REQUIRED MEANS OF EGRESS
0-250	1
251-750	2
751-2,500	3
Over 2,500	4

404.5 Required width capacity. The clear width capacity of aisles and other means of egress for indoor smoke-protected assembly seating shall not be less than the occupant load served by the egress elements multiplied by the appropriate factor in Table 404.5(1). The clear width capacity of aisles and other means of egress for indoor assembly seating that is not smoke protected shall not be less than the occupant load served by the egress elements multiplied by the appropriate factor in Table 404.5(2). The clear width capacity of aisles and other means of egress for outdoor smoke-protected assembly seating shall not be less than the occupant load served by the egress elements multiplied by the appropriate factor in Table 404.5(3). The total number of seats specified shall be those within the space exposed to the same environment. Aisles shall also comply with Section 405.

**TABLE 404.5(1)
WIDTH CAPACITY OF AISLES AND MEANS OF EGRESS FOR INDOOR
SMOKE-PROTECTED ASSEMBLY SEATING**

TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR <u>WIDTH CAPACITY</u> PER SEAT SERVED			
	Stairs and aisle steps with handrails within 30 inches	Stairs and aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than in 1:10 slope	Ramps steeper than in 1:10 slope

Equal to or less than 5,000	0.200	0.250	0.150	0.165
10,000	0.130	0.163	0.100	0.110
15,000	0.096	0.120	0.070	0.077
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.060	0.075	0.044	0.048

For SI: 1 inch = 25.4 mm.

Note: Interpolation is permitted between specific values shown.

**TABLE 404.5(2)
WIDTH CAPACITY OF AISLES AND MEANS OF EGRESS
FOR INDOOR NONSMOKE-PROTECTED ASSEMBLY SEATING**

TOTAL NUMBER OF SEATS IN THE NONSMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH CAPACITY PER SEAT SERVED			
	Stairs and aisle steps with handrails within 30 inches	Stairs and aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than in 1:10 slope	Ramps steeper than in 1:10 slope
All seating configurations	0.3	0.375	0.2	0.22

For SI: 1 inch = 25.4 mm.

Note: The values in the table are applicable to steps with riser heights of 7 inches and below. Add 0.005 inch of additional stair width for each occupant for each additional 0.10 inch of riser height above 7 inches.

**TABLE 404.5(3)
WIDTH CAPACITY OF AISLES AND MEANS OF EGRESS FOR OUTDOOR
SMOKE-PROTECTED ASSEMBLY SEATING**

TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH CAPACITY PER SEAT SERVED			
	Stairs and aisle steps with handrails within 30 inches	Stairs and aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than in 1:10 slope	Ramps steeper than in 1:10 slope
Equal to or less than 15,000	0.080	0.080	0.060	0.066
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.060	0.075	0.044	0.048

For SI: 1 inch = 25.4 mm.

Note: Interpolation is permitted between specific values shown.

SECTION 405 AISLES

405.1 Aisles. The minimum ~~width~~ capacity in inches of aisles shall be in accordance with Section 404.5, but not less than that required by this section. An aisle is not required in seating facilities where all of the following conditions exist.

1. Seats are without backrests.
2. The rise from row to row does not exceed 6 inches (152 mm) per row.
3. The row spacing does not exceed 28 inches (711 mm) unless the seatboards and footboards are at the same elevation.
4. The number of rows does not exceed 16 rows in height.
5. The first seating board is not more than 12 inches (305 mm) above the ground or floor below or a cross aisle.
6. Seatboards have a continuous flat surface.
7. Seatboards provide a walking surface with a minimum width of 11 inches (279 mm).
8. Egress from seating is not restricted by rails, guards or other obstructions.

SECTION 407 AISLE ACCESSWAYS

407.4.2 Path through adjacent rows. Where one of the two paths of travel is across the aisle through a row of seats to another aisle, there shall not be more than 24 seats between the two aisles; and the minimum clear width between rows for the row between the two aisles shall be 12 inches (305 mm) plus 0.6 inch (15.2 mm) capacity for each additional seat beyond seven where seats have backrests or beyond ten where seats are without backrests in the row between aisles.

Exception: For smoke-protected assembly seating there shall not be more than 40 seats between the two aisles and the minimum clear width shall be 12 inches (305 mm) plus 0.3 inch (7.6 mm) capacity for each additional seat beyond seven where seats have backrests or beyond ten where seats are without backrests in the row between aisles.

Reason: The text shows where 'width' is used the ICC 300. The 2015 IBC uses the term 'capacity' instead of width when determining the required width for aisles and aisle accessways.

IS-BLE 11-17

ICC 300 Section 404.5.1, and Tables 404.5(1), 404.5(2), and 404.5(3)

Proponent: Ed Roether, representing Ed Roether Consulting

Revise as follows:

SECTION 404 GENERAL MEANS OF EGRESS

404.5 Required width. The clear width of aisles and other means of egress for indoor smoke-protected assembly seating shall not be less than the occupant load served by the egress elements multiplied by the appropriate factor in Table 404.5(1). The clear width of aisles and other means of egress for indoor assembly seating that is not smoke protected shall not be less than the occupant load served by the egress elements multiplied by the appropriate factor in Table 404.5(2). The clear width of aisles and other means of egress for outdoor smoke-protected assembly seating shall not be less than the occupant load served by the egress elements multiplied by the appropriate factor in Table 404.5(3). The total number of seats specified shall be those within the space exposed to the same environment. Aisles shall also comply with Section 405.

**TABLE 404.5(1)
WIDTH OF AISLES AND MEANS OF EGRESS FOR INDOOR SMOKE-
PROTECTED ASSEMBLY SEATING**

TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	Stairs and aisle steps with handrails within 30 inches	Stairs and aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than in 1:10 slope	Ramps steeper than in 1:10 slope
Equal to or less than 5,000	0.200	0.250	0.150	0.165
10,000	0.130	0.163	0.100	0.110
15,000	0.096	0.120	0.070	0.077
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.060	0.075	0.044	0.048

For SI: 1 inch = 25.4 mm.

Notes:

1. Interpolation is permitted between specific values shown.

2. Such width for each occupant shall be provided on those portions of the stepped aisle having no handrail within a horizontal distance of 30 inches (762 mm).

**TABLE 404.5(2)
WIDTH OF AISLES AND MEANS OF EGRESS
FOR INDOOR NONSMOKE-PROTECTED ASSEMBLY SEATING**

TOTAL NUMBER OF SEATS IN THE NONSMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	Stairs and aisle steps with handrails within 30 inches	Stairs and aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than in 1:10 slope	Ramps steeper than in 1:10 slope
All seating configurations	0.3	0.375	0.2	0.22

For SI: 1 inch = 25.4 mm.

Notes:

1. The values in the table are applicable to steps with riser heights of 7 inches and below. Add 0.005 inch of additional stair width for each occupant for each additional 0.10 inch of riser height above 7 inches.

2. Such width for each occupant shall be provided on those portions of the stepped aisle having no handrail within a horizontal distance of 30 inches (762 mm).

**TABLE 404.5(3)
WIDTH OF AISLES AND MEANS OF EGRESS FOR OUTDOOR SMOKE-PROTECTED ASSEMBLY SEATING**

TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	Stairs and aisle steps with handrails within 30 inches	Stairs and aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than in 1:10 slope	Ramps steeper than in 1:10 slope
Equal to or less than 15,000	0.080	0.080	0.060	0.066
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.060	0.075	0.044	0.048

For SI: 1 inch = 25.4 mm.

Notes:

1. Interpolation is permitted between specific values shown.

2. Such width for each occupant shall be provided on those portions of the stepped aisle having no handrail within a horizontal distance of 30 inches (762 mm).

404.5.1 Measurement. The clear width of aisles and other means of egress shall be measured to walls, edges of seating and tread edges except for permitted projections. There shall be no obstructions in the required width of aisles except for handrails as provided in Section 409.7.

Reason: The following is in difference between 2018 IBC and ICC 300. The question is if this is intentional or it should be coordinated.

For Table 404.5(2) and 404.5(3) uses 1:10 while the IBC 1029.6.1 Item 4 and 1029.6.3 uses 1:12 slope for without smoke control and outdoor smoke-protected. (IBC does use 1:10 for the Table 1029.6.2 for interior smoke protected seating).

IBC 1029.6.1 Item 3 used the phrase "portion of the stepped aisle" rather than using this number for the entire aisle.

ICC300 leaves out the word PORTION. Is that meant to imply that the ENTIRE aisle is calculated at the higher factor when there are portions of the aisle more than 30" away from the handrail.

For example: If I have a 72" wide aisle with a center hand rail, the center 60" of the aisle is within 30" each side of the handrail and the remaining 12" is more than 30" from the handrail. So do I calculate the capacity of the aisle as $60"/0.3" + 12"/0.375" = 200+32 = 232$ people using the aisle? This is how I would interpret the 1028.6 requirement. The ICC standard is not that clear to me. Since the handrail is not within 30" at every point within the aisle. Is the standard requiring the calculation to use the entire aisle width for the calculation: $72"/0.375"=192$ people served by the aisle or is the previous calculation valid for ICC and IBC?

1029.6.1 Without smoke protection. The required capacity in inches (mm) of the *aisles* for assembly seating without smoke protection shall be not less than the *occupant load* served by the egress element in accordance with all of the following, as applicable:

1. to 2. (not applicable)

3. Where egress requires stepped *aisle* descent, not less than 0.075 inch (1.9 mm) of additional *aisle* capacity for each occupant shall be provided on those portions of *aisle* capacity having no *handrail* within a horizontal distance of 30 inches (762 mm).

4. Ramped *aisles*, where slopes are steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have not less than 0.22 inch (5.6 mm) of clear *aisle* capacity for each occupant served. Level or ramped *aisles*, where slopes are not steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have not less than 0.20 inch (5.1 mm) of clear *aisle* capacity for each occupant served.

1029.6.3 Outdoor smoke-protected assembly seating. The required capacity in inches (mm) of *aisles* shall be not less than the total *occupant load* served by the egress element multiplied by 0.08 (2.0 mm) where egress is by stepped *aisle* and multiplied by 0.06 (1.52 mm) where egress is by level *aisles* and ramped *aisles*.

Exception: The required capacity in inches (mm) of *aisles* shall be permitted to comply with Section 1029.6.2 for the number of seats in the outdoor *smokeprotected assembly seating* where Section 1029.6.2 permits less capacity.

IS-BLE 12-17

ICC 300 Tables 404.5(1), 404.5(2), and 404.5(3), Sections 405.2, 406.1 (New) 406.1 and 406.6

Proponent: Ed Roether, representing Ed Roether Consulting

Revise as follows:

SECTION 404 GENERAL MEANS OF EGRESS

**TABLE 404.5(1)
WIDTH OF AISLES AND MEANS OF EGRESS FOR INDOOR SMOKE-
PROTECTED ASSEMBLY SEATING**

TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	Stairs and aisle <u>steps stepped</u> aisles with handrails within 30 inches	Stairs and aisle <u>steps stepped</u> aisles without handrails within 30 inches	Passageways, doorways and ramps not steeper than in 1:10 slope	Ramps steeper than in 1:10 slope
Equal to or less than 5,000	0.200	0.250	0.150	0.165
10,000	0.130	0.163	0.100	0.110
15,000	0.096	0.120	0.070	0.077
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.060	0.075	0.044	0.048

For SI: 1 inch = 25.4 mm.

Note:

Interpolation is permitted between specific values shown.

**TABLE 404.5(2)
WIDTH OF AISLES AND MEANS OF EGRESS
FOR INDOOR NONSMOKE-PROTECTED ASSEMBLY SEATING**

TOTAL NUMBER OF SEATS IN THE NONSMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	Stairs and aisle <u>steps stepped</u> aisles with handrails within 30 inches	Stairs aisle <u>steps stepped</u> aisles without handrails within 30 inches	Passageways, doorways and ramps not steeper than in 1:10 slope	Ramps steeper than in 1:10 slope

All seating configurations	0.3	0.375	0.2	0.22
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For SI: 1 inch = 25.4 mm.

Note:

The values in the table are applicable to steps with riser heights of 7 inches and below. Add 0.005 inch of additional stair and stepped aisle width for each occupant for each additional 0.10 inch of riser height above 7 inches.

TABLE 404.5(3)
WIDTH OF AISLES AND MEANS OF EGRESS FOR OUTDOOR SMOKE-PROTECTED ASSEMBLY SEATING

TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	Stairs and aisle <u>steps stepped aisles</u> with handrails within 30 inches	Stairs and aisle <u>steps stepped aisles</u> without handrails within 30 inches	Passageways, doorways and ramps not steeper than in 1:10 slope	Ramps steeper than in 1:10 slope
Equal to or less than 15,000	0.080	0.080	0.060	0.066
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.060	0.075	0.044	0.048

For SI: 1 inch = 25.4 mm.

Note:

Interpolation is permitted between specific values shown.

405.2 Minimum aisle width. The minimum clear width of aisles shall be as follows.

- Forty-eight inches (1219 mm) for ~~aisle stairs~~ stepped aisles having seating on each side.

Exception: Thirty-six inches (914 mm) where the aisle serves less than 50 seats.

- Thirty-six inches (914 mm) for ~~aisle stairs~~ stepped aisles having seating on only one side.

Exception: Twenty-three inches (584 mm) between an aisle stair handrail and seating where an aisle does not serve more than five rows on one side.

- Twenty-three inches (584 mm) between an ~~aisle stairs~~ stepped aisles handrail or guard and seating where the aisle has a mid-aisle handrail.

- Forty-two inches (1067 mm) for level or ramped aisles having seating on both sides.

Exceptions:

1. Thirty-six inches (914 mm) where the aisle serves less than 50 seats.
2. Thirty inches (762 mm) where the aisle does not serve more than 14 seats.
5. Thirty-six inches (914 mm) for level or ramped aisles having seating on only one side.

Exception: Thirty inches (762 mm) where the aisle does not serve more than 14 seats.

**SECTION 406
AISLE STAIRS**

406.1 Stairs. Stair treads and risers shall be as required by the building code.

Exception: A stair that connects a stepped aisle to a cross aisle shall be permitted to comply with the stepped aisle requirements of Sections 406.2 through 406.7.

406.1 406.2 Treads and risers. Aisle stairs stepped aisles shall consist of a series of treads and risers that extend across the full width of the aisle. Aisle stairs shall be constructed in accordance with the requirements of this section.

406.6 406.7 Dimensional uniformity. Stair stepped aisle treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser or between the largest and smallest tread shall not exceed 0.375 inch (9.5 mm) in any flight of stairs.

Exception: Treads and risers in transition areas and parabolic seating configurations in accordance with Section 406.6.1.

(renumber subsequent sections)

Reason: The 2015 IBC changed stairs and aisle steps to stepped aisles to avoid confusion with stairways between floors or leading from balconies. Section 402.1 states that stairways leading from the bleacher system to grade are part of the means of egress for the bleacher. The tables in 404.5 provide width criteria for the stairways. The new section 406.1 would allow stairways that were not a direct continuation of a stepped aisle to comply with the IBC for stairways.

IS-BLE 13-17
ICC 300 Section 406.3

Proponent: Ed Roether, representing Ed Roether Consulting

Revise as follows:

SECTION 406
AISLE STAIRS

406.3 Tread construction. Treads constructed of more than two elements shall not have a gap of more than ~~0.25 inch (6.4 mm)~~ 0.50 inch (12.8 mm) between adjacent tread surfaces. Treads constructed of grating shall not permit a sphere of 0.25 inch (6.4 mm) in diameter to pass through.

Reason: The IBC and ICC A117.1 allow for ½” openings for slots and grills. Is there a reason for the ¼”?

IS-BLE 14-17

ICC 300 General

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

General Comment:

SECTION 406 AISLE STAIRS

406.6 Dimensional uniformity. Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser or between the largest and smallest tread shall not exceed 0.375 inch (9.5 mm) in any flight of stairs.

Exception: Treads and risers in transition areas and parabolic seating configurations in accordance with Section 406.6.1.

406.6.1 Tread and riser nonuniformity permitted. Treads and risers located in transition areas between adjacent tiered seating elements, parabolic seating configurations or onto or off of tiered seating are not required to be of uniform depth or height where a mid-aisle handrail is provided. The handrail shall meet the requirements of Section 409. Mid-aisle handrails in transition areas shall extend the full length of the transition and a minimum of one tread depth, parallel to the run of the aisle stairs, above and below the uppermost and lowermost riser in the transition. Where extensions of the aisle handrail interfere with adjacent means of egress, the handrail extension shall terminate at the riser.

406.6.2 Tread marking stripe. Where tread or riser nonuniformity exceeds 0.188 inch (4.8 mm), a distinctive marking stripe shall be provided on each tread adjacent to the non uniform tread or riser. The marking 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 a minimum of 1 inch (25 mm) wide and a maximum of 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.

Comment: As written, it may be interpreted that the contrasting stripe is typically required only at non-uniform treads and risers. I believe the intent is to have the stripes typically with a change in color and/or width of stripe at the non-uniformity. 2015 IBC references are noted.

IS-BLE 15-17

ICC 300 Sections 406.7 (New) and 406.8 (New)

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise as follows:

SECTION 406 AISLE STAIRS

406.7 Transitions. Transitions between *stairways* and stepped *aisles* shall comply with either Section 406.7.1 or 406.7.2.

406.7.1 Transitions to stairways that maintain stepped aisle riser and tread dimensions. Stepped *aisles*, transitions and *stairways* that maintain the stepped aisle riser and tread dimensions shall comply with Section 406 as one *exit access* component.

406.7.2 Transitions to stairways that do not maintain stepped aisle riser and tread dimensions. Transitions between *stairways* and stepped *aisles* having different riser and tread shall comply with Sections 406.7.2.1 through 406.7.3.

406.7.2.1 Stairways and stepped aisles in a straight run. Where *stairways* and stepped aisle are in a straight run-the transition shall have one of the following:

1. A minimum depth of 22 inches (559 mm) where the treads on the descending side of the transition have greater depth.
2. A minimum depth of 30 inches (762 mm) where the treads on the descending side of the transition have lesser depth.

406.7.2.2 Stairways that change direction from stepped aisles. Transitions where the *stairway* changes direction from the stepped *aisle* shall have a minimum depth of 11 inches (280 mm) or the stepped *aisle* tread depth, whichever is greater, between the stepped *aisle* and *stairway*.

406.7.3 Transition marking. A distinctive marking stripe shall be provided at each *nosing* or leading edge adjacent to the transition. Such stripe shall be a minimum of 1 inch (25 mm), and a maximum of 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the stepped *aisle* contrasting marking stripe.

406.8 Stepped aisles at vomitories. Stepped aisles that change direction at vomitories shall comply with 406.8.1. Transitions between a stepped aisle above a vomitory and stepped aisle to the side of vomitory shall comply with 406.8.2.

406.8.1 Stepped aisles that change direction at vomitories. Stepped aisle treads where the stepped aisle changes direction at a vomitory shall have a minimum depth of 11 inches (280 mm) or the stepped aisle tread depth, whichever is greater. The height of a stepped aisle tread above a transition at a vomitory shall comply with Section 406.4.

406.8.2 Stepped aisle transitions at the top of vomitories. Transitions between the stepped aisle above a vomitory and stepped aisles to the side of a vomitory shall have a minimum depth of 11 inches (280mm) or the stepped aisle tread depth, whichever is greater.

Reason: The text of 406.7 is essentially 2015 IBC 1029.10 Transitions with changes per E 135-15 for the 2018 IBC and those necessary for use within ICC 300. I believe this text fills a void in ICC 300. If that void is not filled within ICC 300 the result may be enforcement of IBC at connecting stairs. I believe it is preferable to add this text to ICC 300 in order to avoid confusion. Commentary and diagrams are provided in the 2015 IBC.

The proposed 406.8 is text from E 137-15 for inclusion in the 2018 IBC. It has been renumbered and the step height reference has been changed to the corresponding ICC 300 section.

IS-BLE 16-17

ICC 300 Section 407.2

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise as follows:

SECTION 407 AISLE ACCESSWAYS

407.2 Minimum width. ~~Where seating rows have 14 or fewer seats,~~ The minimum clear aisle accessway width shall not be less than 12 inches (305 mm) measured as the clear horizontal distance from the back of the row ahead and the nearest projection of the row behind. Where chairs have automatic or self-rising seats, the measurement shall be made with seats in the raised position. Where any seat in a row does not have an automatic or self-rising seat, the measurements shall be made with the seat in the down position. For seats with folding tablet arms, row spacing shall be determined with the tablet arm in the use position.

Exception: For seats with folding tablet arms, row spacing is permitted to be determined with the tablet arm in the stored position where the tablet arm when raised manually to a vertical position in one motion automatically returns to the stored position by force of gravity.

Reason: This text is unnecessary and alludes to a situation where the allowable clear aisle accessway width is less than 12 inches.

IS-BLE 17-17

ICC 300 Section 407.1

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise as follows:

SECTION 407 AISLE ACCESSWAYS

407.1 Required aisle accessways. Aisle accessways shall be provided above the first row of seating. Aisle accessways located more than 30 inches (762 mm) above the floor or ground below shall be constructed such that openings shall not allow the passage of a sphere greater than 4 inches (102 mm) in diameter. Where bleacher-type seating is utilized, such seats shall be a minimum depth of 9 inches (229 mm). Row-to-row spacing shall be a minimum of 22 inches (559 mm).

Reason: This provision has been in building codes and standards for decades, but appears to have been overlooked in development of this standard. Without it a 21 inch row spacing would be allowed, being the sum of the 12 inch minimum aisle access and a 9 inch seat. Ref. 2011 NFPA 102 5.5.1 and 6.4.1.

IS-BLE 18-17

ICC 300 Section 407.4.1

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise as follows:

SECTION 407 AISLE ACCESSWAYS

407.4.1 Path of egress travel. For rows of seating served by only one path of egress travel, the common path of egress travel shall not exceed 30 feet (9144 mm) from any seat to a point where a person has a choice of two paths of egress travel to two exits.

Exceptions:

1. In smoke-protected assembly seating, the common path of egress travel shall not exceed 50 feet (15 240 mm) from any seat to a point where a person has a choice of two paths of egress travel to two exits.
2. For areas serving less than 50 occupants, the common path of egress travel shall not exceed 75 feet (22 860 mm) from any seat to a point where a person has a choice of two paths of egress travel to two exits.
3. Where bench-type seating without backrests is utilized and the top of the bench is no more than 7 inches (178 mm) above the footrest immediately behind, the common path of egress travel shall not exceed 75 feet (22 860 mm) from any seat to a point where a person has a choice of two paths of egress travel to two exits.

Reason: Egress in this type of seating is notably easier than in other types. There is minimal hindrance for movement out of one row to another, offering alternate routes for most occupants. Also the full width of the row to row spacing is available for lateral egress by placing one foot on the footrest and the other on the bench. I would note that the 75 foot common path is allowed under exception 2 for less than 50 occupants. In addition Section 405.6 Exception 1 allows a 16 row dead-end aisle. On a typical bleacher with 24 inch horizontal row spacing and 10 inch vertical row spacing, the path of travel on a 16 row aisle is 34 feet 8 inches, well over 30 feet before including travel across the aisle access. In light of these existing allowances, the 75 foot common path is appropriate for this type of seating.

IS-BLE 19-17

ICC 300 Section 408.2

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise as follows:

SECTION 408 GUARDS

408.2 Opening limitations. Open guards shall be constructed of materials such that a 4-inch-diameter (102 mm) sphere cannot pass through any opening up to a height of 34 inches (864 mm). ~~From Above a height of 34 inches (864 mm) to 42 inches (1067 mm) above the adjacent walking surfaces,~~ a sphere 8 inches (203 mm) in diameter shall not pass. The 34 inch (864 mm) height shall be measured vertically from the leading edge of the tread, adjacent walking surface or adjacent bench seat to the lowest point on the sphere.

Exceptions:

1. The triangular opening formed by the riser, tread and bottom rail at the open side of an aisle stair or tiered seating shall be of a maximum size such that a sphere of 6 inches (152 mm) in diameter cannot pass through the opening.
2. Guards at the end of aisles where they terminate at a fascia of boxes, balconies and galleries shall have balusters or ornamental patterns such that a 4-inch-diameter (102 mm) sphere cannot pass through any opening up to a height of 26 inches (660 mm). From a height of 26 inches (660 mm) or greater above the adjacent walking surfaces, a sphere 8 inches (203 mm) in diameter shall not pass.
3. The opening limitation shall not apply to guards required in accordance with Item 2 of Section 408.1.

Reason: This proposal clarifies the “height”. As written, multiple interpretations are possible.

IS-BLE 20-17

ICC 300 Section 408.2

Proponent: Greg Nelson, representing BR Bleachers, Co.

Revise as follows:

SECTION 408 GUARDS

408.2 Opening limitations. Open guards shall be constructed of materials such that a 4-inch-diameter (102 mm) sphere cannot pass through any opening up to a height of 34 inches (864 mm). From a height of 34 inches (864 mm) to 42 inches (1067 mm) above the adjacent walking surfaces, a sphere 8 inches (203 mm) in diameter shall not pass.

Exceptions:

- ~~1. The triangular opening formed by the riser, tread and bottom rail at the open side of an aisle stair or tiered seating shall be of a maximum size such that a sphere of 6 inches (152 mm) in diameter cannot pass through the opening.~~
- 1~~2~~. Guards at the end of aisles where they terminate at a fascia of boxes, balconies and galleries shall have balusters or ornamental patterns such that a 4-inch-diameter (102 mm) sphere cannot pass through any opening up to a height of 26 inches (660 mm). From a height of 26 inches (660 mm) or greater above the adjacent walking surfaces, a sphere 8 inches (203 mm) in diameter shall not pass.
- 2~~3~~. The opening limitation shall not apply to guards required in accordance with Item 2 of Section 408.1.

Reason: This exception is contrary to the safety standards set by the US CPSC by the Public Playground Safety Handbook for head entrapment. A triangular opening that would allow an object just under the size of a 6" sphere to pass does not meet the 3.3.1 Head Entrapment portion of this document and poses a risk for young children. The natural shape of a triangle creates an ever smaller opening at one end of the triangle, posing an additional danger.

IS-BLE 21-17

ICC 300 Section 409.3.1 (New)

Proponent: Greg Nelson, representing BR Bleachers, Co.

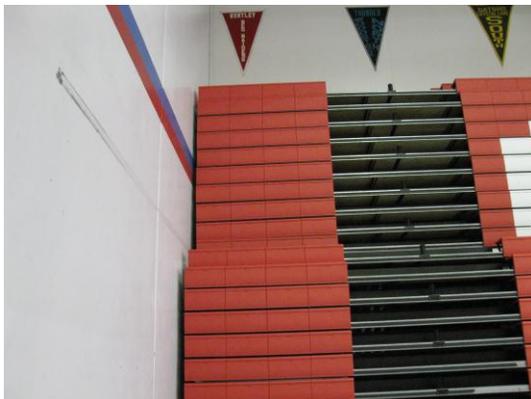
Add new text as follows:

SECTION 409 HANDRAILS

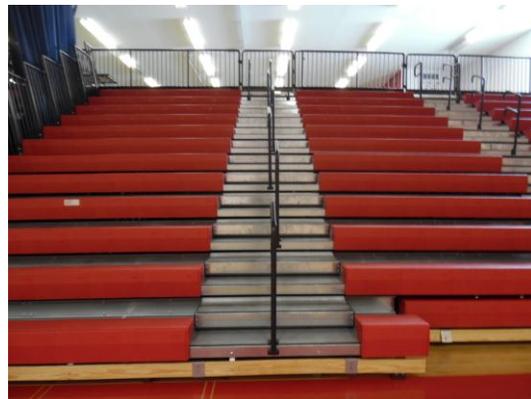
409.3 Graspability. Handrails with a circular cross section shall have an outside diameter of at least 1.25 inches (32 mm) and not greater than 2 inches (51 mm) or shall provide equivalent graspability. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6.25 inches (159 mm) with a maximum cross-section dimension of 2.25 inches (57 mm). Edges shall have a minimum radius of 0.01 inch (3.2 mm).

409.3.1 Reach distance. Handrails reach distance shall not be more than 36" or not less than 22" horizontally from the lateral, leading end edge of the aisle, measured directly above the end of the seating, at the same height of the installed handrail in the adjacent aisle. Aisle handrails shall consistently maintain this dimension* for all the rows served within the aisle. (* tolerance of +/- 3/8" without exceeding the minimum and maximum dimensions)

Reason: Several incidences of extremely wide aisles have been encountered where the distance from the end of the row to the handrail is at an excessive distance outside the normal graspable range as defined by existing code (per 409.1.1 Mid aisle handrails- gaps or breaks between handrails) or the handrails are set at different lateral distances. Different lateral distances (centerline of the rails is not consistent between rails, see image attached) of the rails are an inconsistency that could lead to a tripping and falling incident as the patron would be reaching for an inconsistent handrails location. This suggested addition keeps the handrails within a graspable, consistent distance from the end of the seating entering the aisle, during egress, and exiting the aisle.



8 ft. wide aisle with single line of centered handrails



Unequal lateral position of the aisle handrails

IS-BLE 22-17

ICC 300 Section 501.2.1 (New)

Proponent: Greg Nelson, representing BR Bleachers, Co.

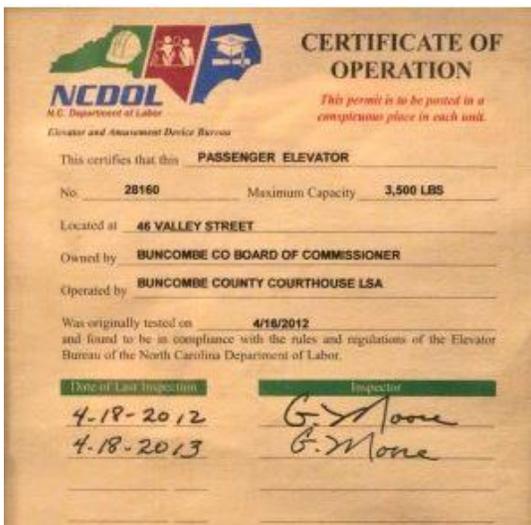
Add new text as follows:

SECTION 501 APPLICATION AND ADMINISTRATION

501.2 Inspection. All existing tiered seating shall be inspected and evaluated at least once a year by a qualified person for compliance with the provisions of this chapter. All folding and telescopic seating shall be inspected to evaluate compliance with the manufacturer's installation and operational instructions, including an inspection during the opening and closing of such seating.

501.2.1 Universal Inspection and Identification tag. Apply a permanent tag or plaque, affixed in a visible and consistent location to provide a place for an annual compliance inspection sticker. Tag or card is to be placed or adhered to show the public using the seating it has been inspected and is in compliance. The permanent portion of the tag or plaque will list manufacturer, date of installation, and designed seating capacity. This system is required to be on all in-use seating with 75 or more seating capacity.

Reason: This system would insure inspection and maintenance compliance and inform the public using the seating that this important safety inspection and maintenance is being performed, similar to the notices in elevators (see attached image), on fire extinguishers, and other equipment.



Elevator inspection

IS-BLE 23-17

ICC 300 Section 501.4

Proponent: Daniel R. Victor, PE, representing INTERKAL, LLC

Revise as follows:

SECTION 501 APPLICATION AND ADMINISTRATION

501.4 Alterations. Alterations to any tiered seating shall conform with the requirements of this standard for new construction. Portions of the structure not altered and not affected by the alteration are not required to comply with the requirements in this standard for a new structure. Only attachments specifically approved by the manufacturer of the tiered seating structure for the specific installation shall be attached to the structure.

Reason: Owners sometimes choose to install new items such as guards, handrails, seats, chairs, footrests, curtains or steps to their existing manufactured tiered seating. If not done properly, these alterations can apply loads to the structure in an unsafe manner and/or compromise egress.

IS-BLE 24-17
ICC 300 Section 502.5 (New)

Proponent: Greg Nelson, representing BR Bleachers, Co.

Revise as follows:

SECTION 502
MAINTENANCE AND REPAIRS

502.5 Operator inspection. Provide adequate ambient or artificial light under a telescopic bleacher so the operator can visually inspect there are no persons, damage, debris, or other objects under the bleacher before and during the operation of the bleachers for safe, uninhibited operation.

Reason: Being able to visibly check under the bleacher is a needed requirement and will reduce potential injuries and damage

IS-BLE 25-17

ICC 300 Section 503.1

Proponent: Greg Nelson, representing BR Bleachers, Co.

Revise as follows:

SECTION 503 GUARDS

503.1 Required guards. Guards shall be provided in the following areas.

1. Along open-sided walking surfaces, cross aisles, stepped aisles, ramps and landings of tiered seating areas which are located more than 30 inches (762 mm) above the floor or grade below. Such existing guards shall be not less than 36 inches (~~4067~~ 914 mm) high, measured vertically above the leading edge of the tread, adjacent walking surface or center of adjacent bench seat.

Exceptions:

1. Where the uppermost seat is located less than or equal to 55 inches (1397 mm) above the floor or ground below.
 2. Where located adjacent to a wall and the space between the wall and the tiered seating is less than 4 inches (102 mm).
 3. If new replacement railing system installed, replacement rail(s) shall comply with 42 inch (1067mm) height as per 408.1.1.
 4. If the bleacher has 75 or more total seats.
2. Unless subject to the requirements of Item 3, a guard with a minimum height of 26 inches (660 mm) shall be provided where the floor or footboard elevation is more than 30 inches (762 mm) above the floor or grade below and the guard would otherwise interfere with the sightlines of immediately adjacent seating.
 3. A guard shall be provided for the full width of the aisle where the foot of the aisle is more than 30 inches (762 mm) above the floor or ground below. The guard shall be a minimum of 36 inches (914 mm) high.

Reason: Corrects the error in the 36 inch equivalent metric height dimension (states 1067mm, should be 914mm) and adds exceptions that if the rail is being replaced, replacement requirement to equal current new construction standards. This is a minor concession since most rail systems are designed to meet the 42 inch height anyway and will offer existing seating owners more safety protection.

IS-BLE 26-17

ICC 300 Section 505.1

Proponent: Greg Nelson, representing BR Bleachers, Co.

Add new text as follows:

SECTION 505 SEATING RELOCATION

505.1 Relocating existing bleachers. Relocating existing bleachers to a new location shall be permitted provided the existing bleacher complies with Sections 303.7, 304, 306, 307, 308 and 310 and Chapter 5.

Exception: Where full compliance with Sections 310.1 and 501.4 is technically infeasible, the relocated existing bleachers shall provide access in compliance with the building code to the maximum extent technically feasible.

505.2 Egress. Provide egress equal to the requirements of Chapter 4 Egress of this standard.

Exceptions:

1. Where the uppermost seat is located less than or equal to 30 inches (1397mm) above the floor or ground below.
2. Where continuous seating has a gross capacity of 75 seats or less
3. Where modifying an existing seating structure to install steps to meet 405.4 of this standard would be impractical or detrimental to the structure to meet the 8" or less rise between steps and/or 11" tread depth restrictions, the seating can comply if level and rise-consistent stepping surfaces and handrails are provided at the top of the seat if the seating has a rise of 12" or less between tiers.

Signage visible to patrons entering the aisle and at the mid point exiting the aisle way(s) must warn patrons of the higher than normal step rise.

Reason: Establish consistent and clear rules for egress on all seating in use by following the new construction seating code already established without requiring new replacement of existing seating when meeting this standard would be impractical. Currently, there is confusion with owners of seating questioning when and where particular codes are required and how it is applied. By making it concise and clear, owners will know they meet or need to meet egress codes, regardless of when the seating was in place. Provides small stand (75 or less seat capacity, equal to stands 4 rows high x 27' or smaller) owners with an exception, as well as facilities where it would be impractical but the safety of handrails and consistent stepping surfaces can be provided.

IS-BLE 27-17

ICC 300 Section 506 (New)

Proponent: Greg Nelson, representing BR Bleachers, Co.

Revise as follows:

SECTION 506 UNDERSTRUCTURE CLOSURE

506.1 Understructure closure. All bleachers more than 6 rows high or 48" above grade, as measured at the top surface of the uppermost seat, shall have a perimeter containment system to restrict unabated access under the seats at the supporting structure.

506.2 Barrier shall extend to within 16" of the top surface of the uppermost seat. Barriers shall have construction that allows visibility under the seating for authorities operating or securing the seating to observe under the structure at all times.

Exception: Barriers are not required to be over 8' tall and the materials used can be solid (non-see through) up to 5' above the grade as long as there is visibility incorporated on barriers 5' or under.

Reason: Restricting access to areas that the general public should not have access to (casually and unrestricted) to reduce vandalism, accidents, and to prevent fouling of the moving components by errant sports equipment by providing a barrier that restricts persons or objects from entering under the bleachers and yet does not restrict operators or security visible access to the operation or open areas under the bleacher. Furthermore, some currently available barrier systems in place at numerous indoor telescopic and outdoor bleachers restrict visibility; This standard would provide the protection needed and maintain secure visibility.